

Mirza Misbah Mubeen Baig 2571567

Shahzain Mehboob 2571564

Anton Hag 2575432

Human-Computer Interaction

Exercise sheet 7

Project 1 – Design & Prototyping

149P

8 Task 1: Initial Conceptual Model

a) Interface Metaphors

3 **Solution:** Considering figure 1, The first screen in the figure shows that the whole month's schedule has been set and the user can go through it by selecting specific week and day. In the first screen there is a share icon, share icon is also posing with a real world because lines show direction outside i.e. sharing something. So it is easily understandable for user. In the 4th screen there is a help icon with a raised hand symbol again influenced with the real world as we raised our hand when facing problem. In the 5th screen map icon is used to create a navigation metaphor. It is just posing an actual metaphor match to the real world. User can easily visualize the function of this icon.

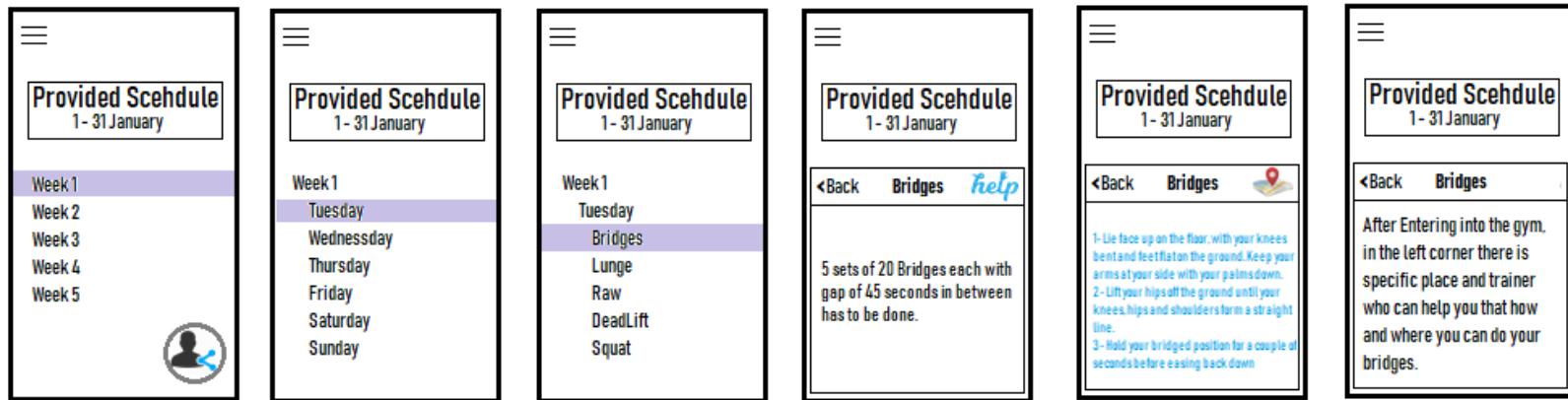


Figure 1: Possible Interface Metaphor and Its Visualisation

For Interfaces Images are self-designed & for Storyboards some images/clipart are taken from google and then altered but still self-designed

b) Interaction Modes

Solution:

Conversation: Sometimes user does not have enough information or do not know about more options about something. i.e. if user search location on a map system depicts different directions to desired destination.

Giving Instructions: If user search something the system display result according to the input that user gives

2 or if user click on button system responds according to the user command.

Navigating and Manipulating: Dragging, selecting, opening and closing, tap and swipe options on virtual objects

c) Interaction Styles

Solution:

GUI: Through graphical user interface such as Icons, Menus and Buttons etc user can easily interact with **2** system.

Augmented Reality: Through gestures user can navigate the map.

Speech Interface: Through speech, data entry, listening or typing.

d) Navigating & Manipulating

- Most interaction and suitable mode for our application is *Navigating and Manipulating* because user can easily tap and swipe objects. Conversation and Instructions are also very important interactive modes but these are not convenient for an android app to operate virtual objects.
- *GUI* is most appropriate interaction styles focusing our application because effective icons, menu & buttons are very important for the user to interact effectively and easily with the system. Augmented reality and speech interface are not needed for such an application.

5P

Task 2: Expanding the conceptual model.

3 a) Functionalities

Solution:

I. The product will do the following

- Auto completion of queries.
- Group Exercises into different categories.
- Provide the user(s) a database of trainers to choose from.
- Provide strict monthly diet of the user(s).
- Highlight exercises that have been edited by trainer.
- Notifies other users if one of the user makes a change in a shared schedule.

II. The human will do the following

By-Trainer

- Manage one or more trainee's schedule i.e. create, edit and delete schedule
- Add/delete routines to/from a schedule
- Keep track of monthly diet

By-Trainee

- Share schedule with family members or flat mates or Gym-colleagues
- Keep track of monthly diet
- Save completed tasks
- Mark routines as done

b) Related Functionalities

Solution:

- Whenever someone adds/deletes/edits a shared Schedule, the app notifies all the users among whom the schedule is being shared.
- 1 • The user(s) keeps track of their monthly diet because the app provides them a strict monthly routine set by the trainer.
- A range of exercises that can be added to a schedule by the user(s) because the app has a database of exercises to choose from.

1 c) Information Needed

Solution:

- Users Database
 - I. Trainers
 - II. Trainees
- Database of exercises from which a user can choose.
- Database of monthly routine.
- Mapping of trainee to trainers.

-1P you are missing the geoinformation (GPS, Maps) to locate the user/stations

20P

Task 3: Validating the conceptual model

12

a) Story Boards

Solution:

6

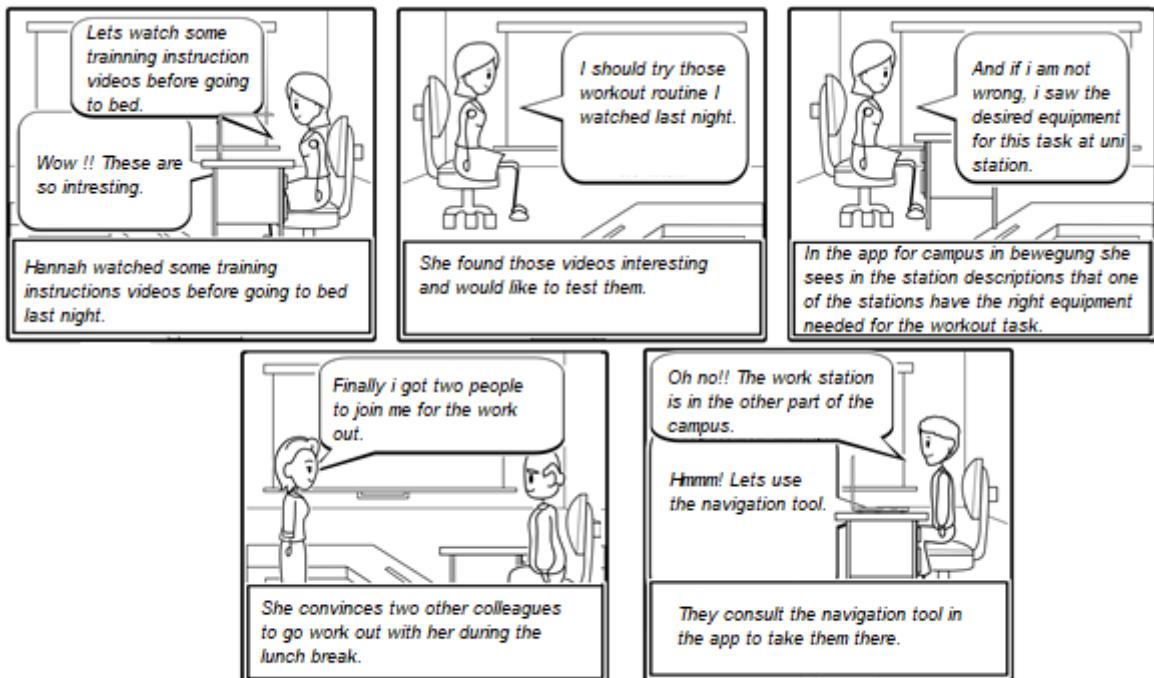


Figure 2: StoryBoard 1 'navigating through the fitness-trail'

istn that a she on the picture?

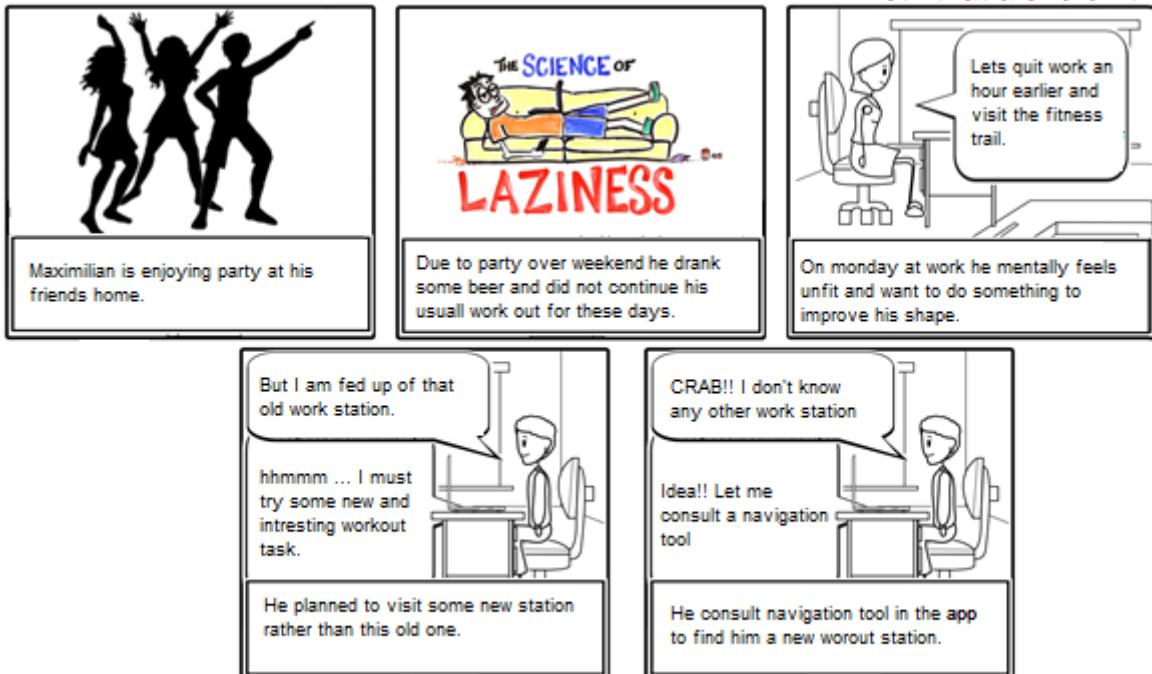


Figure 3: StoryBoard 2 'navigating through the fitness-trail'

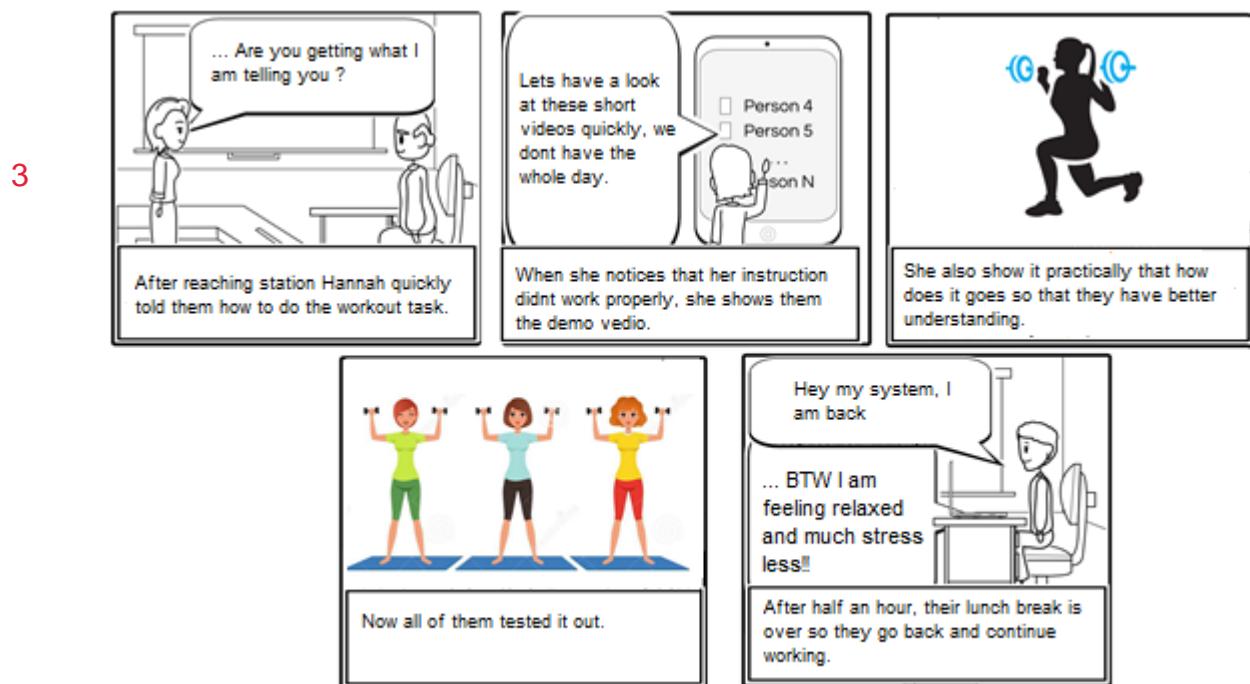


Figure 4: StoryBoard 3 'guiding to do the exercises'

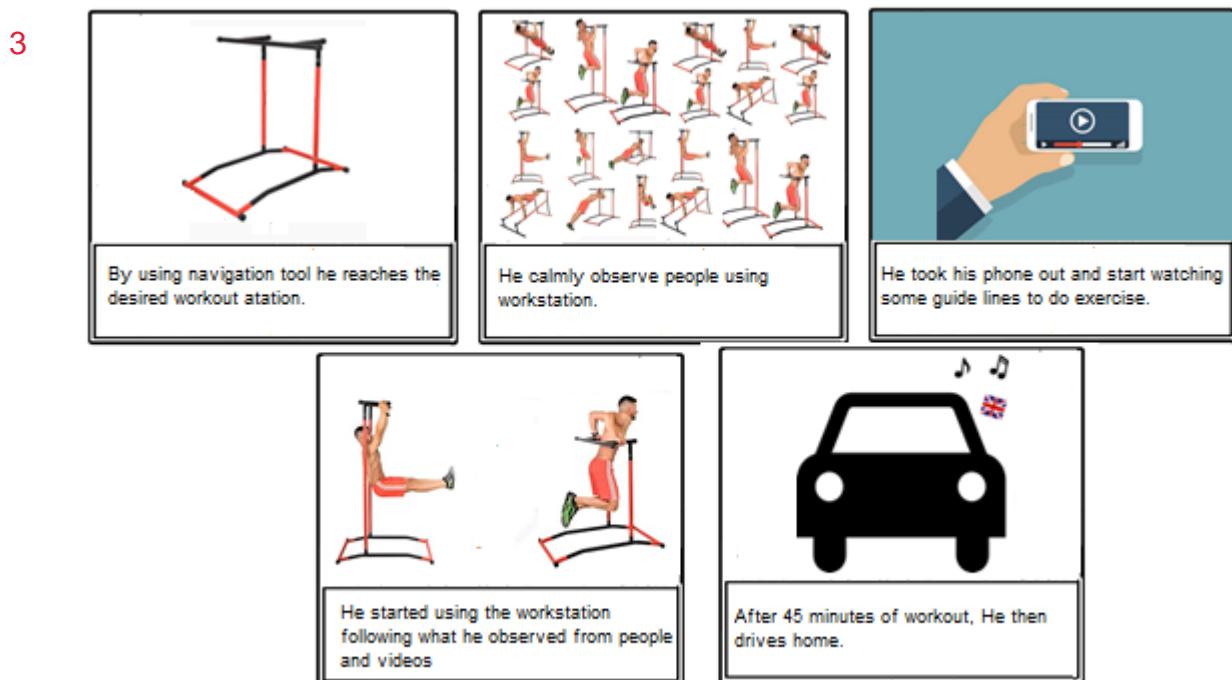


Figure 5: StoryBoard 4 'guiding to do the exercises'

5P

b) Feedbacks

Solution: We showed our storyboards to potential users and gathered some informal feedback regarding their improvements.

User's Information

User No.	Age	Gender	Profession	Story Board 1	Story Board 2	Story Board 3	Story Board 4
Person 1	25	Female	Student	3.5/5.0	3.0/5.0	4.0/5.0	2.5/5.0
Person 2	24	Female	PHD Grad.	4.0/5.0	3.5/5.0	3.5/5.0	3.0/5.0
Person 3	27	Male	Consultant	3.5/5.0	3.0/5.0	4.5/5.0	3.0/5.0

Story Board Scored points

Story Board	Points (out of 15)
Story Board 1	11
Story Board 2	9.5
Story Board 3	12
Story Board 4	8.5

- c) Constructive Feedback:** All the three users like and graded story board 1 from 'navigating through the fitness-trail' and story board 4 from 'guiding to do the exercises' category. They found these story boards more realistic, interesting and easily understandable. According to them story board 1 has more appropriate usability definition fulfilling the requirements of navigation and its purposes and further more they found it moreover they found it more explaining than the story board 2. Here person 2 specially mentioned, "*if the center part of the story board 1 would be more strong than it must be the perfect story board*" and the same sort of feedback was given by the first user person as well. First user also says that the story of both the boards that are story board 1 and 2 are well defined but the only edge story board 1 has its well illustration. Whereas from guiding stories they found story board 3 more pragmatic, more representative and more convincing. Person 3 mentioned that he would have score story board 3 with perfect score of 5.0 but the only thing he didn't like is the start, according to him starting of the board has the capacity to be more convincing. All the three users find story board 4 not realistic and vague.

3 d) Refinements

Solution: All users find Story Board 1 and 3 more realistic, genuine, pragmatic and well representative and illustrative so we are going to refined these 2 boards according to their feedbacks.

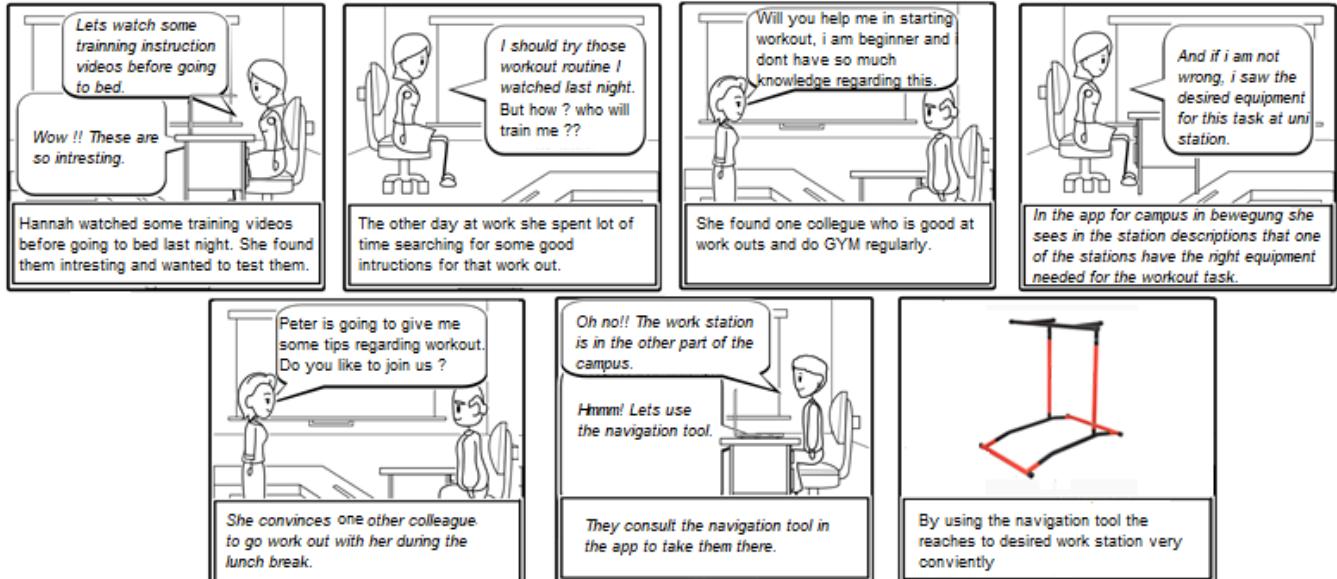


Figure 6: Story Board 5 'navigating through the fitness-trail'

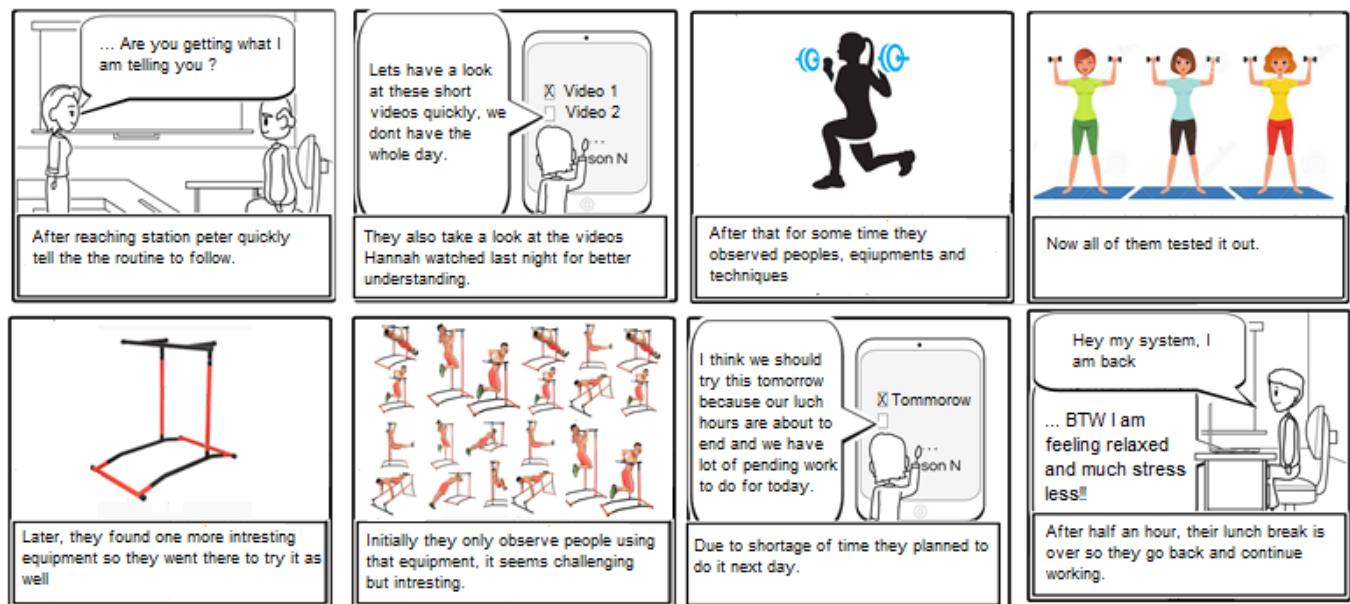


Figure 7: StoryBoard 6 'guiding to do the exercises'

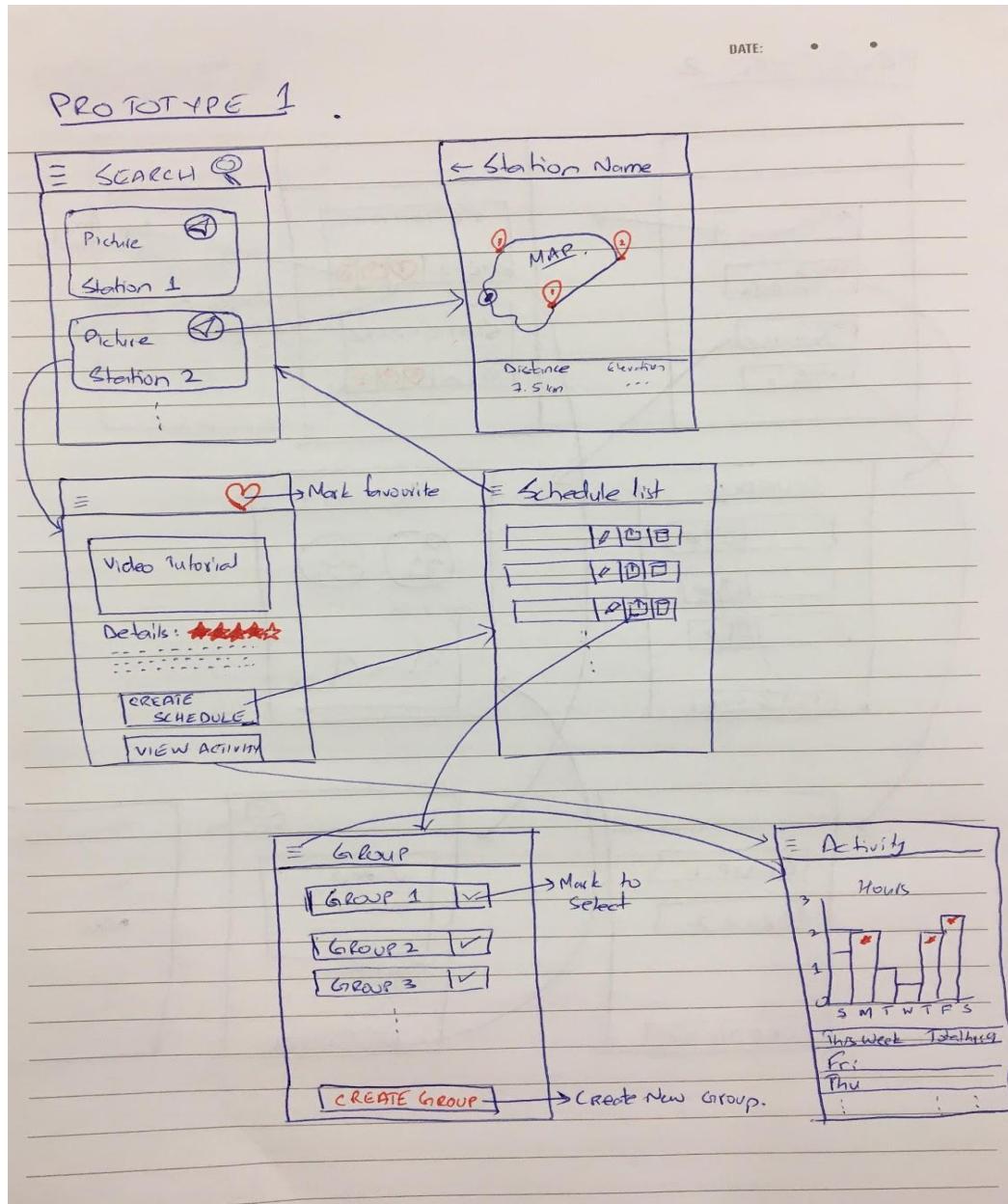
Task 4: Low-fi paper prototype 43P

Solution: The low-fi paper prototype was also handed in in the lecture hall as instructed in the task description.

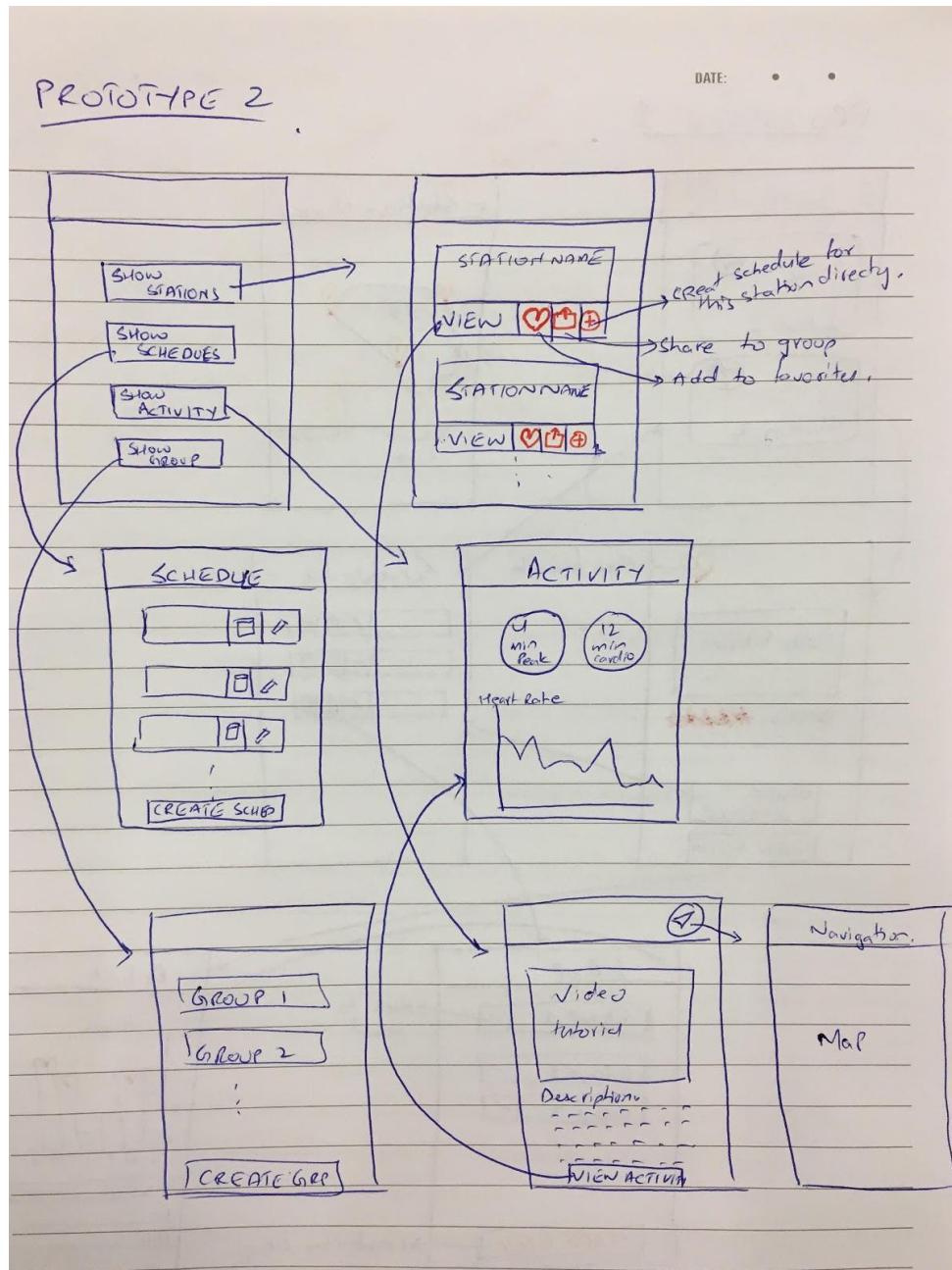
a) 5 Initial prototypes 15P

Solution: 5 Initially designed prototypes are given below.

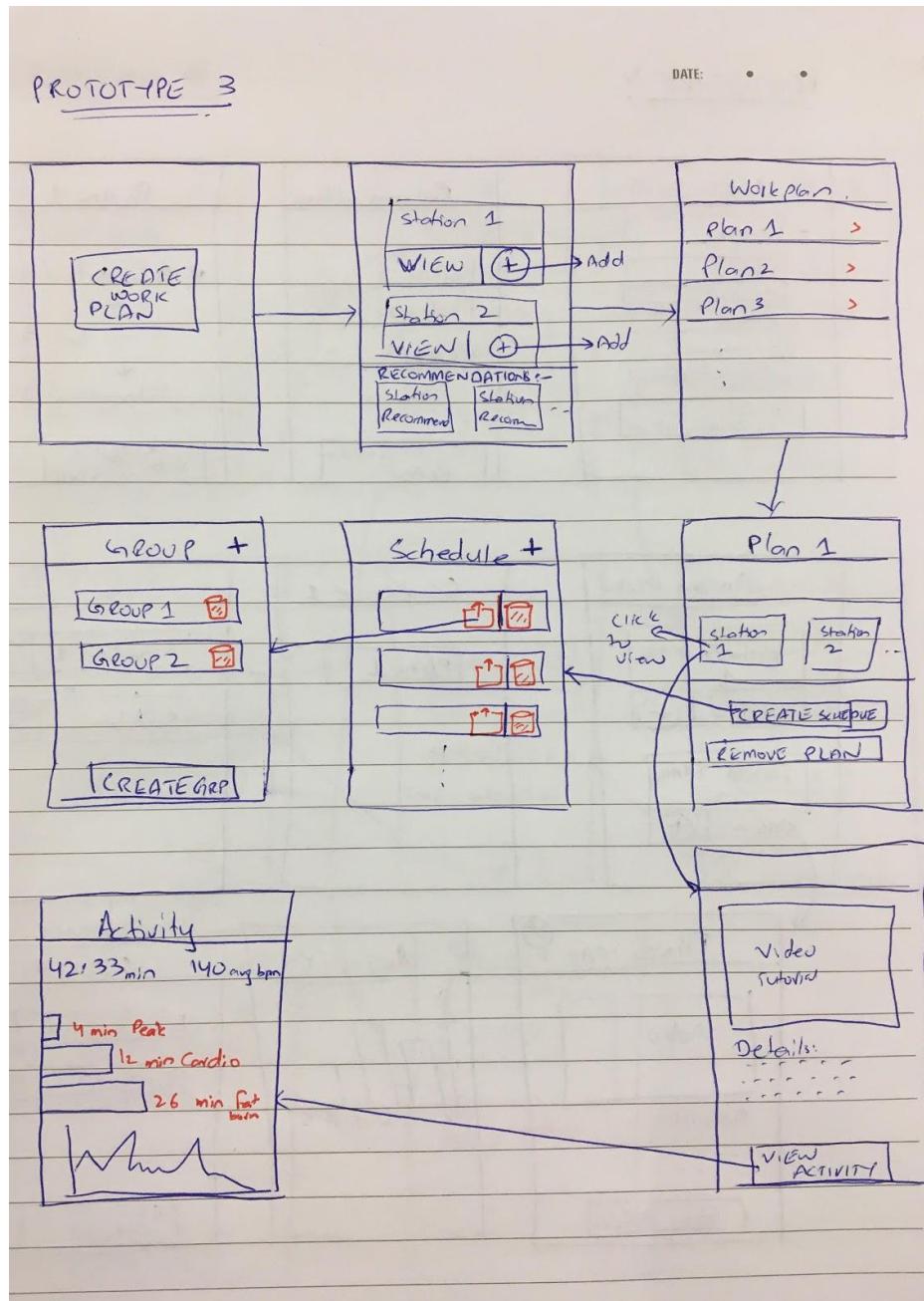
Prototype 1



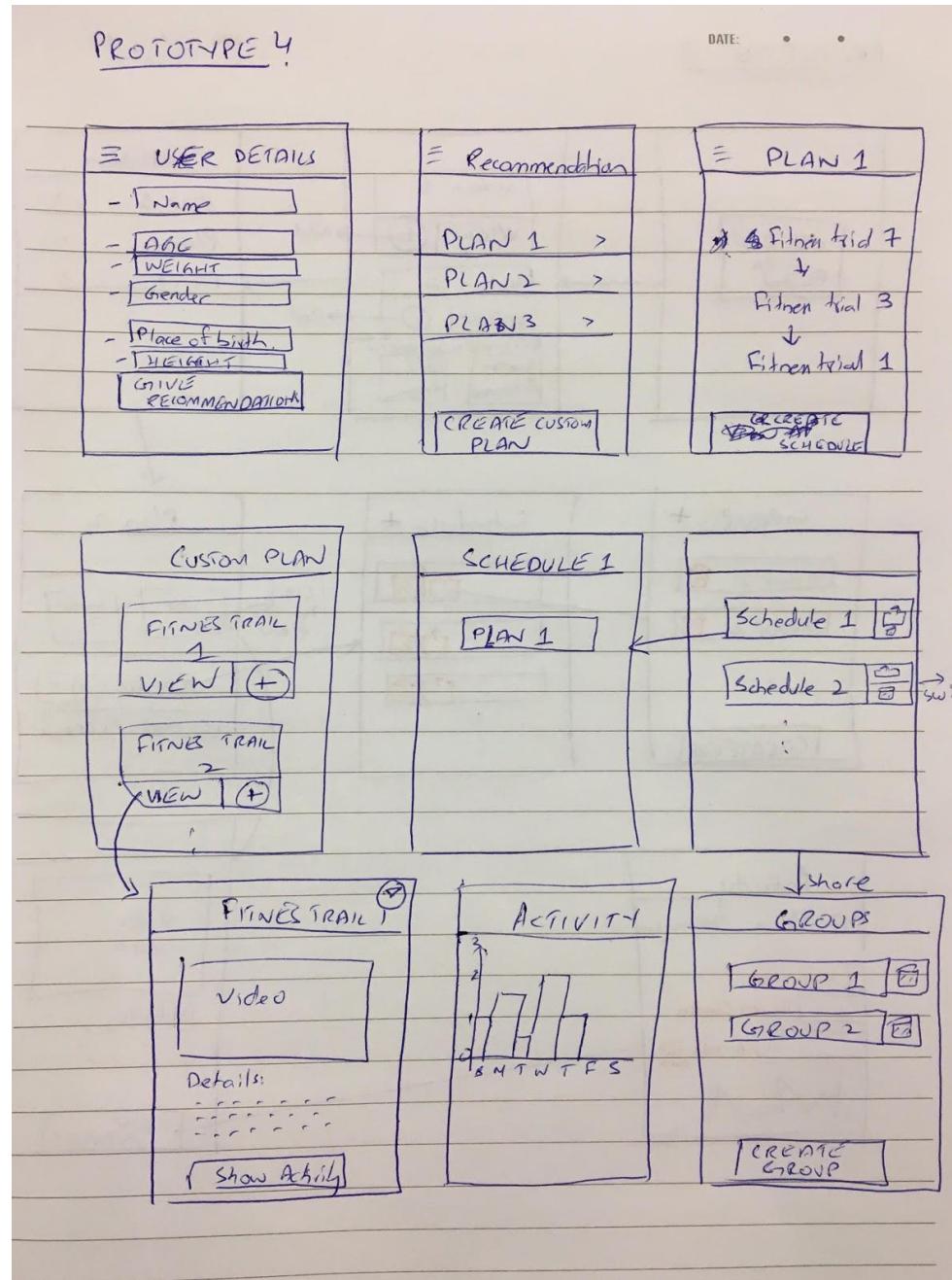
Prototype 2



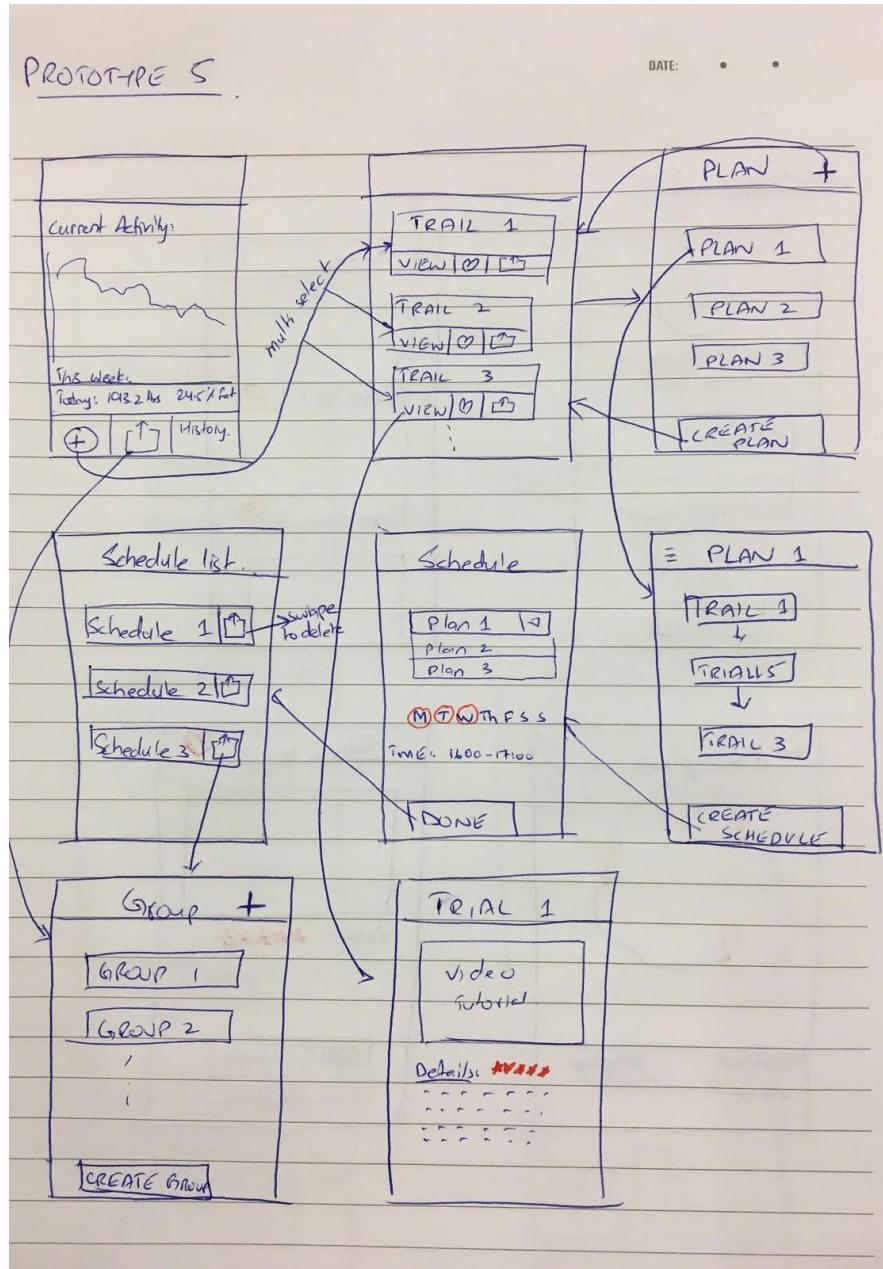
Prototype 3



Prototype 4



Prototype 5



b) Feedback on Initial prototypes

Solution:

5

Person 1 (Male, 23 years old, Proficient Smartphone User)

Person 2 (Female, 26 years old, Intermediate Smartphone User)

Person 3 (Male, 40 years old, Inexperienced Smartphone User)

According to Person 1, the back button is essential to all the prototypes while Person 2 had the opinion that smartphones themselves have a back button so it is not of utmost importance.

Both Person 1 and Person 2 pointed out that all activities must have their name on top so that a user can recognize the activity they are performing. Furthermore, they both really liked the idea of having recommended plans along with custom creation of plan Prototype 4.

Person 3 really liked the idea of sharing schedule to groups and creating groups also mentioning the option to edit those schedule and groups will be beneficial for every user to update their already created lists of schedule and groups.

Furthermore, all 3 users really liked the idea of having a navigation for all fitness trail once the trail is viewed to the user so that if they want to see the location of the trail they can easily look and plan to go accordingly and also they liked the idea of showing video tutorial on how to perform the activity.

c) 2 Most Promising prototypes

1

Prototype 1:

Users really liked the idea of showing list of fitness trail immediately. Because one of the user also believed that showing the list on the home screen will help user who wanted to view the trail immediately and plan accordingly and also they can navigate directly from the main screen which reduces their time to move along the app. Some users suggested that instead of having button at the bottom of the screen in the group activity there should be one on top of the screen in order to avoid scrolling down all groups to create a new group which also helps in reducing time of the user.

Prototype 4:

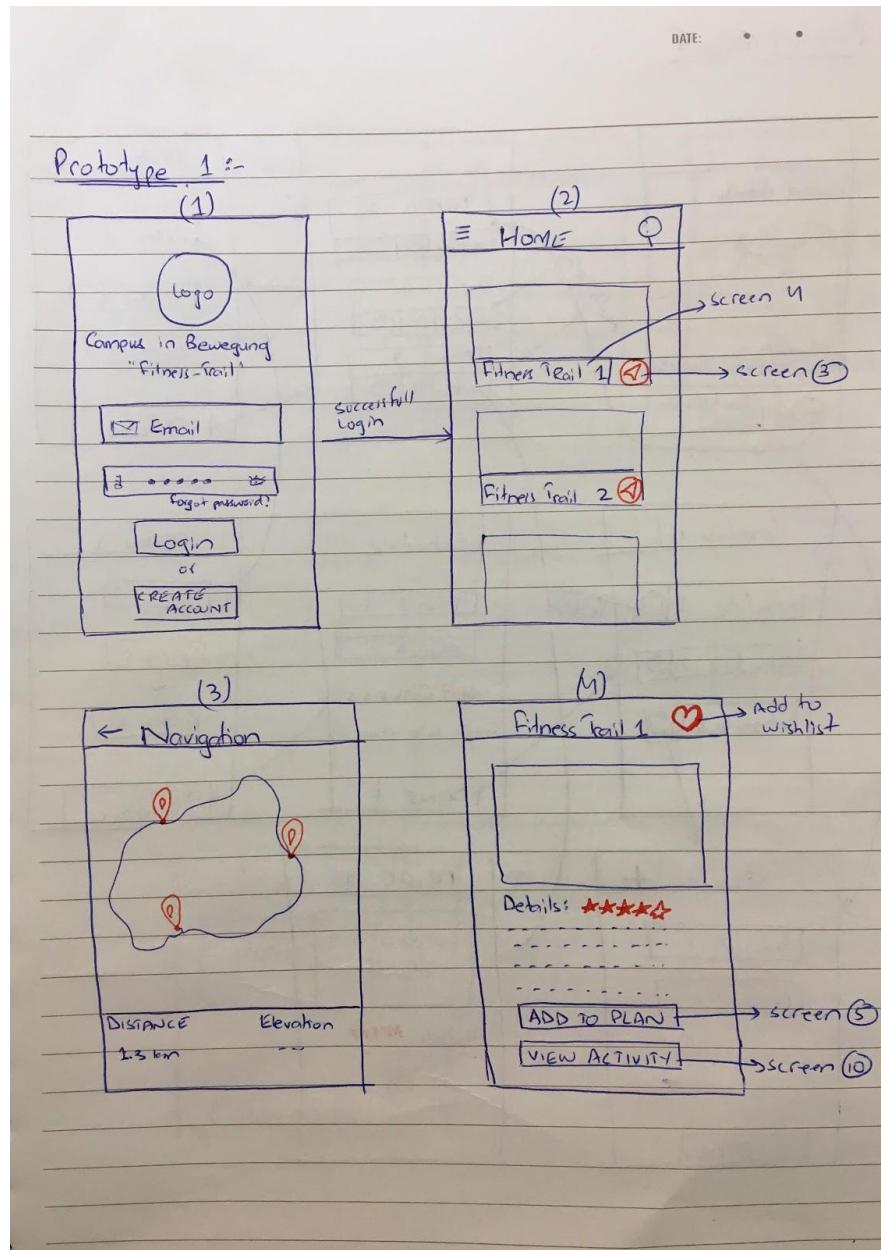
This prototype also stood out among our users because of its recommendation process for the plan, the users also suggested that the selection custom plan should have edit option where they can edit already created plan instead of deleting it and creating it again and it would prove to be advantageous and be less time consuming.

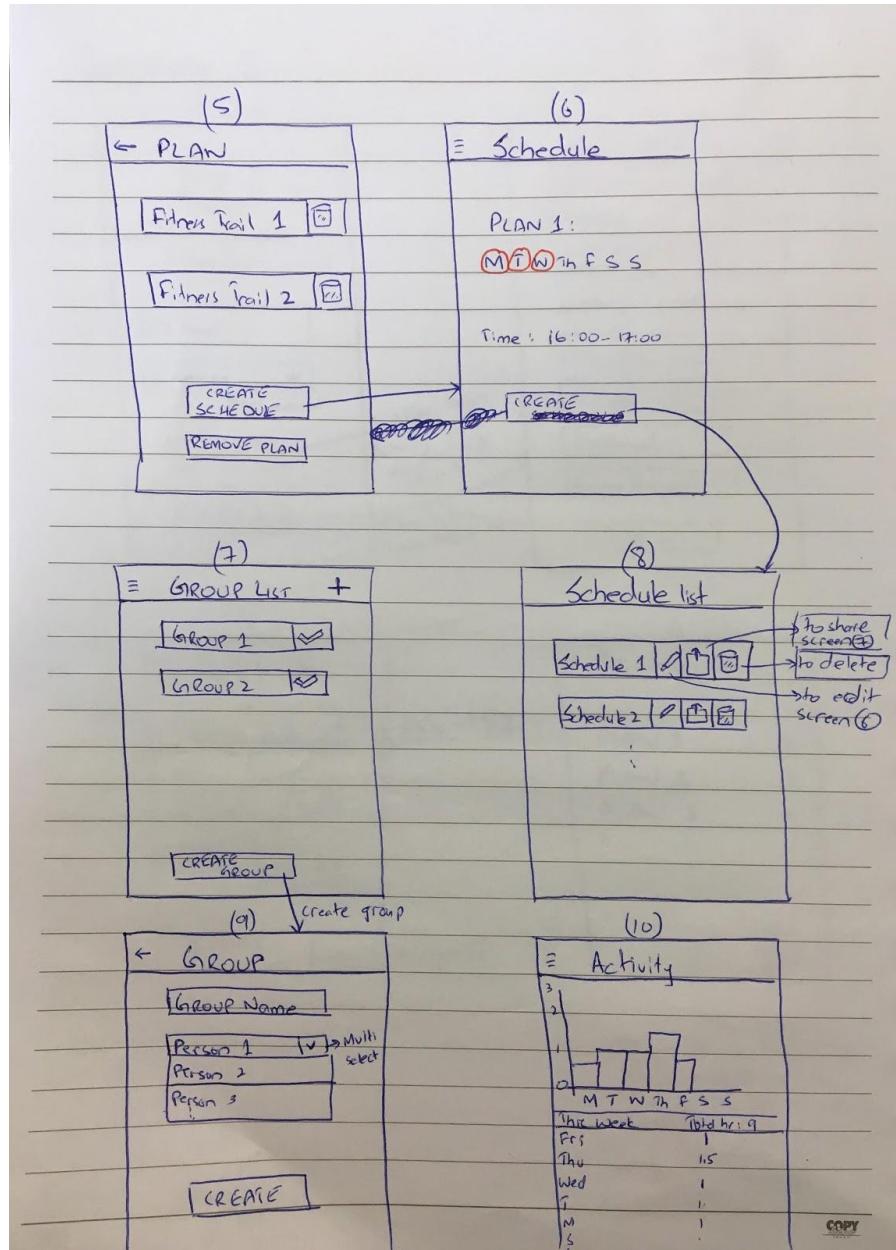
d) Feedback for refined prototypes

Solution: We are refining prototype 1 and prototype 4.

10P

Refinement of prototype 1

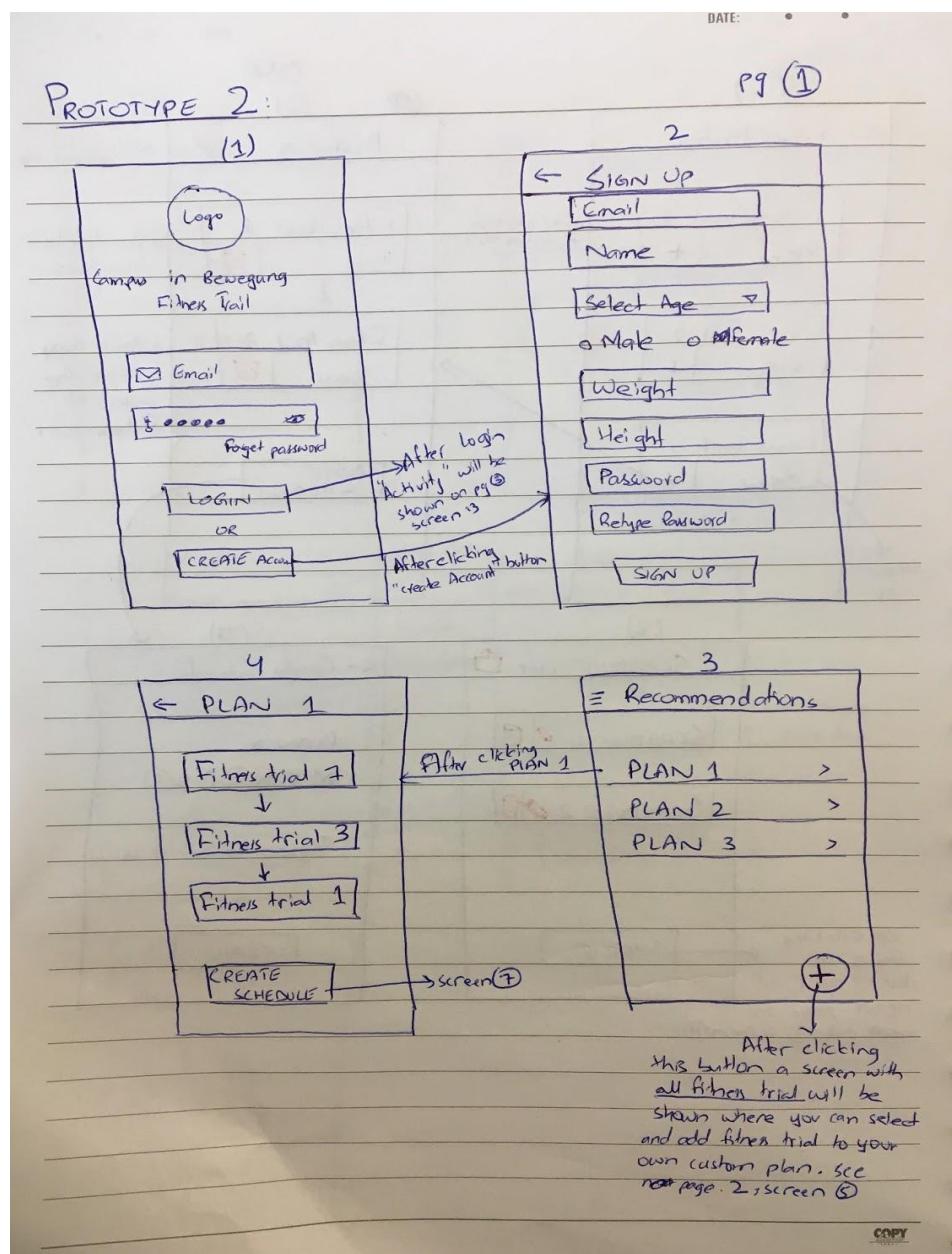


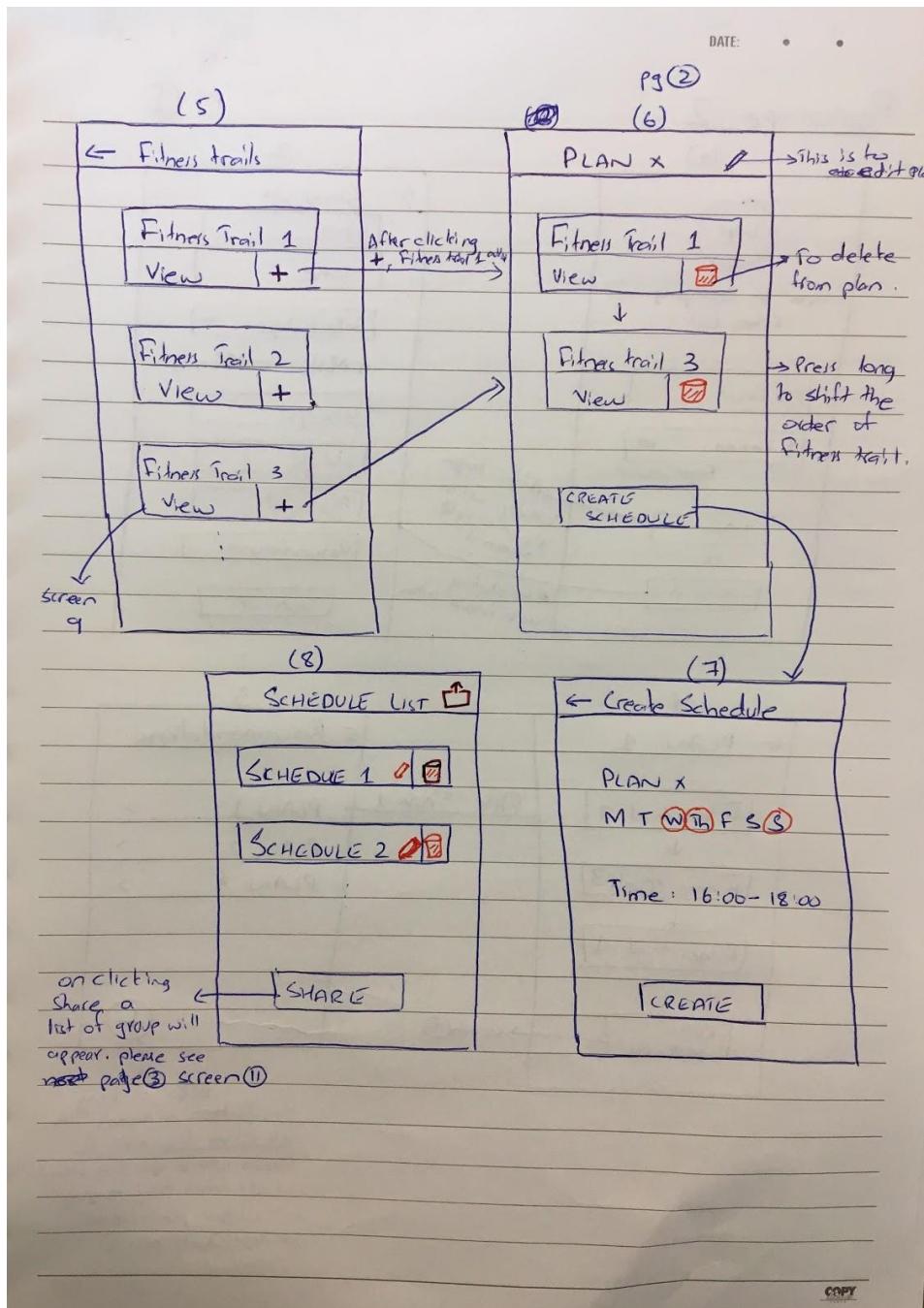


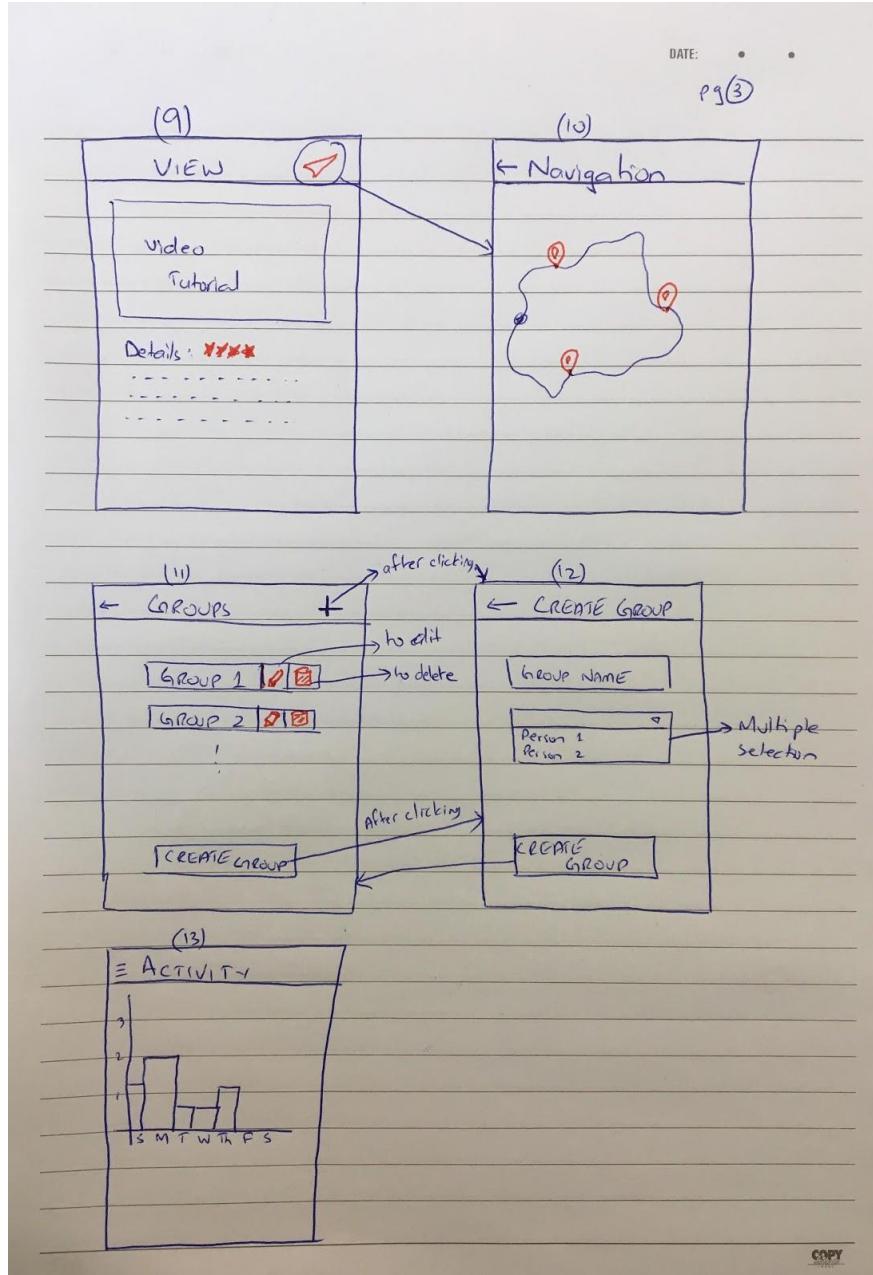
Things that has been refined:

- Better and complete functionality.
- Proper back buttons and name on top of each activity.
- The Plus button has been added to create groups on top of the activity on the feedback of the users.

Refinement of prototype 4







Things that has been refined:

- Complete and improved functionality
- Addition of the editing functionality for custom plan custom plan in the top bar of the activity based on the received feedback
- Edit functionality for groups is also added based on the feedback.
- Moreover, one new functionality of changing the order of the fitness trail in the plan is added to change the plan based on user's priority by pressing long the Fitness Trail.

e) Testing of prototypes

Solution: Same 3 persons who give feedback before.

10 This time all three people seemed very comfortable and satisfied with the design, UI elements and various pages of the Prototype 4. There were very much interested in how the final product would look like.

In Prototype 4, Person 2 pointed out that it would be great to see on the Create Plan page after adding one Fitness Trail there should be some recommendations on what next to be added will be more valuable combination. They also said that it would be great to see the overall activity performed rather than only for the those which we selected to view the fitness trail.

f) Strongest prototype

Solution: Based on the users' continuous positive feedback for Prototype 4, we have selected it as our strongest design. In this iteration we did not have to make any changes since according to the user the design looked much more compact. Furthermore, we also chose it as our strongest design because it incorporates:

- Various functionalities such as pressing long to change order and tapping
- Sufficient spaces among UI elements
- Simplicity
- Every UI element serves a purpose which the user can easily understand.

Task 5 Hi-fi Prototype 73

a, b) Horizontal Hi-fi prototype, its extensions & explanation

Solution: Some design decisions were made for the hi fi-prototype that differs from the paper prototype. The biggest one is probably that more screens were added to cover the desired functionality. To cover the depth (vertical prototype) of doing all exercises, screen 6-10 was implemented (only screen 6 was featured in the paper prototype). The screen called “plan” (screen 5 in the paper prototype) was completely removed and merged with the schedule functionality and screens.

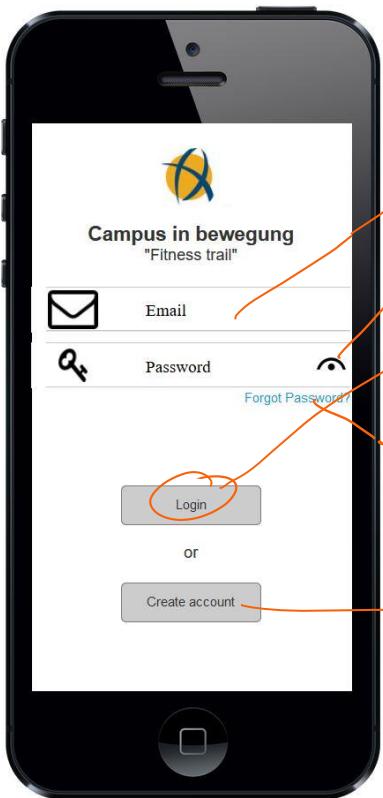
Screen 6 in the hi fi-prototype got more functionality than in the paper prototype since it felt logically to be able to reach many functions related to one specific trail from the trail’s description page.

Some icons were changed since they were not found in the prototyping program.

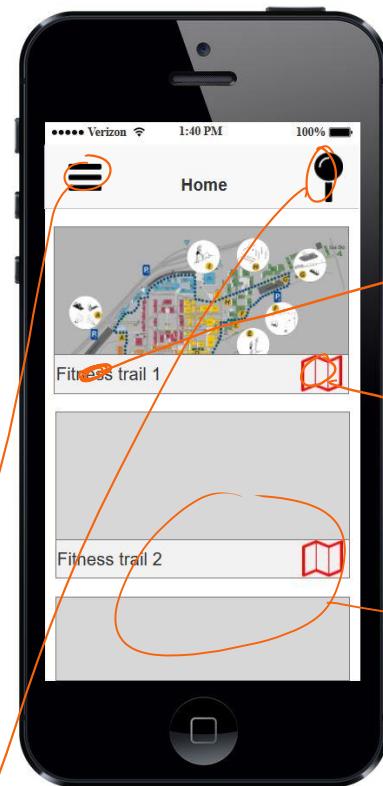
The home screen got a main menu (hinted but not shown in the paper prototype) that got quicker access to functionality otherwise hidden deeper into the app. Since the user had to login to access the content, a user profile was also featured in this menu (but not further implemented).

On the following pages, a short walkthrough of the hi fi-prototype is given.

1. Application entry point



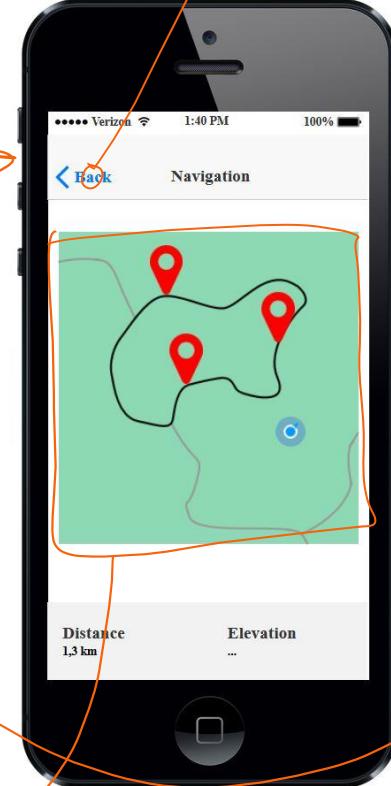
2. Home screen



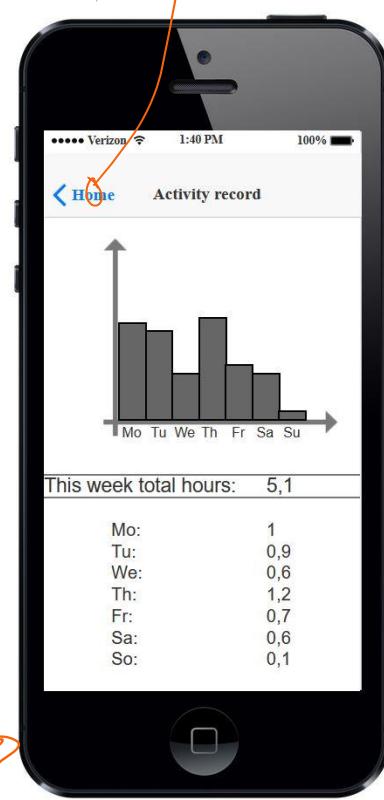
3.

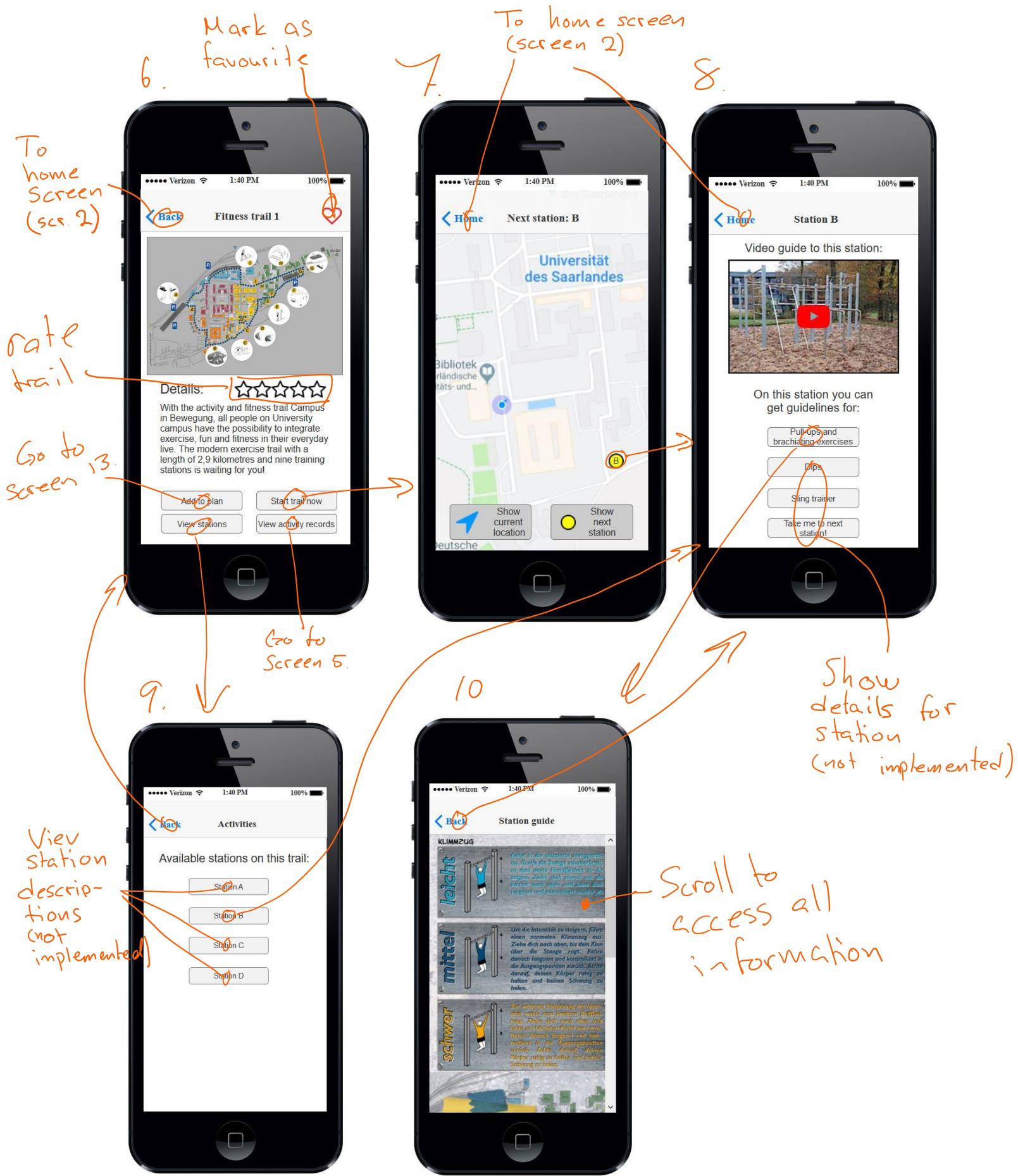


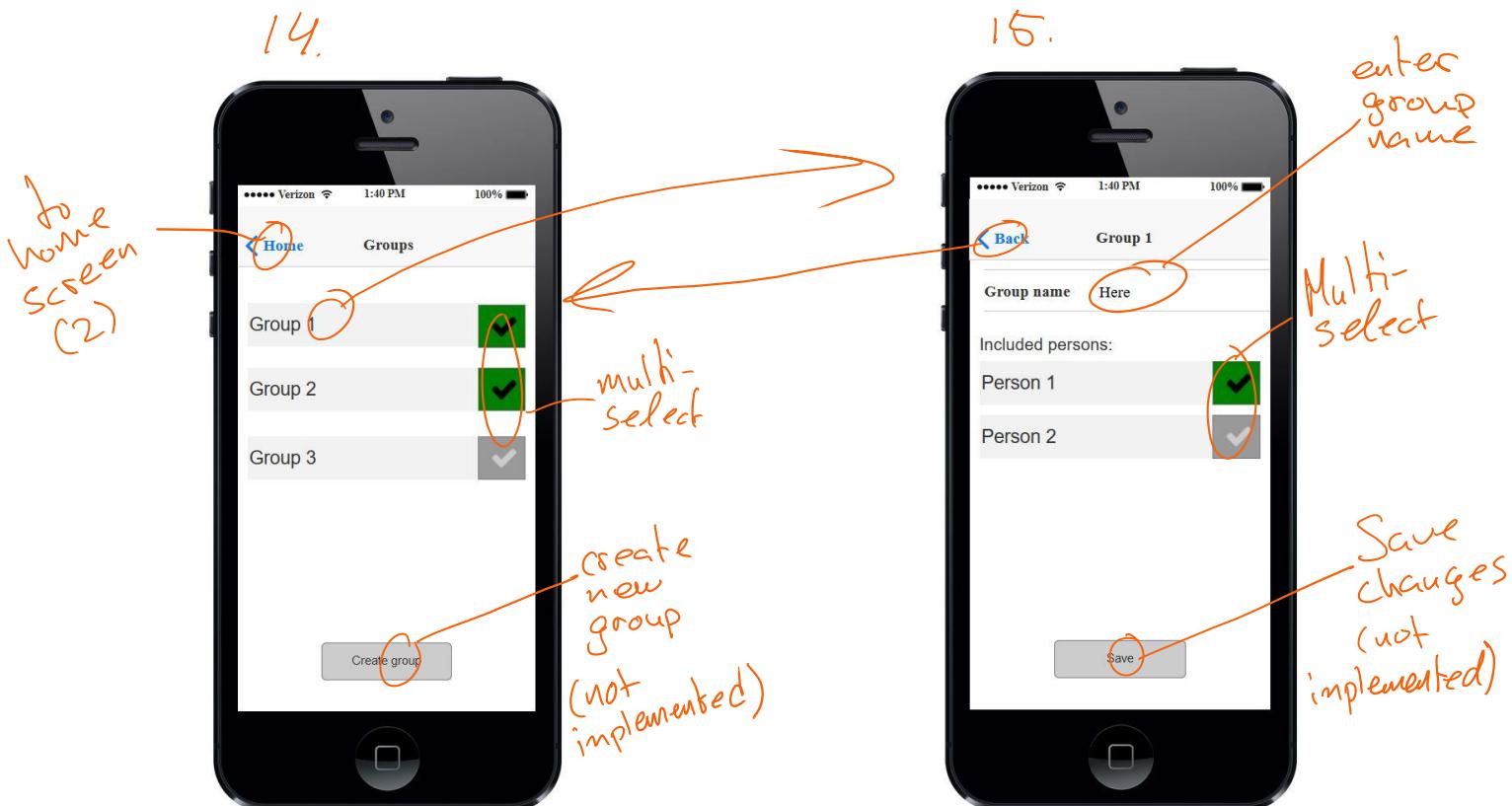
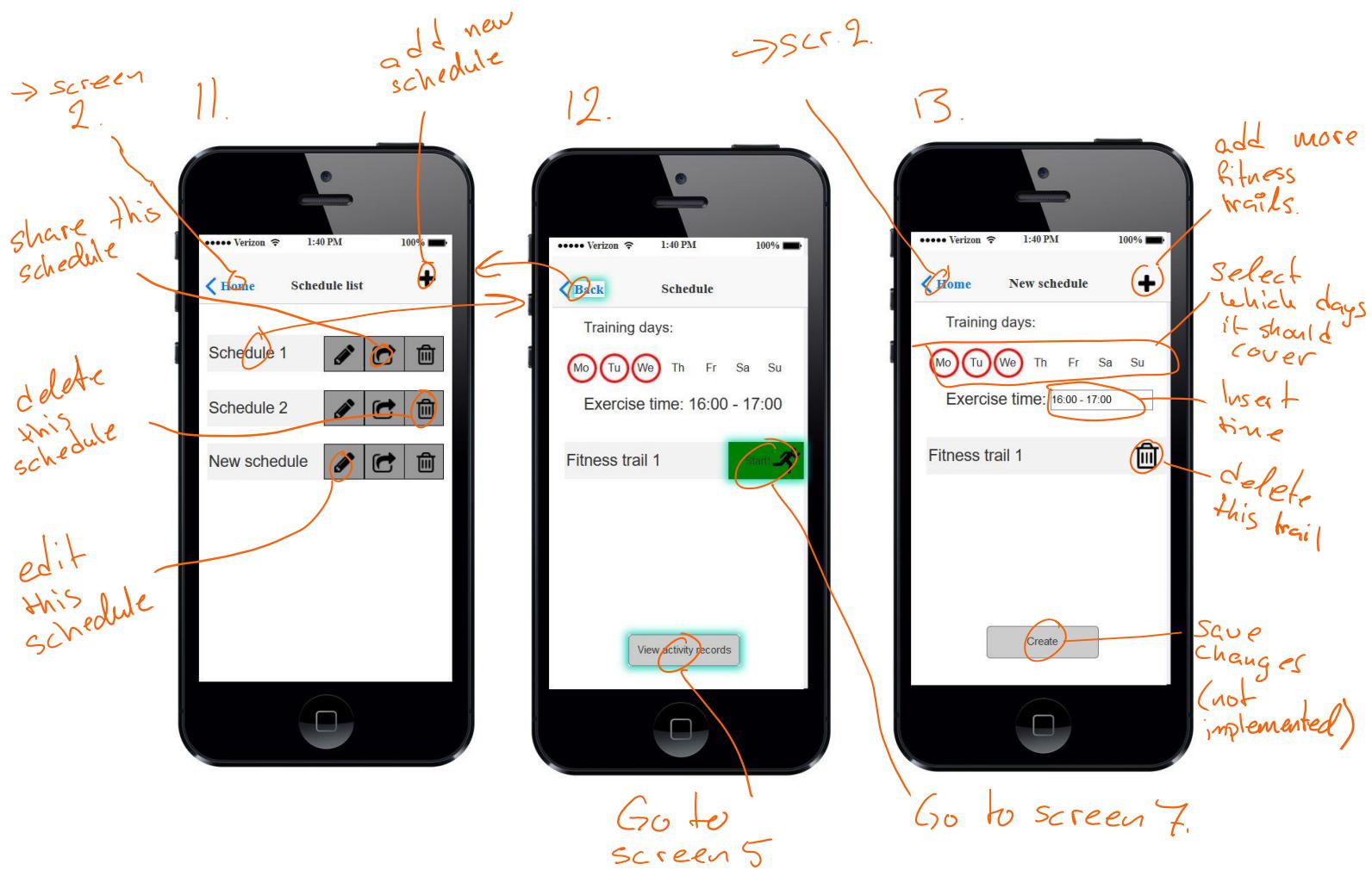
4.



5.







c) Vertical prototype & documentation

- 3 **Solution:** In the "Next station: B" navigation window (screen 7), no explanations are given for the blue-white dot representing the user. This since some similar icon is often used to represent the user's current location in many apps, making it somewhat a standard and something most users should be able to recognize the meaning of. And if they don't, one can figure it out since it will move on the map if the user moves.

A video of how to do a station is implemented on the description of how to do the tasks of a station (screen 8), since many people thought that it was hard to understand the descriptions of how to do some of the stations.

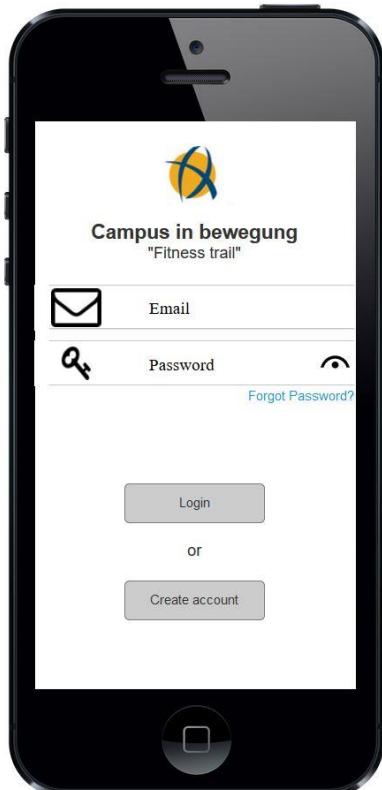
A "show next station on map" and show current location buttons was added to the navigation map (screen 7) since it can be hard to find those places if one zooms into the map somewhere far away, lose track of them or don't know where they are for some other reason.

d) Walkthrough of vertical prototypes

Solution: Below is given a short walkthrough through the vertical prototype (navigating through the fitness trail and getting guiding to do all exercises).

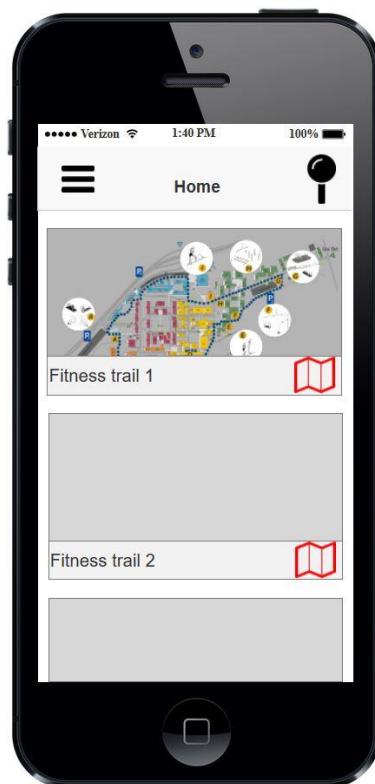
Screen-1

First, the user comes to the login screen, where they can enter their email and password to login. If they have forgotten their password, they can click on the link to generate a new one. If they have no user yet, they can create one with the “create account” button. Otherwise, they click on the “login” button to come to screen 2.



Screen-2

This screen is the home screen. The user can click on the “Fitness trail 1” to get more details of the trail (screen 6), or on the map icon if they directly wants to start navigate to the first track of that fitness trail (screen 7).



Screen-6

If they click on getting more information about fitness trail 1, they come to this page. Here they can mark the trail as favorite by clicking on the heart  icon, or rating it by clicking on the stars. To start navigating the trail, they can press the "start trail now" button. They will then come to screen 7.



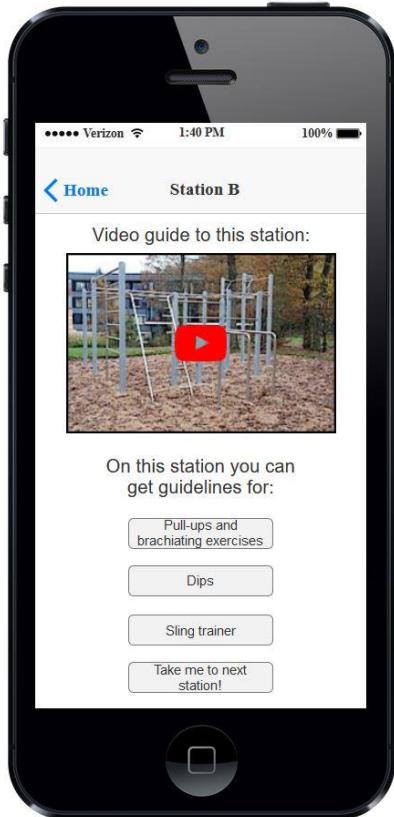
Screen-7

If the user clicks on the map  icon on the home screen (2) or on "start trail now" on the previous screen (6), they come to this screen. A map is shown where the users' current location and the next station of the trail is shown, in this case station B. If the user loses track of either their position or the station's, they can press the buttons at the bottom to see those locations again. If the user presses on the icon of the next station , the app displays the description site of that station (screen 8).



Screen-8

This screen shows info of how to do a certain station on the trail (B in this case). The user can choose to watch an embedded video to get guiding to do the exercises, or klick on the buttons below it to get a text/image description of them (example is shown on screen 10). When they have finished this station, they can press on the “Take me to next station!” button to get to screen 7 again, which then will navigate the user to the next station instead. If the current station is the last one of the trail, the next station will be the first one.



Screen-10

This screen shows a description of how to do a certain exercise on a station (here shown: Pull-ups and brachiating exercises on station B of the campus fitness trail). To see all information the user can scroll down, where more information about the exercise can be shown, such as muscle groups this exercise will train. To get back to screen 8, the user clicks on the “back” button at the navigation bar at the top.

