Project 2 - Design and Prototyping (150 points)

This project task is the second of three project tasks that together take you through one iteration of the complete design process.

As a reminder, the overall goal is to design a companion mobile app for the program "Campus in Bewegung - Fitness-Trail" to help all people on the university campus to integrate exercise, fun and fitness during the day.

For instance, the app should support (but is not limited to) the following areas:

- Helping users to navigate through the fitness trail and give recommendations which exercises to do next at which site.
- Helping users by presenting the correct way of doing exercises in different sites.
- Allowing users to track their physical activity and progress.
- Sharing user's progress with others.

Please keep all of your answers short and on point, and write them in concise bullet points. Please read the instructions for submission at the end of this exercises.

If you have questions regarding the tasks, please ask your tutor.

Groups of 2: For groups that have only 2 members, for some tasks a reduced amount of work is indicated with *Groups of 2:* as an identifier. This does not apply for groups that have three members.

Tasks:

In this project task one goal is to create a high fidelity (hi-fi) prototype for your mobile application. You will have to create a prototype in *HTML*, *CSS*, and *JavaScript* which runs on a smartphone in full screen mode, i.e. to simulate a native app. You are free to use any tool to meet these requirements, however, we recommend the prototyping tool *Axure RP*.

Axure RP: If you are not familiar with *Axure RP*, please have a look at the *Axure* website: `http://www.axure.com/`. *Axure* offers a free 30-day trial and free licenses for students (see here: `http://www.axure.com/edu`). For a quicker start you might want to follow the short in-app tutorial or have a look at the more extensive documentation here: `http://www.axure.com/support/training/core/1-basics`. Generally we recommend to familiarize yourself with the tool before starting this project task.

1. Initial conceptual model ($3 + 2 + 2 + 1 = 8$ points)
   (a) Identify one possible interface metaphor and visualise it as a sketch for each of the following main tasks:
      - navigating through the fitness-trail.
      - guiding to do the exercises.
      - sharing progress with other users.

      Groups of 2: skip "sharing progress with other users"
   (b) Identify possible interaction modes (at least two). Briefly explain the reasoning that has let you focus on these particular modes.
   (c) Determine the interaction styles that fit your identified interaction modes. Briefly justify your choice.

(d) Which interaction mode/style is most suitable for your app? Select one and justify your decision briefly.

2. Expanding the conceptual model ($3 + 1 + 2 = 6$ points)
Using the app's goals and the requirements you found in Project 1, briefly answer the following questions:

   (a) What functions will the product perform?
   - What will the product do and what will the human do (task allocation)?
   - What options are under the control of the user?

   (b) How are the functions related to each other?

   (c) What information needs to be available?

3. Validating the conceptual model ($4 * 3 + 5 + 3 = 20$ points)

   (a) To validate your conceptual model, create 2 storyboards for each of the following two main tasks:

      i. navigating through the fitness-trail.

      ii. guiding to do the exercises.

   Hint: use your scenarios from Project 1. Consider different contexts.
   Groups of 2: one storyboard for each task

   (b) Show each storyboard to at least 3 potential users and gather some informal feedback. Briefly summarize your findings.

   (c) Choose the most promising board for each task and refine it based on the feedback. Briefly state what refinements you have performed and why.

4. Low-fi paper prototype ($5 * 3 + 5 + 1 + 10 + 10 + 2 = 43$ points)

   (a) Create 5 prototypes for different UI designs. Keep the prototypes simple: They only need to show the core UI elements.
   Groups of 2: 3 prototypes

   (b) Discuss the different designs and gather feedback from at least 3 users. Briefly summarize your findings.

   (c) Select the 2 most promising prototypes. Explain your choice shortly.
   Hint: you may want to reference your findings from above.

   (d) Use the feedback to refine both prototypes and create paper prototypes based on them. The paper prototypes need to be more detailed: You should be able to present a user all screens necessary to complete the tasks as sketched in the storyboards above.

   (e) Test the 2 paper prototypes with at least 3 different users. (Test each prototype with all users)

   (f) Select the strongest design and refine it based on the users' feedback. Again, explain your choice shortly and state what refinements you have performed and why.
   Hand in your physical paper prototypes on January 16^{th} 2019, between 2 pm. and 2:15 pm. in the lecture Hall. Please provide a cover sheet clearly stating your group number and tutorial session. Also indicate which is the final prototype that you selected and refined.

5. Hi-fi prototype ($25 + 40 + 3 + 5 = 73$ points)

   (a) Based on your final paper prototype from task 4, create an initial horizontal hi-fi prototype. You should decide on one target mobile platform (iOS or Android) and design your app for that platform. This prototype should include:

- the entry point to your application
- access the app's main functions (e.g. via a main menu)

Document and shortly explain design decisions beyond what was already done in the paper prototype (e.g. device or platform specific decisions, colors, etc.) Prepare a walkthrough of your horizontal prototype (screen shots and short description). Hand in the walkthrough documentation and the final HTML version. Please note that the walkthrough documentation should be sufficient to see what you have implemented. The other material is just for completeness. Document and shortly explain design decisions beyond what was already done in the paper prototype (e.g. device or platform specific decisions, colors, etc.)

(b) Extend your horizontal prototype with vertical branches for the two main tasks:

i. navigating through the fitness-trail.
ii. guiding to do the exercises.

Implement all screens that a user needs to click through to complete the tasks and incorporate them into your prototype from task 5a. Please note that these branches can be implemented either with predefined 'dummy' data or user-defined 'real' data. The important aspect is that a user can click through each branch.

(c) Document and shortly explain three design decisions regarding the vertical prototype.
Groups of 2: two design decisions

(d) Prepare a walkthrough of your vertical prototype (screen shots and short description). Hand in the walkthrough documentation and the final HTML version. Please note that the walkthrough documentation should be sufficient to see what you have implemented. The other material is just for completeness.
Note: Documentation, screens, and HTML prototypes should be submitted separately for each prototype step (i.e. one set for the horizontal prototype and another for the vertical prototype.)

Instructions for submissions:

- You can upload your answers multiple times until January, 17^{th} 2019 - 12pm. The most recent version will count. You cannot change your answer after January, 17^{th} 2019 - 12pm.
- Hand in your physical paper prototypes on January 16^{th} 2019, between 2 pm. and 2:15 pm. in the lecture Hall. Please provide a cover sheet clearly stating your group number and tutorial session. Also indicate which is the final prototype that you selected and refined.
- If one of your group members are not contributing to the exercises, you must inform your tutor.
- Please put your answer sheet and all the other relevant documents in one archive file (zip) and name your submissions according to the following scheme:

  HCI_exercise_XX_GGG.zip where XX = exercise number (e.g. 03) and GGG = group number (e.g. M01).

Hand-in until January, 17^{th} 2019 - 12pm as PDF via Moodle (https://hci-lecture.cs.uni-saarland.de)