



# CPUX-DS Public Example Test

Version 1.2b EN: 14 April 2021



Published by: UXQB e. V.

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## 1 Preliminary Note

This document contains one example of a complete set of theoretical and practical test questions for the test required to become a “Certified Professional in Usability and User Experience – Advanced Level Designing Solutions” (CPUX-DS). Further information regarding the test procedure for CPUX-DS can be found in the document “Examination Regulations CPUX-DS”. This document can be downloaded at [www.uxqb.org](http://www.uxqb.org).

## 2 Purpose of the Public Test Questions and Exercises

This document is intended for training purposes. It contains a set of 40 public test questions (the theoretical test) and five test exercises (the practical test). These public test questions and exercises are realistic examples of the questions and exercises you will encounter in the CPUX-DS certification test and will give you an idea of the range and level of difficulty you should expect and prepare for. Note that none of the questions or exercises in this document are used for actual certifications. We recommend you study the Curriculum and Glossary along with the instructions in this document before starting this test. This will allow you to use all of the time available to focus on answering the questions.

A total of 40 public test questions for practising the theoretical test may be found in chapter 3; answers are given at the end of the chapter.

Chapter 4 contains five test exercises for the practical test, along with work sheets and answer sheets. The answer sheets contain sample solutions.

## **3 Theoretical Test**

### **3.1 Instructions**

A set of CPUX-DS test questions for the theoretical examination always contains 40 test questions.

You will have 90 minutes to answer the test questions. If the examination is not in your first language, you will get 105 minutes.

No aids such as a computer, notes or textbooks are allowed during the test.

Each test question is multiple-choice with six options to choose from. The number of correct answers – one, two or three – is clearly indicated for each question. Check the options that are correct or that match the curriculum more closely than the other options.

At the end of the certification test, the questions and your answers will be collected by the test team. You are not allowed to take the test questions with you.

In order to pass the theoretical test for the CPUX-DS certificate, you need at least 84 points (70%) out of a maximum of 120 points.

## 3.2 Assessment

For each question, you must decide which of the 6 options must be marked. You will get a total of 3 points if you answer the question correctly (all correct answers are marked and no incorrect answers are marked).

For each incorrect answer that is marked, and for each correct answer that is not marked, the following points are subtracted, up to a minimum point score of 0:

- If the question requires 1 correct answer, 3 points are subtracted for an incorrect answer;
- If the question requires 2 correct answers, 1.5 points are subtracted for an incorrect answer;
- If the question requires 3 correct answers, 1 point is subtracted for an incorrect answer;
- If you mark more answers than are required for a question, 3 points are subtracted

The total score for a single question can never be negative.

**Example 1:** A question requires 3 correct answers. You mark 2 correct answers and 1 incorrect answer. 1 point is subtracted for the unmarked, correct answer, and 1 point is subtracted for the incorrectly marked incorrect answer. You, therefore, receive 1 point.

**Example 2:** A question requires 2 correct answers. You mark 1 correct answer and 1 incorrect answer. 1.5 points are subtracted for the unmarked, correct answer, and 1.5 points are subtracted for the incorrectly marked incorrect answer. You, therefore, receive 0 points (3 points - 1.5 points - 1.5 points).

**Example 3:** A question requires 3 correct answers. You mark 4 or more answers. You are awarded 0 points, regardless of any correct answers you may have marked.

**Example 4:** A question requires 2 correct answers. You only mark 1 correct answer. You receive 1.5 points.

## 3.3 Public Test Questions

A complete set of 40 test questions, to be answered within 90 minutes, begins on the next page.

Question 1                      1 correct choice                      LO 1.1.a (K)

Which one of the following products is NOT a deliverable from the context of use analysis?

- A - User requirement
- B - User group profile
- C - As-is scenario
- D - Task model
- E - Persona
- F - Dialogue step

Question 2                      1 correct choice                      LO 1.1.b (K)

The temperature control in a refrigerator has a range of 1 to 6. The higher the number, the colder the refrigerator. This is the X in the answers below. A small number standing for low cooling power and a high number standing for high cooling power corresponds to the designer's Y in the answers below. Unfortunately, this does not correspond to the Z of the user in the answers below. Tests have shown that users think that the numbers 1 to 6 represent the temperature in degrees Celsius.

Which one of the following allocations of terms (mental model, system image, conceptual model) to the letters X, Y, and Z is correct?

- A - X = Conceptual model, Y = Mental model, Z = System image
- B - X = Conceptual model, Y = System image, Z = Mental model
- C - X = System image, Y = Conceptual model, Z = Mental model
- D - X = System image, Y = Mental model, Z = Conceptual model
- E - X = Mental model, Y = Conceptual model, Z = System image
- F - X = Mental model, Y = System image, Z = Conceptual model

Question 3

1 correct choice

LO 1.2.a (U)

Which one of the described activities is NOT part of the phase, "Designing Solutions"?

- A - Implementing functionality needed to make task objects and executable functions available to the user
- B - Designing the way users perceive the user interface
- C - Naming and structuring the information that must be accessible to the user
- D - Structuring the user interface in views, pages, and screens, as well as determining the interaction sequences
- E - Designing the user interface elements required for interaction in the user interface, by selecting, arranging, combining, and defining the behaviour of user interface elements for all screens, views, and pages
- F - Specifying the dialogue steps necessary for performing tasks using the interactive system in the form of a use scenario

Question 4

1 correct choice

LO 1.4.a (U)

A start-up founder explains their vision for a future product as follows:

"Our product will generate the feeling of being well oriented. Users will never feel uncertain or nervous when using it..."

Which psychological need is addressed by this excerpt?

- A - Autonomy
- B - Meaning
- C - Competence
- D - Security
- E - Stimulation
- F - Relatedness

Question 5      1 correct choice      LO 2.1.a (U)

Which one of the following statements is NOT correct?

- A -When designing dialogues, the designer must take into account both task-related operation and user assistance.
- B -Executable functions include signposts that give the user access to the task objects.
- C -Task objects are specified through their attributes, executable functions, signposts, and the actions they enable.
- D -To support the user in complex tasks during task-related operation, the user interface should provide information that guides the user through the process.
- E -Executable functions are used to create, modify, or gather information about task objects.
- F -System-initiated user guidance, online helpdesk, and user documentation are part of user assistance.

Question 6      1 correct choice      LO 2.1.b (U)

The start-up “Foodverse” has developed an app for managing recipes. After a few weeks, the project team notice that the number of users has dropped significantly and that users are showing the following undesirable behaviours:

- Accessing the FAQ, “Where can I find inspiring recipes?”
- Excessive use of search within the app (where no relevant search results are returned)

Which one problem, introduced during the phase, “Designing Solutions”, probably caused this behaviour and should be fixed as soon as possible?

- A -Users often need time to get used to the interface and only adapt their behaviour to the user interface in the long term.
- B -The prices of in-app purchases are too high.
- C -The system doesn’t support the user goal (finding inspiring recipes).
- D -The designers have not sufficiently documented the design decisions.
- E -The user documentation for the app is not detailed enough.
- F -The team took an agile approach in developing the app.

Question 7

3 correct choices

LO 2.2.a (U)

Over the course of several workshops, Jana and her team determine how users will interact with the new interactive system.

Which three of the following aspects should Jana and her team consider when specifying the dialogue steps in an interaction specification?

- A - The dialogue steps must be derived from the results of a previously performed card sorting session.
- B - The interaction specification must be created for all subtasks of the task model for design.
- C - In addition to the dialogue steps, the interaction specification contains the task model for design and user requirements.
- D - The interaction specification is a table with only two columns: user actions and reactions of the interactive system.
- E - Interaction specifications must always be based on narrative scenarios.
- F - The dialogue steps specified in the interaction specification must fulfil the identified user requirements.



Question 8

1 correct choice

LO 2.2.b (P)

Nina and Uli are involved in the development of an app for video-based medical consulting sessions. Together, they want to define the task model for design as part of an interaction specification. Keeping technically feasible dialogues in mind, they look at the task models from the context of use analysis. Nina notices some subtasks that the user will not have to do in the future, such as sitting in the waiting room at the doctor's office. She deletes these subtasks and adapts the task models for the design. Based on the revised task models and the user requirements, they start to design the user's actions and the system's reactions, judging whether each dialogue step is possible under the given technical framework conditions.

What is the common error Nina and Uli made when creating the interaction specification?

- A - The task models from the context of use analysis do not have to be adapted for creating interaction specifications.
- B - Creating interaction specifications is not a suitable method to create task models for design.
- C - When creating interaction specifications, designers only specify the reactions of the system, and not the actions of the user and the reactions of the system.
- D - Nina and Uli forgot to adapt the persona to the changes made in the task model.
- E - Ideally, restrictions such as those based on technical framework constraints should not be made too early when creating interaction specifications.
- F - At least two users must be involved in the creation of interaction specifications.

**Question 9**      2 correct choices      LO 2.2.c (K)

Which two statements about the different forms of use scenarios are correct?

- A - User journey maps accurately describe all the user actions and all the reactions of the interactive system.
- B - Use scenarios in narrative form are suitable for validation with users and other stakeholders.
- C - Use scenarios should consider possible constraints in the interface design.
- D - Storyboards ensure accessibility of the interactive system for the user.
- E - User journey maps represent a map of the users' tasks that need to be supported in the interactive system.
- F - Storyboards are short-lived work products for the designer's use or for teams' internal iterations in early design.

**Question 10**      1 correct choice      LO 3.1.a (U)

Which one of the answers below gives examples that match the order of the following elements of an information architecture?

task object - executable function - label of signpost

- A - Adjust page margins - document - layout settings
- B - Document - adjust page margins - layout settings
- C - Adjust page margins - layout settings - document
- D - Document - layout settings - adjust page margins
- E - Layout settings - document - adjust page margins
- F - Layout settings - adjust page margins - document

**Question 11**      2 correct choices      LO 3.1.b (K)

Which two types of information CANNOT be used as inputs for the development of an information architecture?

- A - Mental models of users
- B - High-fidelity prototypes
- C - Task objects and executable functions in currently used systems
- D - The content to be presented
- E - Style guides
- F - User group profiles, personas, task models, and use scenarios

Question 12      3 correct choices      LO 3.1.c (U)

What are three common mistakes during the design activity “information architecture”?

- A - Only considering context of use information
- B - Not utilising all methods to gather information for the information architecture
- C - Considering tasks in isolation
- D - Not following the single, correct order of activities when creating the information architecture
- E - Not evaluating the information architecture
- F - Focusing the design on access to task objects instead of selecting, configuring, and combining user interface elements

Question 13      1 correct choice      LO 3.1.d (P)

Which one of the following activities aims to enhance task objects?

- A - Assigning signposts to executable functions, to the task objects
- B - Describing the context of each task object
- C - Determining attributes that the task object contains
- D - Selecting, arranging, and combining user interface elements in the task objects
- E - Visualising detailed interaction sequences in and between task objects
- F - Identifying which user group will mainly work with which task object

Question 14

1 correct choice

LO 3.1.e (U)

In which one of the six alternatives below are the generic terms “navigation structure”, “navigation system”, and “navigation element” assigned correctly?

A - navigation structure = hierarchical structure  
navigation system = breadcrumb  
navigation element = contextual navigation

B - navigation structure = breadcrumb  
navigation system = contextual navigation  
navigation element = hierarchical structure

C - navigation structure = hierarchical structure  
navigation system = contextual navigation  
navigation element = breadcrumb

D - navigation structure = breadcrumb  
navigation system = hierarchical structure  
navigation element = contextual navigation

E - navigation structure = contextual navigation  
navigation system = breadcrumb  
navigation element = hierarchical structure

F - navigation structure = contextual navigation  
navigation system = hierarchical structure  
navigation element = breadcrumb

Question 15

2 correct choices

LO 3.1.f (P)

You have checked the existing information architecture of your application by applying card sorting.

What are the two things you should be aware of when changing the information architecture based on the card sorting results?

- A - You should focus on changing the information architecture and not on changing the navigation structure.
- B - You should ensure that every single deviation detected by the card sorting exercise is changed in the information architecture.
- C - You are only allowed to make changes in your information architecture if the developers agree to it.
- D - You should check the results of card sorting for validity before changing the information architecture.
- E - You should check that user and other stakeholders' goals are compatible with the suggested changes.
- F - You should only change the terms within the navigation and not the structure. Users usually don't know how to specify an information architecture correctly.

Question 16

3 correct choices

LO 3.1.g (U)

Which three of the following statements about similarities and differences between card sorting and tree testing are correct?

- A - Both card sorting and tree testing can be used for checking already existing menu structures.
- B - Both card sorting and tree testing can be conducted through analogous (for example, based on paper cards) or digital methods.
- C - Both card sorting and tree testing make visible possible detours that a user may take when navigating through a menu structure.
- D - Unlike tree testing, card sorting allows the user to find their own names for categories.
- E - Both card sorting and tree testing are bottom-up methods.
- F - Both card sorting and tree testing can take an open and a closed approach.

Question 17      3 correct choices      LO 3.2.a (K)

Which three of the following sub-activities are part of interaction design?

- A - Defining task-related interaction sequences
- B - Selecting suitable colours, fonts, and distance sizes
- C - Visualising interaction sequences
- D - Identifying task objects
- E - Selecting and adapting the appropriate user interface elements
- F - Structuring the user interface and its required views

Question 18      2 correct choices      LO 3.2.b (U)

Which two statements about defining interaction sequences and creating the user interface structure are NOT correct?

- A - The designer should always create as few views as possible.
- B - Defined interaction sequences must be visualised.
- C - The designer should focus on the logical sequence of views for an effective and efficient interaction through the necessary dialogue steps.
- D - One view should not represent more than one task object.
- E - The sum of all views and connection paths makes up the user interface structure.
- F - The designer uses placeholders that represent task objects when creating the user interface structure.

Question 19      1 correct choice      LO 3.3.a (U)

Which one of the following statements about wireframes and wireflows is correct?

- A - Wireframes and wireflows both show the user's workflow through the future design solution.
- B - Wireframes and wireflows are the basis for low-fidelity prototypes.
- C - Unlike wireflows, wireframes show the user's workflow through the future design solution.
- D - Wireflows and wireframes are both forms of high-fidelity-prototypes.
- E - Wireframes are used during the "Refined Design" phase while wireflows are created during the "First Drafts" phase.
- F - Wireflows are used during the "Refined Design" phase while wireframes are created during the "First Drafts" phase.

Question 20

1 correct choice

LO 3.3.c (P)

Steven wants to visualise and describe the task-related interaction sequences of an app he is working on. The steps and the order in which he is planning on taking them are shown below.

Which one step is NOT in the correct position?

- A - Step 1: He will gather all deliverables for the intended solution that were established so far in the design process (for example, interaction specification, adjusted task model for design).
- B - Step 2: He will decide whether to use hand drawings or digital tools to create the prototype.
- C - Step 3: He will create one wireframe per view, each including details and interaction elements as needed.
- D - Step 4: He will discuss the result and gather internal feedback in order to optimise the prototype using internal iteration.
- E - Step 5: He will annotate the wireframes to explain the user's flow through the views.
- F - Step 6: He will apply appropriate design principles (for example, ISO 9241-110).

Question 21

2 correct choices

LO 3.3.d (K)

Which two of the following aspects are NOT criteria for the selection of prototyping tools?

- A - The tool must support the required level of fidelity of prototypes.
- B - Look and feel of the tool are most important.
- C - The tool must be capable of producing a prototype that provides the required experience for users and other stakeholders.
- D - The tool should support the required documentation of design decisions in the work product.
- E - The tool must be reusable for the development of the final interactive system.
- F - The tool should support documentation of evaluated user interaction with the work product.

Question 22

1 correct choice

LO 4.1.c (U)

Which one statement about combining and arranging user interface elements is correct?

- A - Elements in similar contexts should not be grouped together.
- B - No more than two user interface elements may be combined within a form.
- C - When combining and arranging user interface elements, human factors do not necessarily have to be considered.
- D - User interface elements that belong together should always be framed.
- E - User interface elements should be arranged in a way that surprises the user.
- F - Dependencies between user interface elements should be visible.

Question 23

2 correct choices

LO 4.2.b (U)

Which two of the following measures can be taken to encourage the reading of digital content?

- A - Users' attention increases after the first few seconds of reading. Therefore, important information should be placed in the middle or at the end of a piece of text.
- B - A longer piece of text should follow the logic of the writer's pyramid. This effectively directs the user's attention to important information.
- C - The title of a page and the heading should consist of a maximum of three words in order to stimulate the reader's curiosity, making it easier for them to absorb the information.
- D - Information should only ever be presented in bullet points and never in the form of complete sentences.
- E - If text is centred, it draws the attention of the user and they remember more information afterwards, compared to left- or right-aligned text.
- F - Users' perception of content on the right side of the screen is weaker than their perception of content on the left. In order to draw attention to the right side of the screen, interesting stimuli should be created.



Question 24

3 correct choices

LO 4.2.c (K)

Which three of the following statements on the use of simple language are correct?

- A - Gearing the language towards the user makes the content easier to understand.
- B - The use of recurring rhetorical devices makes the text more vivid, making the content easier to understand.
- C - A consistent sentence structure improves the readability of content.
- D - Technical terms and abbreviations summarise the main points of the text, thus, making it possible to understand it quickly.
- E - Longer pieces of text become more readable when they are broken up into shorter sections and paragraphs.
- F - Simple language is only necessary for certain types of interactive systems.

Question 25

1 correct choice

LO 4.2.d (K)

Information can be more easily understood by using colour. Which one of the following statements about the use of colour is correct?

- A - The use of many colours helps make information easier to understand for users.
- B - Colours should only be used as a support mechanism.
- C - The higher the number of colours used, the easier it is for the user to understand what each colour represents.
- D - The perception of text never depends on the colours used.
- E - The use of low contrast colours ensures clearer presentation.
- F - Colours usually carry the same meaning in every culture.

Question 26

1 correct choice

LO 4.3.a (U)

A usability test has shown that users face difficulties finding their way around article indices on an encyclopaedia webpage. Using the headings and subheadings to orient themselves, they cannot understand why certain content is subordinate to others. It is suspected that a Gestalt law has not been taken into account during the page's design.

According to the curriculum, which one of the following options is a Gestalt law that can be employed to help users orient themselves using the headings on a page?

- A - The law of colourfulness: each heading and subheading should be coloured differently.
- B - The law of focused sequence: all headings and all subheadings should be numbered.
- C - The law of simplicity: there should only be headings and no subheadings to keep the article as simple as possible.
- D - The law of completeness: for each new paragraph, there should be a subheading.
- E - The law of imagery: each heading and subheading should be explained by an additional picture.
- F - The law of similarity: headings and subheadings on the same level should be formatted in the same way (font, font size, numbering).

Question 27

2 correct choices

LO 5.2.c (U)

The designer of an interactive system can influence user behaviour in several ways.

Which two of the following options are examples of deliberately influencing user behaviour?

- A - When ordering on a website, clicking on the shopping cart displays an overview of the items that have already been placed in it.
- B - When registering on a website, the check mark for newsletter registration is already set.
- C - The logo of a company appears on the website in the upper left corner.
- D - The number of options for selecting an age range (for instance, 20–40) is increased from four to five.
- E - On a petition website created to collect signatures, the following note appears: 80% of the supporters of this petition leave a donation afterwards.
- F - After completing the order, you will receive an order confirmation by email.

Question 28

1 correct choice

LO 5.3.b (K)

Which one of the following statements about the concepts of internationalisation and localisation is NOT correct?

- A - Internationalisation is the process of building up a technical platform for software application for future, problem-free adaptation to other cultures.
- B - Localisation means adapting the content, for example, colours, for a specific region or language.
- C - The localisation of an interactive system should be done before internationalisation.
- D - Internationalisation is often abbreviated as I18N.
- E - Localisation is often abbreviated as L10N.
- F - The internationalisation of an interactive system should be done before localisation.

Question 29

1 correct choice

LO 6.1.a (U)

Paul is a UX designer working on a mobile application with his company's developers. So far, everything has gone well, but now they are unable to come to an agreement on a new feature that would meet important user requirements. The developers argue against the feature because of the high development effort that would be required. Paul is frustrated: "They have never heard of human-centred design before."

Which one of the following answers describes a suitable recommendation for his situation and the main reason for Paul's difficulty in finding a fair consensus from the curriculum's perspective?

- A - Paul should hold back. He is too strict. It's not necessary to meet user requirements if the required development effort is too high.
- B - Paul and the developers should apply card sorting. Paul's mental model seems to differ from the conceptual model of the developers. They should ensure a fit between both parties' models.
- C - Paul should not work with this development team in the future because it obviously makes no sense to.
- D - Paul should involve the developers as much as possible. Introducing them to the context of use information and discussing use scenarios could be a first intervention towards increasing his organisation's level of usability maturity.
- E - Paul should acquire coding skills to better understand and consider the development effort of new features. Additionally, new features should not be brought to the developers before they have been checked for feasibility.
- F - Paul and the developers should hire a team leader who makes final decisions on such topics. Usually, it's not possible to find a fair consensus between UX designers and developers without intervening.

Question 30      2 correct choices      LO 6.1.b (K)

Which two statements about human-centred quality objectives are NOT correct?

- A - They should be assessed at the start of the project.
- B - They represent only the user's expectations of the system.
- C - They relate to usability, accessibility, user experience, and the avoidance of harm from use.
- D - They are negotiable.
- E - They are more likely to be met when the UX professional has a high level of usability maturity.
- F - They can be formulated as user requirements.

Question 31      1 correct choice      LO 6.1.c (K)

Which one is NOT a reason to involve stakeholders in a UX design project?

- A - Thinking broad and including stakeholders in early design leads to a bigger variety of ideas.
- B - Neutral third parties can serve as sparring partners for discussion and the creation of ideas.
- C - As a champion of the user, the designer benefits from receiving input and feedback from those the system is being developed for.
- D - Involving users helps avoid mistaking other stakeholders' requirements for user requirements.
- E - Participatory design can be used to teach the design process to stakeholders.
- F - Iterating with stakeholders helps in meeting their expectations and has positive effects on the final product's acceptance.

Question 32

1 correct choice

LO 6.1.d (K)

You and your team have come up with a great approach for improving the payment process on your website. This approach would make the process much more efficient and customer-friendly in the future. Now, all that remains is to get your boss on board as well. However, your boss is usually sceptical about new ideas.

Which one method could help you convince your boss about your new approach according to the curriculum?

- A - Explain the idea through roleplay. This is the best way for your boss to understand the intended process.
- B - Send your boss a PowerPoint presentation that lists numerous arguments in favour of the new approach.
- C - Take your boss onto the street for the day to conduct short surveys. There, they can see for themselves how well the new approach is received by potential customers.
- D - Run through the design thinking process again with your boss, so that the idea appeals to them.
- E - Present a user journey map to your boss. It will provide a deep insight into the intended path for users, and its effect on their attitudes and emotions, in a compact overview.
- F - Show the transcripts of customer interviews to your boss as an indication of their customers' wishes.

Question 33

1 correct choice

LO 6.1.e (K)

Which one of the following options describes a customer journey map, rather than a user journey map?

- A - It is ordered chronologically.
- B - It provides insight into the user's motivation and attitudes.
- C - It visualises a user's journey throughout the complete experience cycle with the product.
- D - It leaves out internal processes and actors.
- E - It must indicate whether it shows the as-is or future use state.
- F - It focuses on all touchpoints with the interactive system.

Question 34

3 correct choices

LO 6.2.a (P)

While designing an interactive system, Tanja considers the heuristic of error prevention. Which three of the following design decisions comply with this heuristic?

- A - Headlines have a different colour.
- B - Some fields have preselected values.
- C - The system indicates how incorrect entries must be corrected.
- D - Information above each input field indicates the format in which the data must be entered.
- E - The design of entry fields is based on the platform conventions in order to appear consistent.
- F - The entry fields offer ad hoc validation and feedback for the user about the validity of the entered data.

Question 35

1 correct choice

LO 6.2.b (U)

Example of a design pattern for autocompletion

Problem description and context of use: The user types something predictable into a text field (for example, a URL, their own name, a filename). The system can predict what the user is attempting to type. Being able to choose from a list is quite valuable to the user, especially when typed entries are long and difficult to type. Search boxes, email fields, text editors, and command lines all seem to be much easier to use when supported by auto-completion...

Recommendations for design and explanation of the solution approach: With each additional character that the user types, the software suggests a list of possible phrases. For example, the phrase can be derived from previous entries typed by the user, common phrases that many users have used in the past, possible matches drawn from the content being searched or browsed, as for a sitewide search box...

Which one element for defining a design pattern is missing in this example?

- A - The name of the design library that contains this design pattern.
- B - An example of an implementation of this design pattern.
- C - The usability heuristic that is addressed by this design pattern.
- D - The code needed to implement the pattern on a specific platform.
- E - A usability test report that shows how users get along with this design pattern.
- F - A style guide that describes the elements used in the design pattern.

Question 36      3 correct choices      LO 6.3.a (U)

Which three of the following statements about implicit design tasks are correct?

- A - An example of an implicit design task is iteration with stakeholders.
- B - Implicit design tasks are less important than explicit design tasks.
- C - An implicit design task is a task that goes beyond the immediate task-related design.
- D - An example of an implicit design task is the design of status information.
- E - Implicit design tasks are usually not part of project briefings and, therefore, are often neglected.
- F - An example of an implicit design task is the user interface specification.

Question 37      1 correct choice      LO 6.3.b (K)

Max is a UX designer who is redesigning the website of a household appliance manufacturer. Since customers often visit the site to find information and manuals for home appliances they have bought, the design of the search is very important.

Which one of Max's design efforts violates the guidelines for a well-designed search?

- A - Max provides useful meta information in the results overview, such as the number of results and similar searches by other users.
- B - Max designs a site where users can get an overview of all search results.
- C - Max allows users to restrict the scope of their search.
- D - Max designs a meaningful response to the search query, especially for searches without hits.
- E - Max ensures that the least common results are presented at the top.
- F - Max ensures that the user is provided with various search criteria and that relevant terms are suggested to the user.

Question 38

2 correct choices

LO 6.3.c (U)

The agency 'UX & Friends' redesigns the online help section for a software product providing secure connections to a university network. The agency implements the following features for the help section:

1. An overview of the installation guide.
2. Frequently asked questions (FAQs) by students during installation.
3. A step-by-step explanation of the solution when selecting a typical problem from the FAQs or the installation guide.
4. Illustrated examples of the steps in the step-by-step explanation, as well as installation settings that can be copied easily.

Which two options are still missing in the design of the online help section to ensure that each level of the FLUID model is addressed?

- A - References for students that explain technical terms.
- B - The source code for the software as an open source file, available to students.
- C - A chatbot for students to interact with.
- D - Explanations for students, such as how the software reacts and looks after opening, if installed correctly.
- E - Dialogue steps in a use scenario for the FAQs.
- F - A prototype of the software to allow students to practice installing it.



Question 39

2 correct choices

LO 6.4.a (K)

Which two of the following statements about the documentation of design decisions are correct, according to the curriculum?

- A - Without documenting design decisions, reasons and arguments cannot be re-used by others.
- B - Documentation of design decisions helps third parties to build on existing design decisions.
- C - Documenting design decisions is recommended if the development approach is agile rather than waterfall.
- D - Documenting design decisions should not take place if the interactive system is reasonably complex.
- E - Design decisions should be documented as implicitly as possible.
- F - Without a documentation of design decisions, users wouldn't know how the interactive system works.

Question 40

2 correct choices

LO 6.4.b (K)

Your company is working on a complex software application to support surgeons in medical operating rooms. Following a waterfall approach, the finished prototype is handed over to an agency to start coding. You feel that the experience of the mere handover of wireframes and prototypes to the agency is insufficient, especially for a safety-critical system. If design decisions are not explicitly documented, the agency may fail to implement them in the right way.

Which two possibilities does the curriculum offer for the explicit documentation of design decisions?

- A - A conference call with the agency.
- B - An annotation of the prototype.
- C - A project roadmap.
- D - A specification of the user interface.
- E - Project documentation consisting of all the meeting minutes of your team.
- F - A film that shows the interaction of a surgeon with the prototype.

This marks the end of the 40 test questions.

### 3.4 Answers to the Public Test Questions

| Question | Answer  | Notes  |
|----------|---------|--|
| 1        | F       | <p>F is the correct answer. A dialogue step is not the result of the context of use analysis, it is the result of the design activity 'conceptual modelling' in the design process.</p> <p>You can find further explanation of this topic in Chapter 1.1 The baseline for designing solutions.</p>   |
| 2        | C       | <p>C is the correct answer. Mental models belong to the user and are built up through repeated real-life experiences. The designer creates a conceptual model and implements it in the interactive system in the form of a system image (temperature control in the refrigerator).</p> <p>You can find further explanation of this topic in Chapter 1.1 The baseline for designing solutions.</p>  |
| 3        | A       | <p>A is the correct answer. Implementing the necessary functionalities is not part of the activities under "Designing Solutions".</p> <p>You can find all activities that are part of "Designing Solutions" in Figure 2.</p>   |
| 4        | D       | <p>D is the correct answer. The vision addresses the feeling of wanting to be safe and in control of one's life rather than the feeling of being uncertain and threatened by one's circumstances.</p> <p>You can find further explanation of this topic in Chapter 1.4 Considering the whole user experience across all touchpoints.</p>   |
| 5        | B       | <p>B is the 'NOT correct' answer. The statement in answer B would be correct if it read as follows: "Task objects contain signposts that give the user access to the executable functions."</p> <p>The relationship between task objects, executable functions and user assistance is described in Chapter 2.1 under the heading "Task-related operation to achieve user goals".</p>   |
| 6        | C       | <p>C is the correct answer. Undesirable behaviour of users can occur if the system doesn't support the user goal (finding inspiring recipes).</p> <p>You can find further explanation of this topic in Chapter 2.1.3 under the heading "Intended and unintended consequences of user interface design".</p>  |
| 7        | B, C, F | <p>B, C, and F are the correct answers. A is incorrect because the interaction specification is not derived from card sorting results. It is derived from an understanding of the user's task and in accordance with user requirements. D is incorrect because interaction specifications include not only the user's actions and the system's reactions, but also the task model for design and the user requirements. E is incorrect because the interaction specification does not necessarily have to be based on a narrative scenario.</p> <p>You can find further explanation of this topic in Chapter 2.2.2 Creating interaction specifications based on task models.</p> |

| Question | Answer  | Notes   |
|----------|---------|---|
| 8        | E       | <p>E is the correct answer. According to the approach of the interaction specification, considerations of given technical framework constraints should not be considered in the early phase of design.</p> <p>You can find this noted as one of the common errors that should be avoided when creating interaction specifications in Chapter 2.2 under the heading “Quality criteria for interaction specifications”.</p>   |
| 9        | B, E    | <p>B and E are the correct answers. Narrative scenarios and storyboards illustrate how users will interact with the interactive system. Users and other stakeholders can easily gain an understanding of future use. Interaction specifications describe all dialogue steps (the user’s actions and the system’s reactions) accurately, which helps the designer determine task-related interaction sequences.</p> <p>You can find the different forms of use scenarios assigned to the different roles in the design project in Chapter 2.2.5 Communicating use scenarios to users and stakeholders.</p> |
| 10       | B       | <p>B is the correct answer. A “document” can be a task object, “adjust page margins” is an executable function with which you edit the task object “document”. “Layout settings” is the label of the signpost that guides the user to the executable function “adjust page margins”.</p> <p>You can find another example of the relationship between task objects, executable functions, and signposts in Chapter 3.1 Design activity: information architecture.</p>  |
| 11       | B, E    | <p>B and E are the correct answers. High-fidelity prototypes are created in the refined design phase. Style guides are used to ensure the consistent design of systems but have nothing to do with the creation of the information architecture.</p> <p>You can find information that can be used for the development of information architecture in Chapter 3.1.1 Development of the information architecture.</p>   |
| 12       | A, C, E | <p>A, C, and E are the correct answers.</p> <p>You can find further explanation of this topic in Chapter 3.1.1 under the heading “Quality criteria for developing an information architecture”.</p>   |
| 13       | A       | <p>A is the correct answer. It describes the activity enhancing task objects.</p> <p>You can find explanations on how to enhance task objects and structure task objects in Chapter 3.1.2.</p>  |
| 14       | C       | <p>C is the correct answer. Hierarchical structure is an example of a navigation structure. Contextual navigation is an example of a navigation system. A breadcrumb is an example of a navigation element.</p> <p>You can find further explanation of this topic in Chapter 3.1.5 Create the navigation structure using connection paths and signposts.</p>  |

| Question | Answer  | Notes  |
|----------|---------|--|
| 15       | D, E    | <p>D and E are the correct answers. They describe quality criteria for aligning the information architecture with the card sorting results.</p> <p>You can find further explanation of the procedure of identifying deviations between card sorting results and an existing information architecture and adapting the information architecture in Chapter 3.1.6 Evaluate the information architecture.</p>         |
| 16       | A, B, D | <p>A, B, and D are the correct answers. C is incorrect because only tree testing makes possible detours of a user visible. E is incorrect because only card sorting is a bottom up method. F is incorrect because only card sorting has an open approach.</p> <p>You can find explanations on card sorting and tree testing in Chapter 3.1.6 Evaluate the information architecture.</p>                            |
| 17       | A, C, F | <p>A, C, and F are the correct answers. These describe activities in interaction design. B describes an activity in information design (Chapter 4.2). D describes an activity in conceptual modelling (Chapter 2.2) and E describes an activity in interface design (4.1).</p> <p>You can find further explanation of the activities in interaction design in Chapter 3.2 Design activity: interaction design.</p> |
| 18       | A, D    | <p>A and D are the correct answers. The statement in answer A is not correct because the number of views that should be created depends on the system. The statement in answer D is incorrect because a view can contain one or more task objects.</p> <p>You can find further explanation in Chapter 3.2 Design activity: interaction design.</p>   |
| 19       | B       | <p>B is the correct answer. A applies only to wireflows. Wireframes and wireflows are both used in first drafts; while wireflows show the user flow, wireframes are static.</p> <p>You can find further explanation of the different types of visualisations in Chapter 3.3.2 Typical types of visualisations.</p>   |
| 20       | F       | <p>F is the correct answer. Application of interaction principles should not take place at the very end when the interaction sequence has been developed and evaluated.</p> <p>You can find the sequence of work steps a designer should follow when creating low-fidelity prototypes in Chapter 3.3.5 Guidelines for creating low-fidelity prototypes.</p>  |
| 21       | B, E    | <p>B and E are the correct answers. Users don't have to understand how the prototyping tool works because they don't have to work with it: designers work with it. E is no criterion for selecting a prototyping tool from the point of view of "Designing Solutions".</p> <p>You can find the criteria for choosing prototyping tools in Chapter 3.3.6 Criteria for selecting prototyping tools.</p>              |

| Question | Answer  | Notes   |
|----------|---------|---|
| 22       | F       | F is the correct answer. When combining and arranging user interface elements, it is important to make dependencies visible. You can find the steps for appropriate use of user interface elements in Chapter 4.1.2 Appropriate use of user interface elements.   |
| 23       | B, F    | <p>B and F are the correct answers. B describes how structuring information according to the writer's pyramid improves the user's understanding of digital text. F describes how, according to the reading scheme "F", the loss of information can be avoided.</p> <p>A is wrong as the user's attention tends to decrease over time. B is correct because the inverted pyramid gives the most important information at the beginning. C is wrong as titles and headings should be short and concise, since they are scanned first by the user. D is wrong as, depending on the case, either a summary or continuous text is appropriate. E is wrong because centred text does not guarantee the attention of the reader. F is correct since the reading scheme "F" makes information on the left side more likely to be perceived than that on the right.</p> <p>You can find further explanation of this topic in Chapter 4.2.2 Information reading and comprehensibility of content.</p> |
| 24       | A, C, E | <p>A, C, and E are the correct answers. They describe rules of simple language to make digital text easier to read.</p> <p>B, D, and F are incorrect as rhetorical devices and abbreviations should be avoided. Simple language is not only necessary for a certain type of interactive system and can be used for all interactive systems.</p> <p>You can find further explanation of simple language in Chapter 4.2.2 under the heading "Ensuring the comprehensibility of texts with the rules of simple language".</p>  |
| 25       | B       | <p>B is the correct answer as users with colour-blindness may not be able to distinguish between certain colours, so must be able to derive meaning from the text alone. Too many colours can cause text to look confusing. A few colours, on the other hand, can increase the readability of a text and direct users' attention to important terms.</p> <p>You can find more information on this topic in Chapter 4.2 Design activity: information design.</p>   |
| 26       | F       | <p>F is the correct answer. A, B, C, D, and E are not Gestalt laws that are described in the CPUX-DS curriculum.</p> <p>You can find the laws in Chapter 4.3.2 Gestalt laws.</p>  |
| 27       | B, E    | <p>B and E are the correct answers. B describes a dark pattern and E describes a nudge. A, C, D, and F are not examples of deliberately influencing user behaviour.</p> <p>You can find more examples of dark patterns and nudges in Chapter 5.2 Design Ethics.</p>   |

| Question | Answer | Notes  |
|----------|--------|--|
| 28       | C      | C is the correct answer. Internationalisation prepares the software architecture of an interactive system for future localisation. You can find further explanation of the concepts of internationalisation and localisation in Chapter 5.3 Cultural diversity.  |
| 29       | D      | D is the correct answer. A certain level of usability maturity is necessary for stakeholders to recognise the need for human-centred design objectives and be willing to compromise on them. Introducing the developers to the storyboard is a good first intervention because every developer who has understood the benefits of human-centred design increases the organisation's level of usability maturity.<br><br>You can find further explanation of consensual agreement in design projects in Chapter 6.1.1 Setting quality objectives for the project. |
| 30       | B, E   | B and E are the correct answers. Human-centred quality objectives represent not only the user's expectations, but also expectations of other stakeholders.<br><br>The probability of meeting a human-centred quality objective is not linked to the UX professional's usability maturity level, but the organisation's.<br><br>You can find further explanation of human-centred quality objectives in Chapter 6.1 Managing stakeholders.  |
| 31       | E      | E is the correct answer. Working with stakeholders and third parties generally helps with generating ideas and evaluating solutions. However, the goal of working together is not to teach stakeholders how to design solutions, even if it may be a by-product.<br><br>You can find more information on working with stakeholders in Chapter 6.1 Managing stakeholders.   |
| 32       | E      | E is the correct answer. According to the CPUX-DS curriculum, user journey maps are used to iterate concepts with stakeholders (for example, the management). It can have a positive effect on the acceptance of the final product if the boss is included in the evaluation of the map.<br><br>A, B, C, D, and F are not methods described in the curriculum for getting stakeholders on board.<br><br>You can find further explanation of user journey maps in Chapter 6.1.3 Involve stakeholders.   |
| 33       | C      | C is the correct answer. The user journey map focuses on a task, while the customer journey map is used to visualise the customer's entire experience with the product: from the purchase and procurement to the decommissioning and disposal of the product.<br><br>You can find further explanation of user journey map and customer journey map in Chapter 6.1.3 Involve stakeholders.  |

| Question | Answer  | Notes  |
|----------|---------|--|
| 34       | B, D, F | <p>B, D, and F are the correct answers. These are activities in the heuristic of error prevention. A does not relate to any heuristic described in the CPUX-DS curriculum. E is not helpful for error prevention and C is about good error messages, covered by the heuristic “Help users recognise, diagnose, and recover from errors”.</p> <p>You can find further explanation of the heuristics in Chapter 6.2.2 Deciding on appropriate systems of design recommendations to be used.</p>                                |
| 35       | B       | <p>B is the correct answer. Design patterns consist of a description of the problem faced by the user, the context of use for which the pattern is made, related recommendations for design, an explanation of how the solution works, and an example of the implementation of this design pattern in a realistic context. The example of an implementation is missing.</p> <p>You can find further explanation of design pattern in Chapter 6.2.2 Deciding on appropriate systems of design recommendations to be used.</p> |
| 36       | C, D, E | <p>C, D, and E are the correct answers. B is incorrect because the curriculum does not explain the term “explicit design task” nor does it say that implicit design tasks are less important. A and F are incorrect because the curriculum does not title these examples as implicit design tasks.</p> <p>You can find further explanation of implicit design tasks in Chapter 6.3 Attending to implicit design tasks.</p>   |
| 37       | E       | <p>E is the correct answer. The guidelines for a well-designed search recommend showing the most common searches.</p> <p>You can find further recommendations on how to design a usable search in Chapter 6.3.1 Search.</p>  |
| 38       | A, D    | <p>A and D are the correct answers. FLUID stands for individual stages of sub-tasks where people seek help. These levels give orientation to the design and determine which levels of help the designer must think about.</p> <p>Formulate: 1, 2<br/>Locate: 3<br/>Understand: A<br/>Implement: 4<br/>Determine: D</p> <p>You can find further explanation of the FLUID model in Chapter 6.3.2 Help and documentation.</p>   |

| Question | Answer | Notes  |
|----------|--------|--|
| 39       | A, B   | <p>A and B are the correct answers. They describe the importance of the documentation of design decisions from the curriculum's perspective. C is incorrect because documenting decisions is recommended if the development follows the waterfall approach. D is incorrect because it is especially important to document design decisions if the interactive system is going to be complex. E is incorrect because design decisions should be documented as explicitly as possible. F is incorrect because the documented design decisions are not provided for users but for designers, developers or agencies that build on these decisions.</p> <p>You can find further explanation of documenting design decisions in Chapter 6.4 Documenting design decisions.</p> |
| 40       | B, D   | <p>B and D are the correct answers. The curriculum recommends two forms of explicit documentation: the annotation of prototypes (B) and the specification of the user interface (D). All of the other answers also describe the documentation of decisions. However, these are not sufficient for an agency to be able to understand the design decisions of design activities.</p> <p>You can find further explanation of these two forms in Chapter 6.4.2 Explicit approach.</p>   |



## 4 Practical Test

### Examination Procedure

#### Instructions

- All examination participants start each exercise at the same time.
- At the beginning of an exercise, you will receive material (work sheets) with preliminary information on the task you need to complete.
- You will also receive answer sheets on which you can enter your results. Only the front of each sheet may be used for your results.
- We recommend that you read all subtasks and make yourself familiar with the material (work sheets) before starting to work on a task.
- We also recommend that you write down intermediate results on a separate blank sheet of paper and transfer them to the answer sheets later.
- Be sure to follow an efficient procedure when developing your results: Use the blank sheet only for rough planning of your results. You will not have enough time to transfer a fully elaborated result from the blank sheet to the answer sheet.
- Please be aware that you will have limited time to work on the examination tasks. Read each task carefully and then do exactly what is needed to find the solution. Avoid thinking about all of the possible design solutions for the project at hand or you are likely to run out of time.
- Please ensure that your handwriting is clear and easy to read. Your results can only be evaluated well if they are legible and easy to follow.
- After the allocated time for a single exercise is up, you must submit your answer sheets. You can keep the notes you made on the blank sheet of paper and the work sheets with the preliminary information.
- According to the checklist for the exam, your answers will not be evaluated in terms of their conformity with a sample solution, but rather in consideration of the procedures and criteria specified in the curriculum.
- There will be a short break after each task. After each break, you will receive the exercise and work sheets for the next task.
- At the end of the test, you must hand in all materials, including the work sheets and any blank sheets of paper that you have made notes on.

## Timetable

| Time                | Exercise   | Material for Task Execution   | Material for Documenting the Results<br>(must be submitted at the end of an exercise)  |
|---------------------|--|---|--|
| 09:00               | Examination procedure  | <ul style="list-style-type: none"> <li>• Instructions</li> <li>• Timetable</li> </ul>   | <ul style="list-style-type: none"> <li>• none</li> </ul>   |
| 09:15               | Introduction   | <ul style="list-style-type: none"> <li>• Task sheet Introduction</li> <li>• Work sheet 1: Excerpt of the project briefing for the task “Take a reserved seat”</li> </ul>  | <ul style="list-style-type: none"> <li>• none</li> </ul>   |
| 09:25 - 10:45       | Exercise 1: Create an Interaction Specification (80 Minutes) | <ul style="list-style-type: none"> <li>• Task sheet Exercise 1</li> <li>• Work sheet 2: User group profile “Occasional train passenger with ticket and seat reservation”</li> <li>• Work sheet 3: Persona</li> <li>• Work sheet 4: Task model for the design</li> </ul> | <ul style="list-style-type: none"> <li>• Answer sheet 1: Interaction specification</li> </ul>  |
| 10:45 - 11:00 Break |  |   |  |
| 11:00 - 11:45       | Exercise 2: Identify and Enhance Task Objects (45 Minutes)   | <ul style="list-style-type: none"> <li>• Task sheet Exercise 2</li> <li>• Work sheet 5: Finalised interaction specification</li> </ul>  | <ul style="list-style-type: none"> <li>• Answer sheet 2: Identified and enhanced task objects</li> </ul>   |
| 11:45 - 11:55 Break |  |   |  |
| 11:55 - 12:40       | Exercise 3: Create an Information Architecture (45 Minutes)  | <ul style="list-style-type: none"> <li>• Task sheet Exercise 3</li> <li>• Work sheet 6: Overview of task objects</li> </ul>   | <ul style="list-style-type: none"> <li>• Answer sheet 3a: Schematic representation of the information architecture</li> <li>• Answer sheet 3b: Explanation of the information architecture</li> </ul>  |
| 12:40 - 13:40 Break |  |   |  |
| 13:40 - 16:00       | Exercise 4: Create a Low-Fidelity Prototype (140 Minutes)    | <ul style="list-style-type: none"> <li>• Task sheet Exercise 4</li> <li>• Work sheet 7: Documentation of the revised information architecture</li> </ul>  | <ul style="list-style-type: none"> <li>• Answer sheets 4a: Views of the low-fidelity prototype</li> <li>• Answer sheet 4b: Description of the interaction between user and system</li> <li>• Answer sheet 4c: Consideration of heuristics</li> </ul> |
| 16:00 - 16:15 Break |  |   |  |
| 16:15 - 17:00       | Exercise 5: Evaluate Card Sorting Results (45 Minutes)       | <ul style="list-style-type: none"> <li>• Task sheet Exercise 5</li> <li>• Work sheet 8: Summarised results of the card sorting</li> </ul>   | <ul style="list-style-type: none"> <li>• Answer sheet 5a: Comparison of card sorting results and information architecture and concrete measures</li> </ul>   |

## Introduction – 10 Minutes

In the next six hours, you will work on five examination tasks within the fictitious design project “Passenger support”. In this project, an interactive system (a mobile application) is to be developed to improve the travel experience of train passengers.

The project “Passenger support” focuses on three user tasks: plan a route, buy a ticket, take a reserved seat.

You and your team are currently focusing on the task “Take a reserved seat”, for the user group of “occasional rail passengers”. You should make the following assumptions for your design project:

- You are designing an interactive system that does not currently exist.
- You are designing an interactive system with a focus on the task “Take a reserved seat” for the user group of “occasional train passengers”.

**Task:** On *Work sheet 1*, you will find an excerpt of the project briefing containing information on your task “Take a reserved seat”. Please read the excerpt.

After 10 minutes, you will receive Exercise 1 and the corresponding material.

Please be aware that you will have limited time to work on the examination tasks. Read each task carefully and then do exactly what is needed to find the solution. Avoid thinking about all of the possible design solutions for the project at hand or you are likely to run out of time.

## **Work sheet 1: Excerpt of the project briefing for the task “Take a reserved seat”**

### **What is the subject of this project?**

- The perfect solution to help occasional train passengers find their reserved seat on the train. The route from their arrival at the station to their seat should be as direct and short as possible.

### **Why do we want to realise this design project?**

- We have received various complaints from our customers over the last couple of years:
  - “I was standing on the wrong section of the platform when the train arrived, so I had to run with my suitcase to get to the right carriage. It’s more annoying when you have paid extra for a seat.”
  - “I tend to get lost, especially in big railway stations that I have never been to before. I do not want to miss my train because I am trying to find the carriage my seat is in!”
  - “I often walk up and down the train for 15 minutes until I finally find my seat.”
- Competition has increased significantly in recent years due to new rail and road service providers (FlixBus, FlixTrain, BlaBlaCar, etc.). We want to counter this with attractive offers.
- In order to be seen as an attractive proposition, the satisfaction of our customers should be increased through human-centred design.
- Disruption needs to be reduced, for example, due to chaos on the platform or in the train.

### **Who should be supported? Who benefits from the results of our design project?**

- Inexperienced train passengers should be able to find their seats within the planned time frame without causing conflict with other passengers. They should also be able to find their seat when time is tight. They should feel well-supported all the way, from arriving at the station to sitting down on the train, and should always know the best route to their seat.
- Railway staff should be able to recognise problems with passengers finding their seat and be able to help them.

### **What are the general conditions? What should be considered?**

- We are not looking to make marginal improvements to the existing system; the aim is to develop and launch an entirely new system. The technical aspect of our future implementation does not need to be taken into consideration at the stage; the design can be adapted to accommodate any technical limitations at a later date.

## Exercise 1: Create an Interaction Specification – 80 Minutes

You are at the very beginning of the design process in the “Passenger support” project. Your team has already interviewed infrequent train travellers on the subject of “Taking a reserved seat” and conducted observations at a train station. Based on the information from the context of use analysis, you have already developed a number of different versions of a task model for this user group during a team workshop. Your team eventually chose a task model for the design that takes an innovative approach.

**Task:** On *Work sheets 2 and 3*, you will find the results of the context of use analysis and on *Work sheet 4*, the task model for the design. Please familiarise yourself with this material.

- a) Create an interaction specification for the task “Take a reserved seat”, taking into account the available results of the context of use analysis and the chosen task model for design.
- b) Create an interaction specification in the table on *Answer sheet 1*. If necessary, adapt the task model for design in your interaction specification. If you adapt the task model, you must mark your adaptations accordingly.

**Note:** We recommend that you use the blank sheet of paper provided for your drafts before writing your results in the template.

**Note:** Be sure to follow an efficient procedure when developing your results: Use the blank sheet only for rough planning of your results. You will not have enough time to transfer a fully elaborated result from the blank sheet to the answer sheet.

**Note:** You may also reference the user requirements by writing down their number instead of writing them in full, for example, “UR 1”.

**Work sheet 2: User group profile “Infrequent train travellers with ticket and seat reservations”**

| User characteristics   | Tasks related to finding their seat  | Social environment   | Physical and technical environment  | Resources used in conjunction with the interactive system   |
|--|--|--|---|---|
| <ul style="list-style-type: none"> <li>• All age ranges, from young to old</li> <li>• Travel alone</li> <li>• Travel infrequently</li> <li>• Plan well in advance</li> <li>• Want to be guaranteed a seat</li> <li>• Want to get to the platform early</li> <li>• Want nothing to go wrong</li> <li>• Want to avoid excitement and stress</li> </ul> | <ul style="list-style-type: none"> <li>• Getting information about the upcoming journey</li> <li>• Figuring out where in the station they will find the train</li> <li>• Finding the right platform</li> <li>• Waiting at the right place on the platform</li> <li>• Entering the train carriage where their seat is</li> <li>• Finding their reserved seat</li> </ul> | <ul style="list-style-type: none"> <li>• Accompanying passengers</li> <li>• Passengers on the same train</li> <li>• Passengers on other trains</li> <li>• Railway staff at the station</li> <li>• Railway staff on the train</li> <li>• Passers-by</li> <li>• Important rules: <ul style="list-style-type: none"> <li>• Information about departures and deviations from the schedule will be provided at the station or on the platform shortly before departure.</li> <li>• Seat reservations expire 15 minutes after departure.</li> <li>• Boarding passengers must allow departing passengers off the train before boarding</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Train station</li> <li>• Platform (partially outdoors)</li> <li>• Smartphones (of travellers)</li> <li>• Destination boards on the platform and on the train</li> <li>• Announcements</li> <li>• Departure boards with platform number, departure time and carriage configuration, in the station</li> </ul> | <ul style="list-style-type: none"> <li>• Smartphone</li> <li>• Calendar</li> <li>• Train ticket and seat reservation (paper)</li> <li>• Digital information offered by the train ticketing company (website or app)</li> <li>• Departure boards in the station and on the platform</li> <li>• Personal documents (passport, identity card, banking card, etc.)</li> </ul> |

**Work sheet 3: Persona****Michael Rogers***Infrequent train traveller***Description:**

Michael is 58 years old. He is a widower and is already looking forward to a quiet retirement. He has two children and a three-year-old grandson.

Michael travels by train only once a year to spend Christmas with his eldest daughter and grandson. Since the journey to his daughter's home takes several hours, Michael wants to make sure he gets a good seat and reserves it early.

Getting on the train and then looking for his seat usually means a great deal of stress for Michael. He never really knows where he should wait on the platform in order to board the train closest to his reserved seat. Once on the train, it is usually exhausting for him to find the right carriage with all his luggage, let alone find the right seat. He finds the logic of the seat numbers chaotic and confusing. Michael hates not knowing if everything will work out with his seat.

**Goals:**

- The train journey should run as smoothly as possible.
- Boarding, searching for, and taking a seat should be possible without getting stressed.
- Michael must always be in the right place as early as possible.

**Wishes:**

- Assurance that everything will work out with his seat.
- More support to get to the optimal boarding position on the platform for his reserved seat.
- Being able to check that he is in the right carriage and on the shortest route to his seat.

**Obstacles:**

- Noting different bits of information on the platform while under time pressures, especially when changes are made late.
- It is not easy to determine the best position on the platform to reach his reserved seat.
- The carriage letters and seat numbers are not easy to find or recognise.

**Quotation:**

"I dread this exhausting seat search every time I take the train. It causes pure stress. Once I'm seated, Christmas can begin."

**Work sheet 4: Task model for the design**

|                             |   |
|-----------------------------|---|
| Task                        | Take a reserved seat  |
| User group(s)               | Infrequent train traveller with a ticket and a reserved seat  |
| Contextual pre-condition(s) | The traveller owns a ticket and has a seat reservation. They have arrived at the train station before departure and want to get to the train and take their seat. |
| Intended outcome(s)         | The traveller has taken the reserved seat and is awaiting departure.  |

| Subtasks  | User Requirement   |
|---|--|
| Check for up-to-date information about the departure of the train | <p>UR 1: Within the system, the user will be able to recognise all of their future journeys.</p> <p>UR2: Within the system, the user will be able to recognise their next journey.</p> <p>UR 3: Within the system, the user will be able to recognise the planned departure time of their upcoming journey's train.</p> <p>UR 4: Within the system, the user will be able to recognise if there is a delay in their upcoming journey's train.</p> <p>UR 5: Within the system, the user will be able to recognise the scheduled and delayed departure time, in case of any delay, in their upcoming journey's train.</p> <p>UR 6 Within the system, the user will be able to recognise how much time is left until the expected departure time of their upcoming journey's train.</p> <p>UR 7: Within the system, the user will be able to recognise the platform their train will depart from.</p> |
| Go to the right platform  | UR 8: Within the system, the user will be able to recognise the route from the station entrance to the platform.   |
| Go to the right position on the platform                          | UR 9: Within the system, the user will be able to recognise the section of the platform that the carriage with their seat is going to stop at.   |
| Take the right carriage and the correct door                      | UR 10: Within the system, the user will be able to recognise whether the left or right door of their carriage is closer to their reserved seat.  |
| Go to their reserved seat and sit down                            | <p>UR 11: Within the system, the user will be able to recognise the seat number of their reserved seat.</p> <p>UR 12: Within the system, the user will be able to recognise the location of their seat in the carriage.</p>  |



**Answer sheet 1: Interaction specification**

*(Please note that in this public example test, answers that are entered by the examinee are written in blue font.)*

**Task:** Take a reserved seat

**User group(s):** Infrequent train traveller with a ticket and a reserved seat

**Contextual pre-condition(s):** The traveller holds a ticket and has a seat reservation. They have arrived at the train station ahead of departure and want to get to the train to take their seat.

**Intended outcome(s):** The traveller has taken the reserved seat and is awaiting departure.

| Subtask   | Action of the User                   | Reaction in the User Interface  | User Requirement (Referenced with their numbers) |
|---|--------------------------------------|---|--|
|   |                                      | Initial action guiding information:<br>Overview of journeys, including: <ul style="list-style-type: none"> <li>• All individual journeys</li> <li>• Upcoming journey</li> <li>• Information on delays</li> <li>• Expected time of departure</li> <li>• Time left until departure</li> </ul> | UR 1<br>UR 2<br>UR 3<br>UR 4<br>UR 5<br>UR 6     |
| Check for up-to-date information about the departure of the train | Select individual (upcoming) journey | Show:<br>Individual journey, including: <ul style="list-style-type: none"> <li>• Platform number</li> </ul>   | UR 7   |

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| Subtask                                      | Action of the User                   | Reaction in the User Interface  | User Requirement (Referenced with their numbers) |
|--|--------------------------------------|---|--|
| Go to the right platform                     | Select route to platform             | <p>Show:</p> <p>Directions to platform, including:</p> <ul style="list-style-type: none"> <li>• Route to platform</li> <li>• User's current location</li> <li>• Destination of route (which platform and which level)</li> <li>• Exits</li> <li>• Level</li> <li>• Landmarks (for example, stairs, exits, shops)</li> </ul> | UR 8   |
| Go to the right position on the platform     | Select route to position on platform | <p>Show:</p> <p>Route to enter train, including:</p> <ul style="list-style-type: none"> <li>• Platform</li> <li>• Landmarks (for example, stairs, exits, shops)</li> <li>• Section indicators</li> <li>• Expected position of carriage</li> <li>• Recommended position on the platform (to enter train)</li> </ul>          | UR 9   |
| Take the right carriage and the correct door | Select route to enter train          | <p>Show:</p> <p>Route to enter train, including:</p> <ul style="list-style-type: none"> <li>• Recommended door site</li> </ul>  | UR 10  |
| Go to the reserved seat and sit down         | Select route to seat                 | <p>Show:</p> <p>Route to seat, including:</p> <ul style="list-style-type: none"> <li>• Carriage/seat layout</li> <li>• Landmarks (doors, exits, luggage shelf)</li> <li>• Destination (seat number)</li> </ul>  | UR 11<br>UR 12                                   |

## Exercise 2: Identify and Enhance Task Objects – 45 Minutes

After some iterations within your team, the interaction specification has been revised and finalised.

**Task:** On *Work sheet 5*, you will find the finalised interaction specification. Please familiarise yourself with it. The interaction specification contains several task objects.

- a) Identify three task objects, their attributes, and any necessary executable functions from the dialogue steps in the interaction specification. Document them in the table on *Answer sheet 2*.
- b) Enhance the task objects you have identified with signposts, in the last two columns of the table on *Answer sheet 2*.

**Note:** We recommend that you use the blank sheet of paper provided for your drafts before writing down the result in the template.

**Note:** Be sure to follow an efficient procedure when developing your results: Use the blank sheet only for rough planning of your results. You will not have enough time to transfer a fully elaborated result from the blank sheet to the answer sheet.

**Work sheet 5: Finalised interaction specification**

*(Please note that in this public example test, work sheets are often identical to the sample solutions on the answer sheets.)*

**Task:** Take a reserved seat

**User groups(s):** Infrequent train traveller with a ticket and a reserved seat

**Contextual pre-condition(s):** The traveller owns a ticket and has a seat reservation. They have arrived at the train station before train departure and want to get to the train and take their seat.

**Intended outcome(s):** The traveller has taken the reserved seat and is awaiting departure.

| Subtask  | Action of the User                   | Reaction in the User Interface  | User Requirement (Referenced with their numbers) |
|--|--------------------------------------|---|--|
|  |                                      | Initial action guiding information:<br>Overview of journeys, including: <ul style="list-style-type: none"> <li>• All individual journeys</li> <li>• Upcoming journey</li> <li>• Information on delays</li> <li>• Expected departure time</li> <li>• Time left until departure</li> </ul>            | UR 1<br>UR 2<br>UR 3<br>UR 4<br>UR 5<br>UR 6     |
| 1. Check for up-to-date information about the departure of the train | Select individual (upcoming) journey | Show:<br>Individual journey, including: <ul style="list-style-type: none"> <li>• Platform number</li> </ul>   | UR 7   |
| 2. Go to the right platform  | Select route to platform             | Show:<br>Route to platform, including: <ul style="list-style-type: none"> <li>• Route to platform</li> <li>• User's location</li> <li>• Destination of route (which platform and which level)</li> <li>• Exits</li> <li>• Level</li> <li>• Landmarks (for example, stairs, exits, shops)</li> </ul> | UR 8   |

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| Subtask   | Action of the User                   | Reaction in the User Interface  | User Requirement (Referenced with their numbers) |
|---|--------------------------------------|---|--|
| 3. Go to the right position on the platform     | Select route to position on platform | Show:<br>Route to enter train, including: <ul style="list-style-type: none"> <li>• Platform</li> <li>• Landmarks (for example, stairs, exits, shops)</li> <li>• Section indicators</li> <li>• Expected position of carriage</li> <li>• Recommended position on the platform (to enter train)</li> </ul> | UR 9   |
| 4. Take the right carriage and the correct door | Select route to enter train          | Show:<br>Route to enter train, including: <ul style="list-style-type: none"> <li>• Recommended door site</li> </ul>   | UR 10  |
| 5. Go to the reserved seat and sit down         | Select route to seat                 | Show:<br>Route to seat, including: <ul style="list-style-type: none"> <li>• Carriage/seat layout</li> <li>• Landmarks (doors, exits, luggage shelf)</li> <li>• Destination (seat number)</li> </ul>   | UR 11<br>UR 12                                   |

**Answer sheet 2: Identified and enhanced task objects**

| Task Objects      | Attributes  | Executable Functions   | Calls to Action  | Triggers  |
|-------------------|---|--|--|---|
| Journey Overview  | <ul style="list-style-type: none"> <li>• Individual journey</li> <li>• Type of journey</li> <li>• Information on delays</li> <li>• Expected departure time</li> <li>• Time left until departure</li> </ul>                                  | <ul style="list-style-type: none"> <li>• Show details of journey</li> <li>• Show next journey</li> </ul> | <ul style="list-style-type: none"> <li>• Journey</li> <li>• My upcoming journey</li> </ul>                                   | <ul style="list-style-type: none"> <li>• All journeys</li> </ul>            |
| Route to Platform | <ul style="list-style-type: none"> <li>• Route to platform</li> <li>• User's location</li> <li>• Destination of route (which platform and which level)</li> <li>• Level</li> <li>• Landmarks (for example, stairs, exits, shops)</li> </ul> | <ul style="list-style-type: none"> <li>• Show route to enter train</li> <li>• Show platform</li> </ul>   | <ul style="list-style-type: none"> <li>• Where do I enter the train?</li> <li>• What does the platform look like?</li> </ul> | <ul style="list-style-type: none"> <li>• Guide me to my platform</li> </ul> |
| Route to Seat     | <ul style="list-style-type: none"> <li>• Seat Layout</li> <li>• Landmarks (doors, exits, luggage shelf)</li> <li>• Route to reserved seat</li> <li>• Destination of route (reserved seat)</li> </ul>  | <ul style="list-style-type: none"> <li>• Show seat details</li> </ul>                                    | <ul style="list-style-type: none"> <li>• Details of my seat</li> </ul>   | <ul style="list-style-type: none"> <li>• Guide me to my seat</li> </ul>     |

### Exercise 3: Create an Information Architecture – 45 Minutes

After some iterations within your team, the task objects you identified have been revised and finalised.

Besides the task that you are currently focusing on (“Take a reserved seat”), some of your colleagues did an analysis of the other two user tasks (“Plan a route” and “Buy a ticket”). They also identified and evaluated task objects, attributes, executable functions, and signposts that are relevant for the user. The context of use analysis showed that it is important to the user that they have a good overview of a route, both when planning it or looking it up at a later point in time. In the process of buying a ticket, users want the option of reserving a seat within the purchase process.

The next step is to create a representation of the information architecture across all tasks.

**Task:** On *Work sheet 6*, you will find an overview of task objects for all tasks. Please familiarise yourself with the material.

- a) Create a schematic representation of the information architecture as shown in the example below (Figure 1). Depict the hierarchy of task objects and relate the task objects to each other. Add a meaningful legend to the representation, in which all symbols, colors or shapes used are declared. Please use *Answer sheet 3a*.
- b) Please briefly explain your representation of the information architecture. Please use *Answer sheet 3b*. You may do this as a continuous text or in bullet points.

Note: We recommend that you use the blank sheet of paper provided for your drafts before writing down the result in the template.

Note: Be sure to follow an efficient procedure when developing your results: Use the blank sheet only for rough planning of your results. You will not have enough time to transfer a fully elaborated result from the blank sheet to the answer sheet.

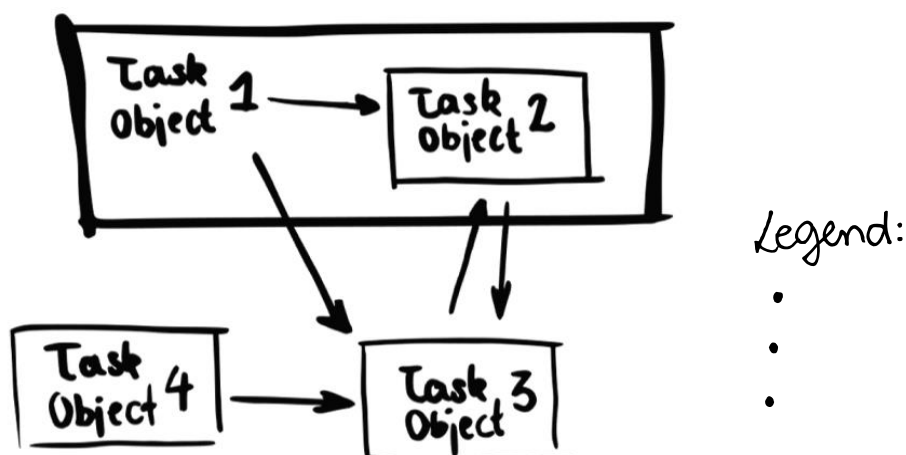


Figure 1. Example of a documented information architecture.

**Work sheet 6: Overview of task objects**

| Title of task object   | <b>Journey Overview</b>   |
|--|---|
| Attributes   | <ul style="list-style-type: none"> <li>• Journey</li> <li>• Type of journey (future, next/upcoming)</li> <li>• Information on delays</li> <li>• Expected departure time</li> <li>• Time left until departure</li> </ul> |
| Executable functions (and actions they support)                            | <ul style="list-style-type: none"> <li>• Show details of this journey</li> <li>• Show next journey</li> </ul>   |
| Signposts to executable functions and other task objects (calls to action) | <ul style="list-style-type: none"> <li>• Journey</li> <li>• My upcoming journey</li> </ul>  |
| Signposts from other navigational points (triggers)                        | <ul style="list-style-type: none"> <li>• All journeys</li> </ul>  |

| Title of task object   | <b>Journey</b>   |
|--|--|
| Attributes   | <ul style="list-style-type: none"> <li>• Travel plan</li> <li>• Travel destination</li> <li>• Train ticket</li> </ul>                      |
| Executable functions (and actions they support)                            | <ul style="list-style-type: none"> <li>• Show travel plan</li> <li>• Show train ticket</li> <li>• Show seat reservation receipt</li> </ul> |
| Signposts to executable functions and other task objects (calls to action) | <ul style="list-style-type: none"> <li>• My seat reservation</li> <li>• Itinerary</li> <li>• My ticket</li> </ul>                          |
| Signposts from other navigational points (triggers)                        | <ul style="list-style-type: none"> <li>• Journey</li> <li>• My upcoming journey</li> </ul>   |

| Title of task object   | <b>Travelling Plan</b>   |
|--|--|
| Attributes   | <ul style="list-style-type: none"> <li>• Place of departure</li> <li>• Destination</li> <li>• Date and times of departure and arrival</li> <li>• Information on delays</li> <li>• Platform number</li> <li>• Stops</li> <li>• Number of changes</li> </ul> |
| Executable functions (and actions they support)                            | <ul style="list-style-type: none"> <li>• Show route to platform</li> <li>• Show seat reservation receipt</li> </ul>  |
| Signposts to executable functions and other task objects (calls to action) | <ul style="list-style-type: none"> <li>• How do I get to the platform?</li> <li>• My seat reservation</li> </ul>   |



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|   |   |
|---|---|
| Signposts from other navigational points (triggers) | <ul style="list-style-type: none"> <li>Itinerary</li> </ul> |
|---|---|

|  |  |
|--|--|
| Title of task object   | <b>Train ticket</b>  |
| Attributes   | <ul style="list-style-type: none"> <li>Type (single, return, or season ticket)</li> <li>Traveller name</li> <li>Traveller number</li> <li>Verification (for example, QR Code)</li> <li>Seat reservation receipt</li> </ul> |
| Executable functions (and actions they support)                            | <ul style="list-style-type: none"> <li>Show verification</li> <li>Show seat reservation receipt</li> </ul>   |
| Signposts to executable functions and other task objects (calls to action) | <ul style="list-style-type: none"> <li>Ticket QR-code</li> <li>My seat reservation</li> </ul>  |
| Signposts from other navigational points (triggers)                        | <ul style="list-style-type: none"> <li>My ticket</li> </ul>  |

|  |   |
|--|---|
| Title of task object   | <b>Seat reservation receipt</b>   |
| Attributes   | <ul style="list-style-type: none"> <li>Reserved seat location (carriage letter, seat number)</li> </ul> |
| Executable functions (and actions they support)                            | <ul style="list-style-type: none"> <li>Show route to seat</li> </ul>                                    |
| Signposts to executable functions and other task objects (calls to action) | <ul style="list-style-type: none"> <li>How do I get to my seat?</li> </ul>                              |
| Signposts from other navigational points (triggers)                        | <ul style="list-style-type: none"> <li>My seat reservation</li> <li>Reserve this seat</li> </ul>        |

|  |  |
|--|--|
| Title of task object   | <b>Station</b>   |
| Attributes   | <ul style="list-style-type: none"> <li>Name of station</li> <li>Platform</li> <li>Route to platform</li> </ul> |
| Executable functions (and actions they support)                            |  |
| Signposts to executable functions and other task objects (calls to action) |  |
| Signposts from other navigational points (triggers)                        |  |

|                      |                          |
|----------------------|--------------------------|
| Title of task object | <b>Route to Platform</b> |
|----------------------|--------------------------|

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|   |   |
|---|---|
| Attributes  | <ul style="list-style-type: none"> <li>• Route to platform</li> <li>• User's location</li> <li>• Destination of route (which platform and which level)</li> <li>• Level</li> <li>• Landmarks (for example, stairs, exits, shops)</li> </ul> |
| Executable functions<br>(and actions they support)                            | <ul style="list-style-type: none"> <li>• Show route to enter train</li> <li>• Show platform</li> </ul>  |
| Signposts to executable functions and other task objects<br>(calls to action) | <ul style="list-style-type: none"> <li>• Where should I enter the train?</li> <li>• What does the platform look like?</li> </ul>  |
| Signposts from other navigational points (triggers)                           | <ul style="list-style-type: none"> <li>• How do I get to the platform?</li> </ul>   |

|   |  |
|---|--|
| Title of task object  | <b>Platform</b>  |
| Attributes  | <ul style="list-style-type: none"> <li>• Sections</li> <li>• Platform number</li> <li>• Landmarks (for example, stairs, exits, shops)</li> <li>• Route to enter train</li> </ul> |
| Executable functions<br>(and actions they support)                            | <ul style="list-style-type: none"> <li>• Show route to enter train</li> </ul>  |
| Signposts to executable functions and other task objects<br>(calls to action) | <ul style="list-style-type: none"> <li>• Where should I enter the train?</li> </ul>  |
| Signposts from other navigational points (triggers)                           | <ul style="list-style-type: none"> <li>• What does the platform look like?</li> </ul>  |

|   |  |
|---|--|
| Title of task object  | <b>Route to Enter Train</b>  |
| Attributes  | <ul style="list-style-type: none"> <li>• Landmarks (for example, stairs, exits, shops)</li> <li>• Section indicators</li> <li>• Expected position of carriage</li> <li>• Recommended door site</li> <li>• Recommended position on the platform (to enter train)</li> </ul> |
| Executable functions<br>(and actions they support)                            | <ul style="list-style-type: none"> <li>• Show train carriage</li> </ul>  |
| Signposts to executable functions and other task objects<br>(calls to action) | <ul style="list-style-type: none"> <li>• What does my train carriage look like?</li> <li>• How do I get to my seat?</li> </ul>   |
| Signposts from other navigational points (triggers)                           | <ul style="list-style-type: none"> <li>• Where should I enter the train?</li> </ul>  |

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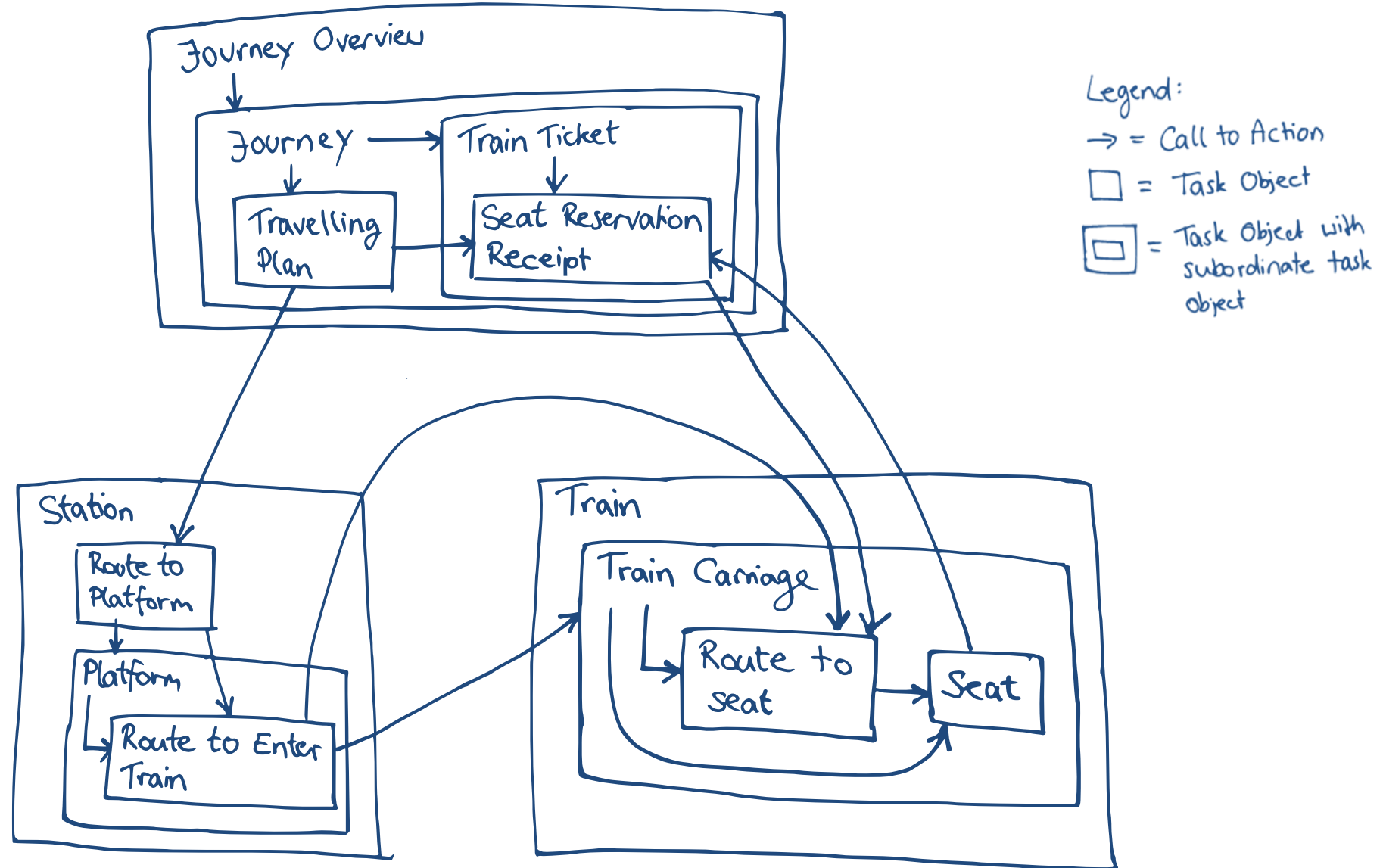
|   |   |
|---|---|
| Title of task object  | <b>Train</b>  |
| Attributes  | <ul style="list-style-type: none"> <li>• Train carriage</li> <li>• Destination station</li> <li>• Departure station</li> <li>• Train route</li> <li>• Order of train carriages</li> </ul> |
| Executable functions<br>(and actions they support)                            |   |
| Signposts to executable functions and other task objects<br>(calls to action) |   |
| Signposts from other navigational points (triggers)                           |   |

|   |  |
|---|--|
| Title of task object  | <b>Train Carriage</b>  |
| Attributes  | <ul style="list-style-type: none"> <li>• Doors</li> <li>• Seats</li> <li>• Seat layout (for example, window-seat, aisle-seat, table)</li> <li>• Train carriage letter</li> <li>• Expected position on platform</li> <li>• Route to seat</li> </ul> |
| Executable functions<br>(and actions they support)                            | <ul style="list-style-type: none"> <li>• Show route to seat</li> <li>• Show seat details</li> </ul>  |
| Signposts to executable functions and other task objects<br>(calls to action) | <ul style="list-style-type: none"> <li>• How do I get to my seat?</li> <li>• Details of my seat</li> </ul>   |
| Signposts from other navigational points (triggers)                           | <ul style="list-style-type: none"> <li>• What does my train carriage look like?</li> </ul>   |

|   |  |
|---|--|
| Title of task object  | <b>Seat</b>  |
| Attributes  | <ul style="list-style-type: none"> <li>• Type (window, aisle, etc.)</li> <li>• Location of seat</li> <li>• Seat number</li> <li>• Train carriage letter</li> </ul> |
| Executable functions<br>(and actions they support)                            | <ul style="list-style-type: none"> <li>• Reserve seat</li> </ul>   |
| Signposts to executable functions and other task objects<br>(calls to action) | <ul style="list-style-type: none"> <li>• Reserve this seat</li> </ul>  |
| Signposts from other navigational points (triggers)                           | <ul style="list-style-type: none"> <li>• Details of my seat</li> </ul>   |

| Title of task object  | <b>Route to Seat</b>   |
|---|--|
| Attributes  | <ul style="list-style-type: none"> <li>• Seat layout</li> <li>• Landmarks (for example, doors, exits, luggage shelf)</li> <li>• Route to reserved seat</li> <li>• Destination of route (seat)</li> </ul> |
| Executable functions<br>(and actions they support)                            | <ul style="list-style-type: none"> <li>• Show seat details</li> </ul>  |
| Signposts to executable functions and other task objects<br>(calls to action) | <ul style="list-style-type: none"> <li>• Details of my seat</li> </ul>   |
| Signposts from other navigational points (triggers)                           | <ul style="list-style-type: none"> <li>• How do I get to my seat?</li> </ul>   |

Answer sheet 3a: Schematic Representation of the Information Architecture



**Answer sheet 3b: Explanation of the Information Architecture**

Note: You can answer this either as a continuous text or in bullet points.

The base of this structure is formed according to attributes, signposts, and calls to actions, specified in the tabular overview of the task objects.

“Journey” forms the key component of this architecture as all other task objects, except for “Journey Overview”, are subordinate to it. The arrows representing calls to actions are structured to lead away from “Journey”/“Journey Overview” and hint at a possible navigation that originates there. This would reflect the user’s mental model, putting task objects in an order that adheres to users’ natural flow through the process, which this application aims to support.

A task object consisting of other task objects is represented by placing them inside the box of the task object they are a part of, for example, placing “Travel plan” inside of “Journey”. This hierarchy is indicated by “Travel plan” being an attribute of “Journey”.

“Station” and “Train” are different from other task objects as they do not have signposts or calls to action. As such, no arrows lead to or away from these task objects. However, they are still connected to other task objects as they demonstrate a hierarchy within them. “Platform” is listed as an attribute of “Station”, so I chose to represent this relationship in the same way as the other task objects that consist of task objects, even if there is no direct connection between them in the form of signposts.

## Exercise 4: Create a Low-Fidelity Prototype – 140 Minutes

In the meantime, the information architecture you created has been iterated and revised.

**Task:** On *Work sheet 7*, you will find documentation of the revisions to your information architecture. Please familiarise yourself with it.

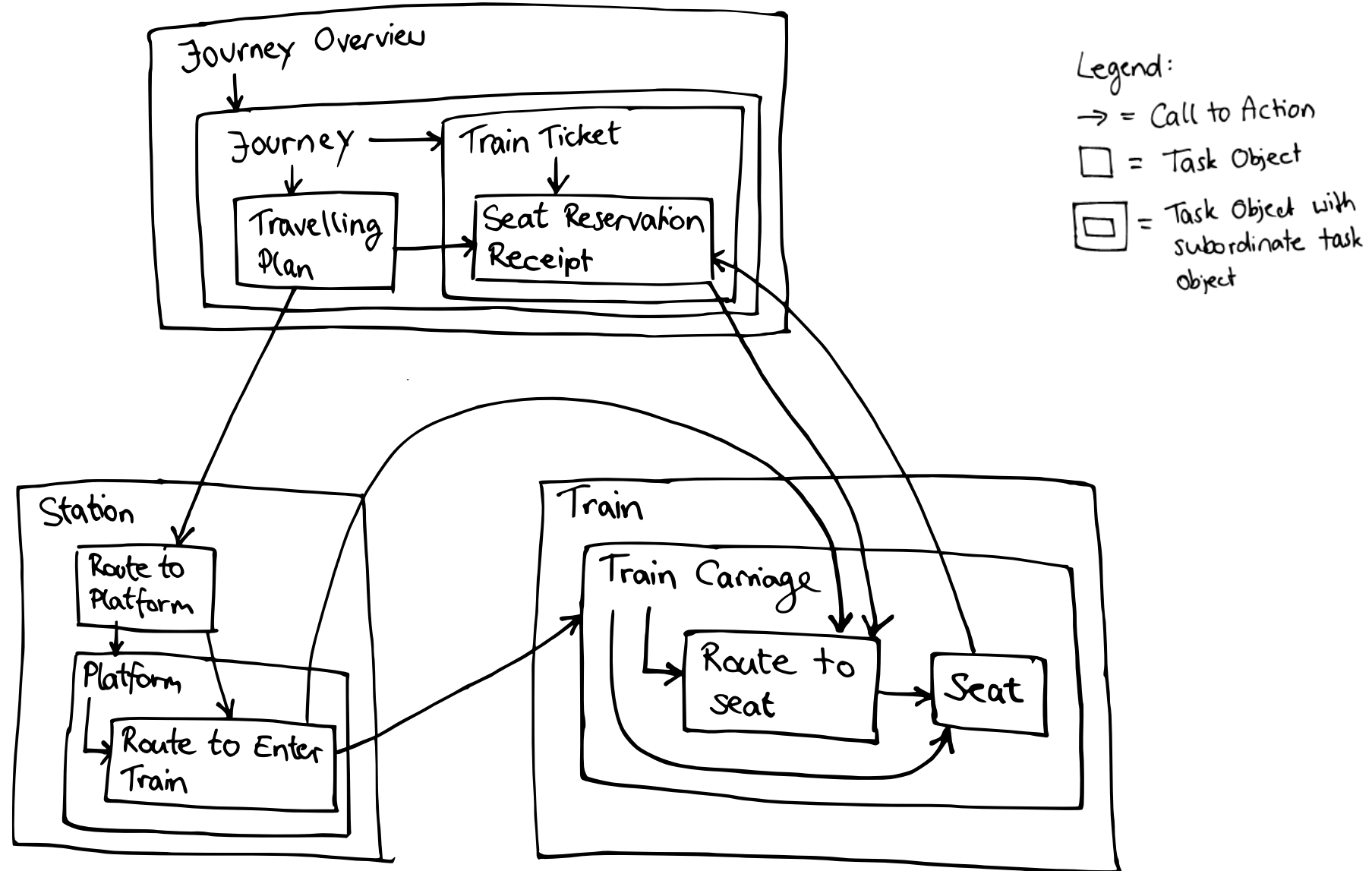
Please create a low-fidelity prototype that represents the interaction for the task “Take a reserved seat”. It may include components from other tasks; however, it should focus on the user task “Take a reserved seat”. Consider the heuristics (according to Nielsen)!

- a) Please create a low-fidelity prototype that will allow someone to run through the task.
  - The low-fidelity prototype should consist of a series of views. Use however many A4 pages of the *Answer sheet 4a* you need.
  - The prototype should represent the interaction specification and should be based on the information architecture in the sequence of views. The specified dialog steps and all user requirements should be considered.
  - Necessary annotations and further information can be made within the views to explain the operation. A full textual description of the interaction is to be made on *Answer Sheet 4b*.
- b) Please describe the interaction of the user with the system.
  - Describe the intended interaction from the user’s perspective when completing their task. Please use *Answer sheet 4b*. You can use the markings within your sketches (Task 4a) to help describe and specify your annotations.
  - Please name important design decisions that you made in your views.
  - If you made any deviations to the given information architecture and task objects within the sketches, briefly describe and justify those in the annotations (*Answer sheet 4b*).
- c) Name two of the heuristics according to Nielsen and explain how these have been considered in the low-fidelity prototype. Please use *Answer sheet 4c*.

Please be aware that you have limited time (140 minutes) to work on this examination task. We recommend the following time management schedule:

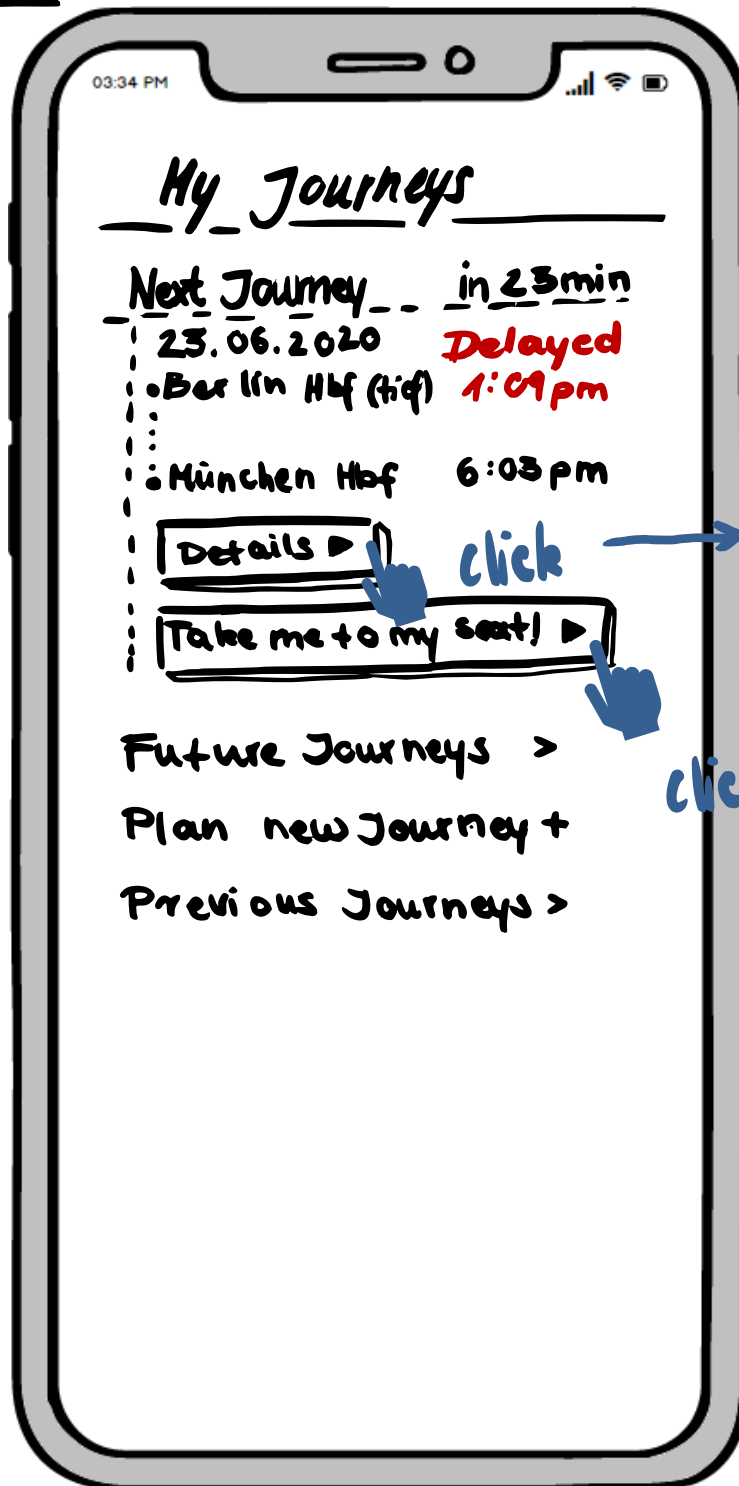
- Spend about 60 minutes familiarising yourself with *Work sheet 7* and creating your drafts on blank sheet of paper.
- Spend no more than 40 minutes transferring your sketches to the answer sheets.
- Spend at least 30 minutes annotating your sketches and describing the heuristics (Tasks 4b and c).

Work sheet 7: Documentation of the revised information architecture





# Sketch 1

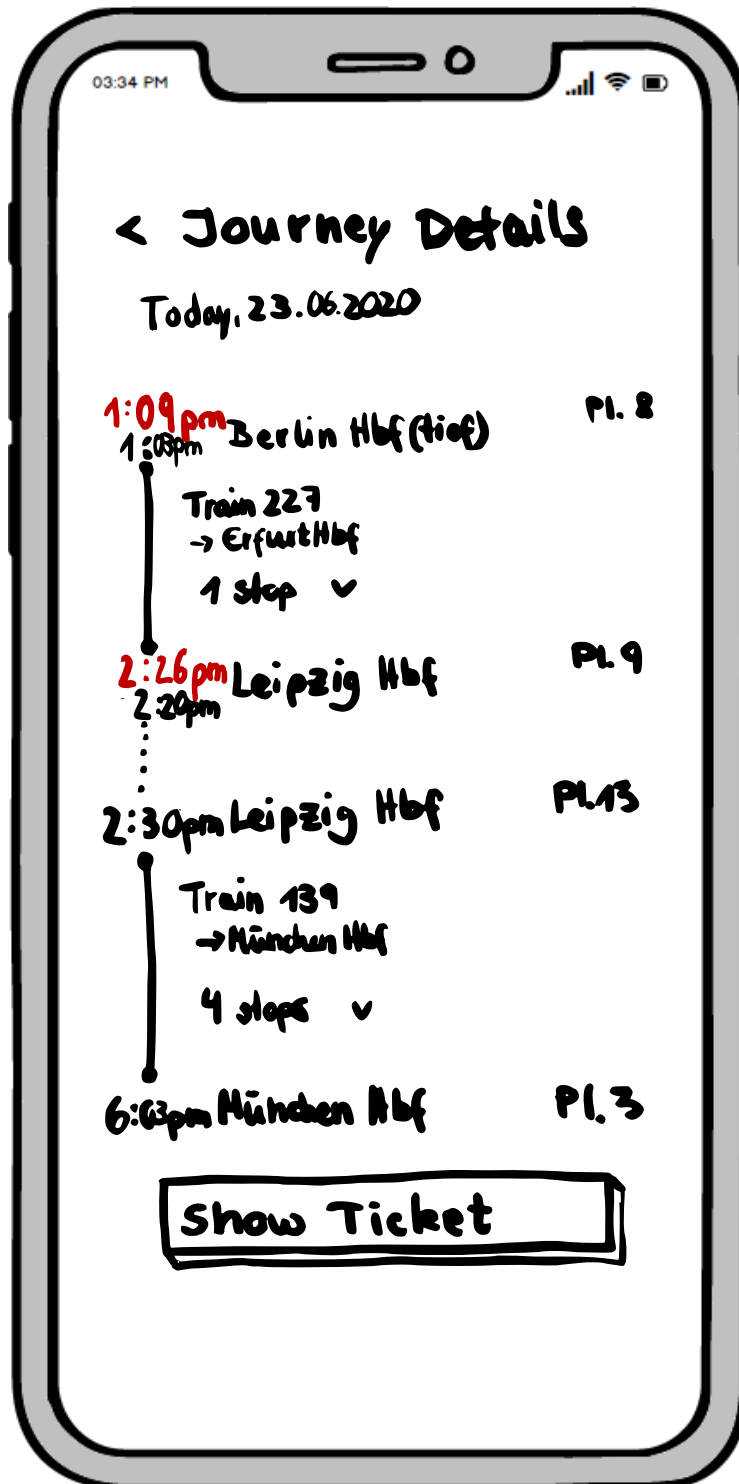


Sketch 2  
see ①

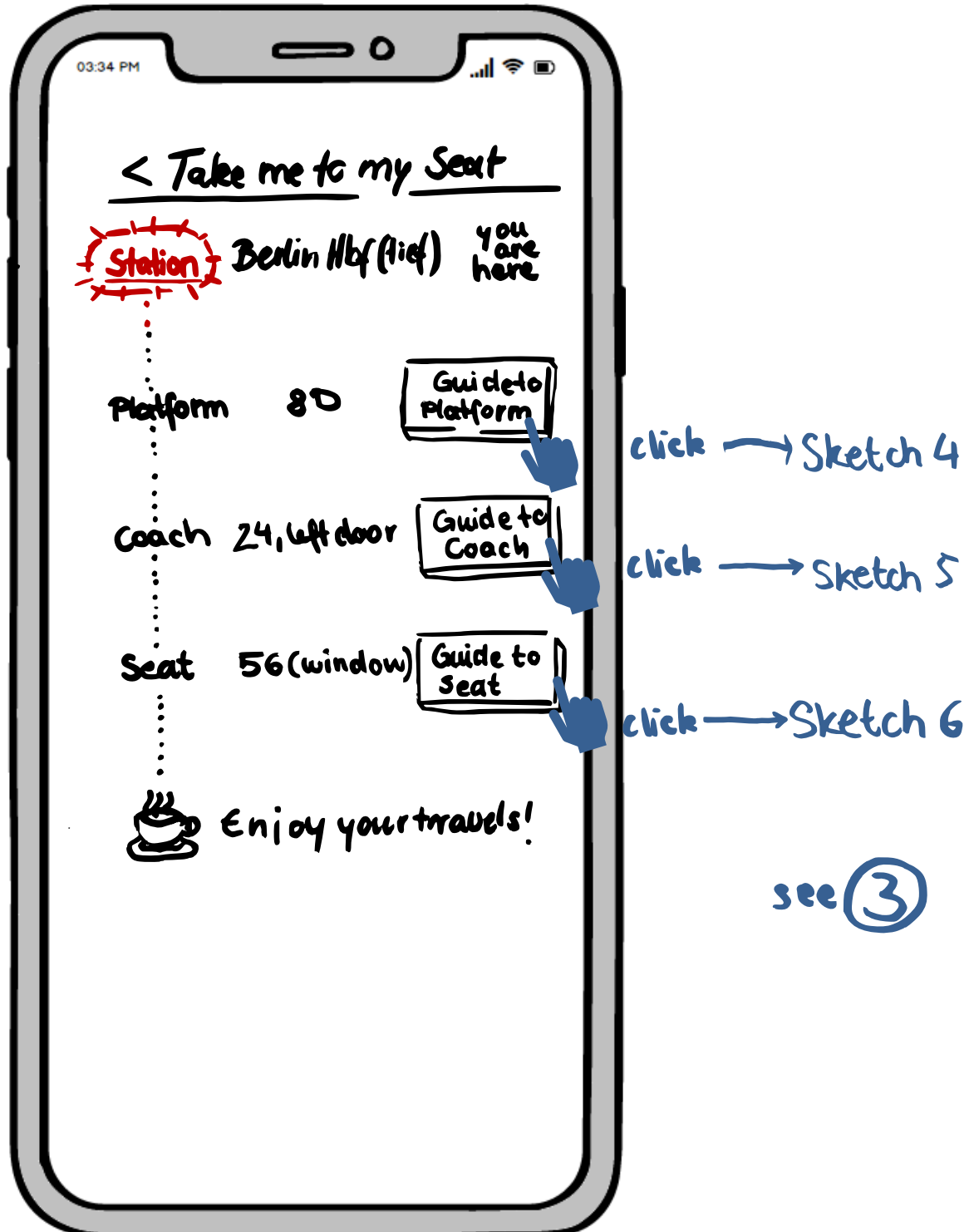
click  
Sketch 3 ②

Answer sheet 4a: Views of the Low-Fidelity Prototype

Sketch 2

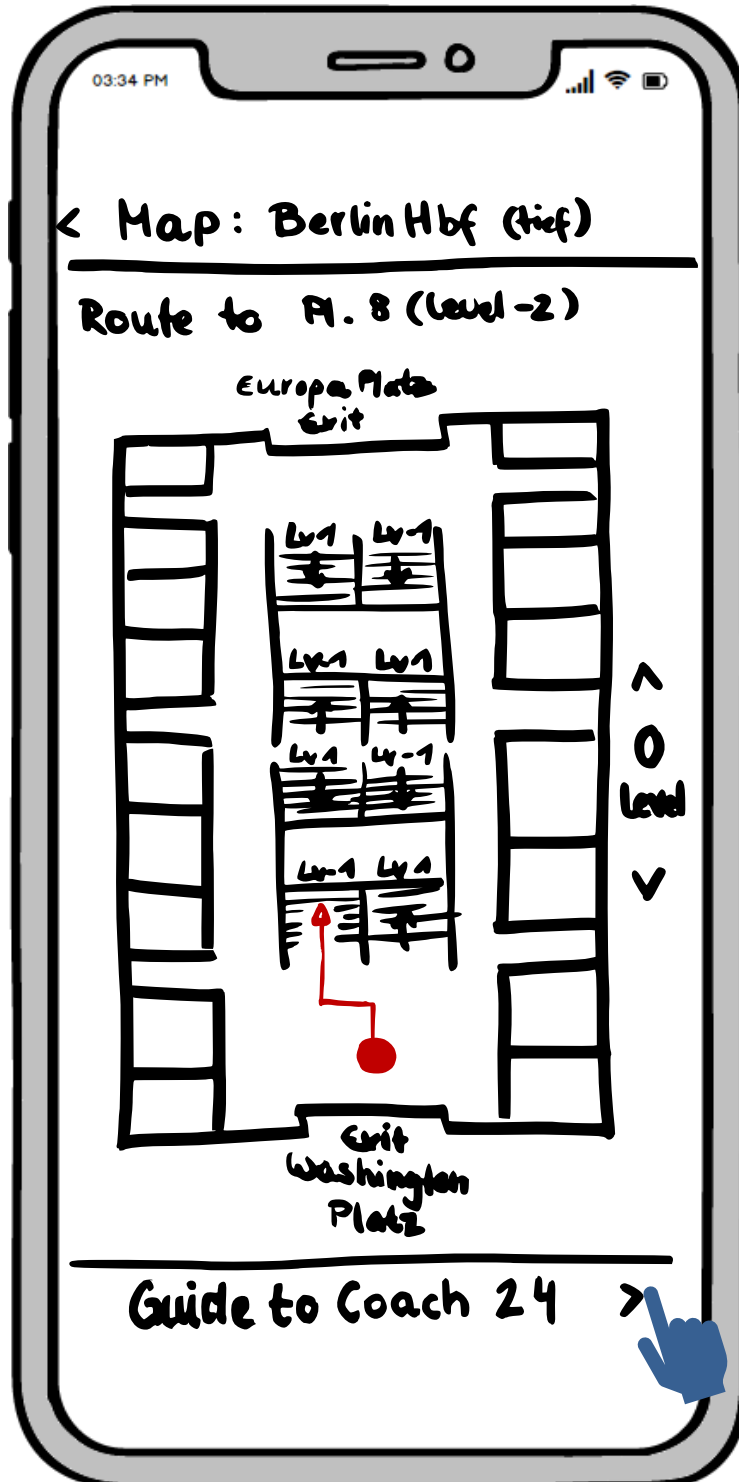


# Sketch 3



Answer sheet 4a: Views of the Low-Fidelity Prototype

Sketch 4



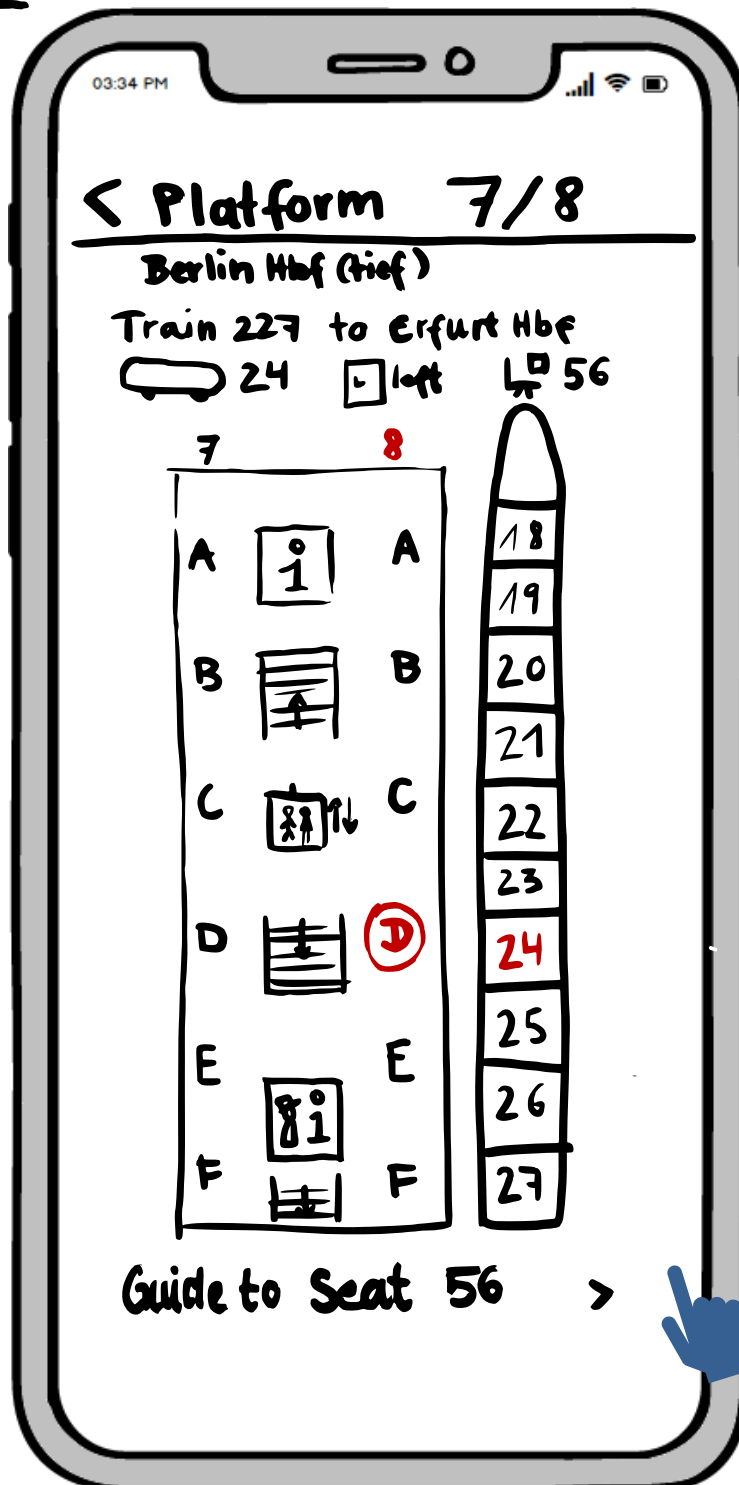
auto → Sketch 5

or

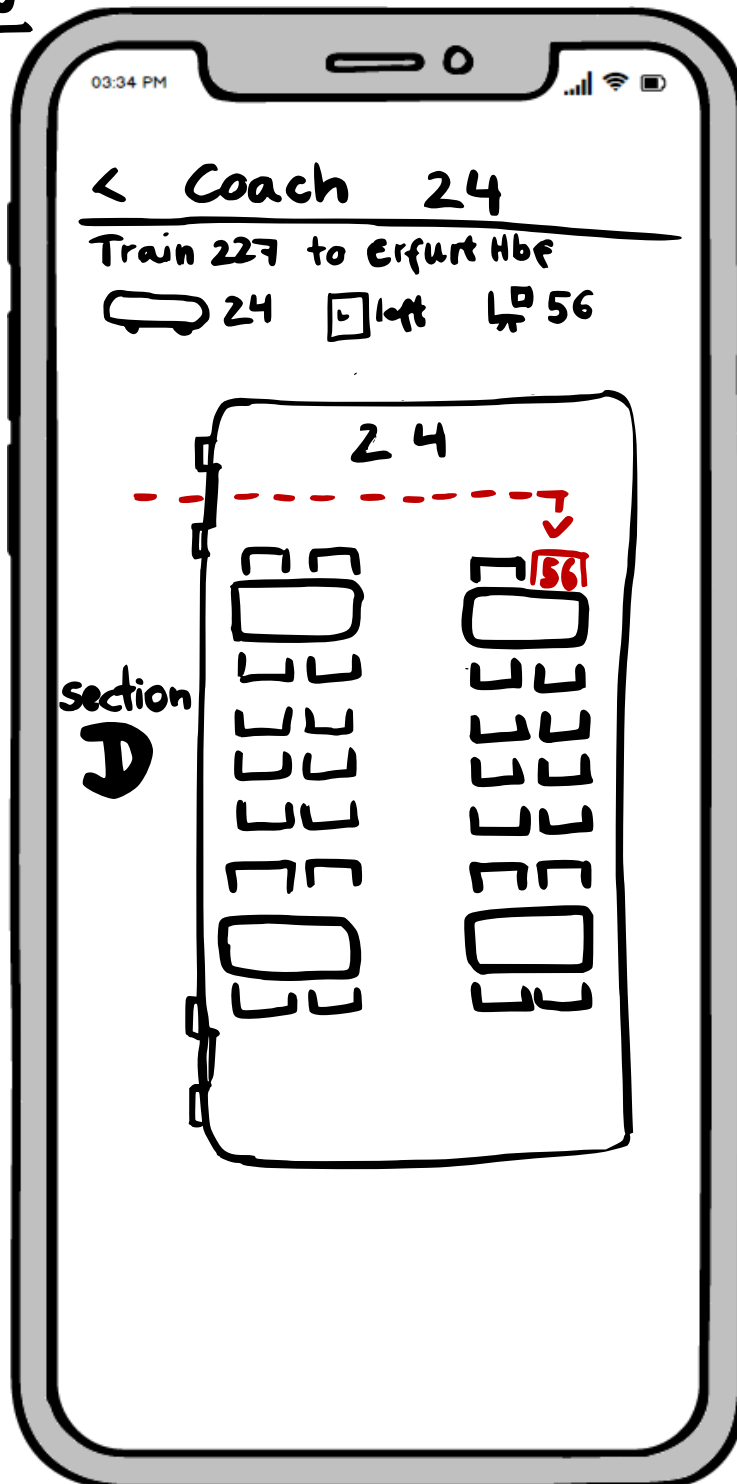
click → see ④

Answer sheet 4a: Views of the Low-Fidelity Prototype

Sketch 5



Sketch 6



## Answer sheet 4b: Description of the Interaction Between User and System

Note: You can answer this either as a continuous text or in bullet points.

- The user arrives at the train station, sees sketch 1, and receives the most necessary information about the departure of their train.
- For details of this journey, the user can tap “Details” (1), sending them to sketch 2.
- The train arrives, so the user taps the button “Take me to my seat” (2), which takes them to sketch 3.
- In this overview, the necessary steps to get on the train are displayed and the step the user is currently at is highlighted.
- The user can start chronologically and tap “Guide to platform” or just jump to whichever step they need information or guidance on (3). Each button sends them to the respective screens (4, 5, or 6).
  - I chose to show all of the steps in one overview (contrasting the information architecture, which suggests a chronological walkthrough) to provide the user with more freedom and easier access to each step.
  - I also put the navigation to these routes one layer higher than the information architecture suggests (directly from the journey, instead of through the travel plan/journey details) for easier access to this key feature.
- The following screens provide guidance through the different areas from the station entrance to the user’s seat in the train carriage. The system automatically switches to the screen for the next step (4, 5) once the user arrives at the destination of each step (for example, if they reach the platform). The user can also manually switch screens by tapping the button at the bottom of the screen.

### **Answer sheet 4c: Consideration of Heuristics**

Note: You can answer this either as a continuous text or in bullet points.

Recognition rather than recall: The platform number and the number of the carriage is repeated on almost every screen. The user can always see this information; they do not have to remember it or spend time searching for it.

Match between the system and the real world: The app's flow reflects the user's journey on their way to their seat on the train. First, they arrive at the station and have to get to the platform (sketch 3), then they have to navigate to the optimal position on the platform (4), and finally, they have to find their seat within the train carriage (5).



## Exercise 5: Evaluate Card Sorting Results – 45 Minutes

In the meantime, an open card sort with 15 users has been carried out to check the information architecture for consistency with the mental model of users.

Users received a set of 47 cards for all identified attributes of all task objects.

The users were instructed as follows:

“Please put yourself in the position of a traveller at the station who wants to find his train and his seat on the train. Please sort these cards in such a way that all terms that you think belong together are grouped together. Then give each group a headline that is as appropriate as possible.”

After the 15 card sorting sessions, the results were summarised.

**Task:** On *Work sheet 8*, you will find the summarised results of the card sorting sessions. Please familiarise yourself with these results.

Compare the card sorting results (*Work sheet 8*) with the information architecture (*Work sheets 6 and 7*). Evaluate the card sorting results with respect to the existing information architecture and derive measures for further design work.

- a) Compare the card sorting results (*Work sheet 8*) with the information architecture (*Work sheets 6 and 7*). Please use *Answer Sheet 5a*.
- Identify and describe 4 deviations of the card sorting results from the information architecture.
  - Assess the significance of each deviation for your prototype for the existing information architecture, considering the mental model of the user.
  - For each deviation, derive a concrete measure for further work in the design project.

Note: We recommend that you use the blank sheet of paper provided for your drafts before writing down the result in the template.

Note: Be sure to follow an efficient procedure when developing your results: Use the blank sheet only for rough planning of your results. You will not have enough time to transfer a fully elaborated result from the blank sheet to the answer sheet.

## **Work sheet 8: Summarised Results of the Card Sorting**

### **Buy a ticket**

- Place of departure
- Destination station
- Destination
- Date and times of departure and arrival
- Traveller number
- Traveller name
- Type (single, return or season ticket)
- Journey

### **Reserve a seat**

- Seat layout (window-seat, aisle-seat, etc.)
- Type (window, aisle)
- Seats

### **Before the journey**

- Type of journey (upcoming, future)
- Name of station
- Expected departure time
- Platform

### **At the train station**

- Platform number
- Route to platform
- User's location
- Landmarks (for example, stairs, exits, shops)
- Level
- Destination of route (which platform and which level)

### **On the platform**

- Time left until departure
- Destination
- Information on delays
- Recommended door
- Expected position of carriage on platform
- Recommended position on the platform (to enter train)
- Sections
- Section indicators
- Train carriage letter

### **The train**

- Train route
- Departure station
- Doors
- Train carriage
- Order of train carriage

### **In the carriage**

- Reserved seat location (carriage letter, seat number)
- Route to reserved seat
- Destination of route (reserved seat)
- Location of seat
- Seat number
- Landmarks (for example, doors, exits, luggage shelf)

### **Information during journey**

- Travel plan
- Stops
- Number of changes

### **Show ticket**

- Travel destination
- Seat reservation receipt
- Verification (for example, QR Code)

### **Further observations:**

- "Travel plan", "Stops", "Number of changes", "Train ticket", "Seat reservation receipt", and "Verification" were often grouped together or close to each other.
- Many participants were confused by ambiguously formulated cards and were not sure where to place them (for example, "Journey", "Destination", "User's location").

### Answer sheet 5a: Comparison of card sorting results and information architecture and concrete measures

Note: You can answer this either as a continuous text or in bullet points.

| Description of the Deviation and Assessment of the Deviation   | Measure   |
|--|---|
| <ul style="list-style-type: none"> <li>Users structure information based on the physical environment they are in and the tasks affiliated with that location, rather than pieces of information needed throughout the process (“Travel plan”, “Platform”, “Seat reservation receipt”).</li> <li>Even though the card sorting results differ from the existing information architecture, the latter still reflects the user’s expected workflow.</li> </ul>   | <ul style="list-style-type: none"> <li>Conduct a usability test to check for effective and efficient user support (the sketched prototype could be used for this)</li> </ul>  |
| <ul style="list-style-type: none"> <li>New subtasks and groups: “Before the journey”, “Reserve a seat”, “Show ticket”</li> <li>“Before the journey” is not directly covered by our task “Take your reserved seat”. Items and information allocated to “Before the journey” can be accessed at any time, including before the journey starts, so this does not prove to be an issue.</li> <li>It can be assumed that “Reserve a seat” is covered by the task “Buy a ticket”.</li> <li>“Show ticket” goes beyond the intended task (you would show a ticket after sitting down in your seat).</li> </ul>                             | <ul style="list-style-type: none"> <li>Check the task model for design for “buy a ticket” to make sure that these subtasks are included</li> </ul>  |
| <ul style="list-style-type: none"> <li>“Travel plan”, “Stops”, “Number of changes”, etc., are relevant to the user when they are on the train or during their journey. These cards were also always grouped with those from the group “Show ticket”.</li> <li>The task “Take a reserved seat” only covers cards valid until the start of the journey, not during the train ride.</li> <li>Certain parts of the travel plan as well as availability of information about the train ticket are important to the user during the journey.</li> <li>This information is still accessible since it has no time restrictions.</li> </ul> | <ul style="list-style-type: none"> <li>No measure necessary; however, further features to support the user during the train ride should be considered for example, showing the ticket to the conductor and displaying a real-time itinerary</li> </ul>  |
| <ul style="list-style-type: none"> <li>“Seat layout (window-seat, aisle-seat, etc.)” and “Type (window, aisle)” have been assigned to the category “Reserve a seat”. Those attributes are part of the task object “Carriage”.</li> <li>Users might want to see the layout when making a reservation.</li> </ul>  | <ul style="list-style-type: none"> <li>Take a look at the subtask “Reserve a seat” and incorporate the seat layout to make the reservation easier and more comfortable for the user; for this, refer to the task “Buy a ticket” as seat reservation may have been covered by this task</li> <li>No changes to the current architecture are necessary</li> </ul> |

## 5 Important Changes to this Document

| Date, Version               | Changes compared to version 1.0, 2 October 2020 and version 1.1, 31 January 2021   |
|-----------------------------|--|
| 5 March 2021, Version 1.2   | <p>Adjustments in the practical examination:</p> <ul style="list-style-type: none"> <li>• Two notes were added to the instruction (note on efficient procedure and note on clear handwriting).</li> <li>• The timetable was revised due to the adjusted timing of the exam (10 minutes more time is available for task 1 and 20 minutes more time is available for task 4).</li> <li>• On Answer Sheet 2, the "Calls to Action" and "Trigger" columns have been swapped with each other</li> <li>• The wording of tasks 3, 4 and 5 have been revised.</li> <li>• The titles of answer sheets 3a, 3b, 4a and 4b were sharpened</li> <li>• A legend has been added to the information architecture on Answer Sheet 3a and Worksheet 7.</li> </ul>  |
| 14 April 2021, Version 1.2b | <p>Adjustments in the theoretical examination:</p> <ul style="list-style-type: none"> <li>• Spelling corrected</li> <li>• Question 12 rephrased, answer C “considering” instead of “developing”</li> <li>• Question 15 answer E rephrased</li> <li>• Question 19 answer E and F rephrased</li> <li>• Question 21 answer B rephrased</li> <li>• Question 30: “human-centred quality objectives” instead of “quality objects”, answers altered: “they” instead of “quality objectives”</li> <li>• Question 31 answer D “other stakeholders” instead of “stakeholders”</li> <li>• Explanations to the answers were rephrased (questions 6, 9, 28 and 30)</li> </ul> <p>Adjustments in the practical examination:</p> <ul style="list-style-type: none"> <li>• Minor revisions to the information architecture and calls to action in the task object overview.</li> </ul> |