

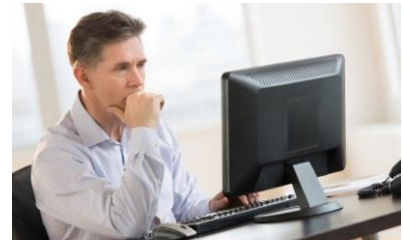
A Mobile application that applies a Self-Management Approach to Reduce Sedentary Behaviour

STUDENT: GEORGI KOEMDZHIEV
SUPERVISOR: DR. STEWART MASSIE

Sedentary Behavior as a threat to our physical wellbeing

Leads to the following diseases:

- Back pain
- Diabetes
- Cardiovascular disease
- Cancer
- All-cause mortality
- Also leading cause of absence from work and estimated to cost in the order of 1% GDP across EU



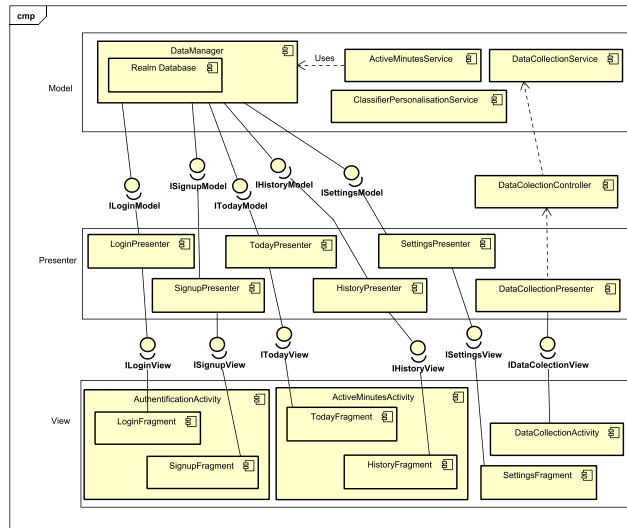
Project aim



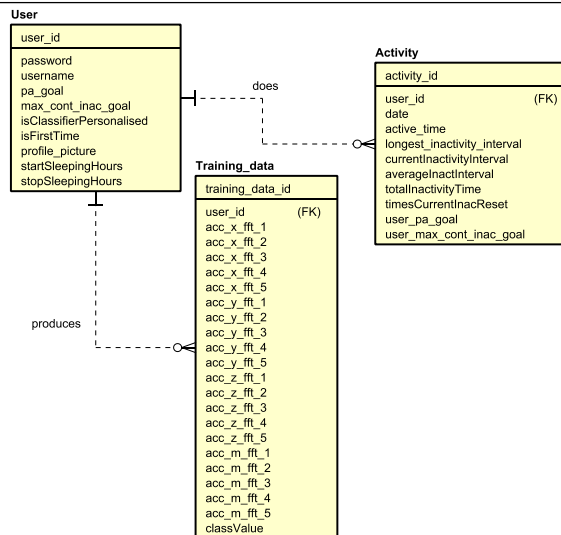
Objectives Achieved

- Research Sedentary Behaviour (SB) and behaviour change
- Investigate how to implement Human Activity Recognition (HAR) on wearable devices
- Develop a fully working HAR system
- Incorporate the above within a SB self-management system
- Design and Implement the mobile application
- System evaluation
- Release app to application to the Application Store

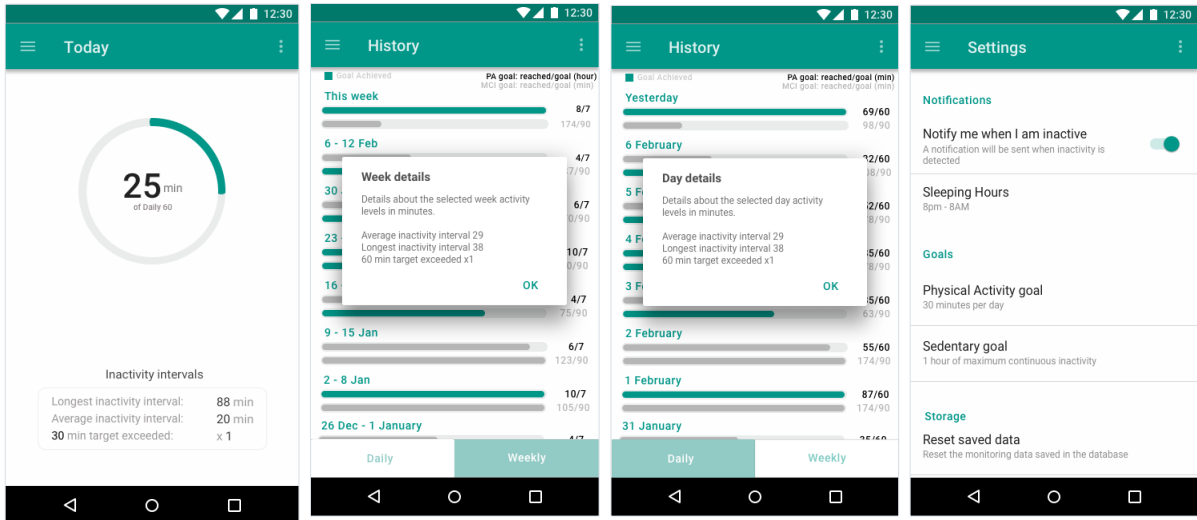
System Architecture



Database Design



System UI



System demo

Demo of system using Android Studio's. Showcase how the process of registering a new user as well as all of the system screens

Survey responses

No	Question	Response
1	What is your age	18 to 24 (100%)
2	Were you more active then usual (e.g. walking, running) as a result of using ActiveMinutes?	Yes (33.33%) No (33.33%) Not sure (33.33%)
3	When notified for prolonged inactivity (e.g. 30 minutes of inactivity), did you try to do at least 5 minutes of physical activity?	Yes (66. 67%) No (0%) Sometimes (33.33%)
4	Does seeing past days goal-performance (e.g. in the History screen) motivate you to achieve a goal?	Yes (100%) No (0%) Not sure (0%)
5	Does the visual feedback (i.e. the green progress bar) encourage you to achieve your goal?	Yes (100%) No (0%) Not sure (0%)

Survey responses (Continued)

No	Question	Response
6	Do you think the application was accurate when measuring your activity levels?	Yes (66. 67%) No (0%) Somewhat (33.33%)
7	How easy to understand was the user interface of the application? (0 being very difficult and 100 being very easy)	Response 1 – 100 Response 2 – 80 Response 3 - 75 Average - 85
8	Was the mobile application battery-friendly?	Yes (66. 67%) No (0%) Somewhat (33.33%)

Survey responses (Continued)

1. *"Great application, I like the feature that notifies you when you have been inactive for a certain amount of time. The application could maybe have a feature to alert you when you should go to bed to achieve the best amount of sleep. For future development, the application could maybe sync with a watch."*

2. *"Slightly wider ranges in terms of sleep time and active and inactive minutes and perhaps a more obvious "Key" informing the users as to what each bar in the history means. Otherwise really easy to use."*

3. *"The application could be improved in the future by optimising it to be more battery-friendly."*

Future work

- Implement a personalisation of classifier logic
- Incorporate for social media sharing support
- Integrate Smartwatch sync support
- Improve the feedback process by adding a "End of the week goal-performance" reports
- Implemented the user feedback gathered via the project survey