

# Self-tracking Application to Assist Osteoporosis Management

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## 1 Status report

### 1.1 Proposal

#### 1.1.1 Motivation

*As osteoporosis poses the challenge of weakening bones, the trend of self-tracking applications takes centre stage in my research. Many individuals engage in daily metric tracking, with a focus on variables such as diet, contributing valuable insights to the proactive management of bone health. Self-tracking applications can be used in healthcare and have been recently to provide support to patients outwith medical treatment. In my self-tracking application, I aim to address problems identified by patients and healthcare providers to let the patient manage their own health better and for the provider to make more informed decisions based on tracked patient data.*

#### 1.1.2 Aims

*The project intends to allow patients to take control of their osteoporosis through the application by encouraging them to track their own data. Tracked data is comprised of photographs and text input of exercise, diet, sun exposure etc. Additionally, the application aims to allow a healthcare worker to analyse patient data and recommend improvement for the patient, as osteoporosis can be accelerated by many everyday factors such as sun exposure. To measure success, I have a patient with osteoporosis who will use my application and determine if it benefits their everyday dealings with the condition. I will also have a doctor look at the data and advise the patient with improvements that they can make to a factor such as diet based on the tracked data. The success of this interaction and user experience will determine if my application was a success.*

### 1.2 Progress

- *Interviewed a nurse who works with patients who have osteoporosis for healthcare feedback.*
- *Interviewed a medical student who has experience with patients who have osteoporosis for healthcare feedback.*
- *Interviewed a patient with osteoporosis for patient experience feedback.*
- *Designed two prototypes of the website and got feedback from the medical student and patient.*

- *Started implementing the application in React with Firebase.*
- *Thus far I have coded a log in/sign up and started the individual pages such as the educational content page.*

### **1.3 Problems and risks**

#### **1.3.1 Problems**

*The main problem I have faced is getting in contact with the medical student and patient who I am continuously developing with. It was hard to find the time for interviews as one is a full-time student and the other has a full-time job, which delayed my application's implementation as I wanted to hear their concerns and must haves for the website (following a user-centred design approach). Additionally, a problem I faced was a communication barrier between myself and the nurse I interviewed as her first language was not English so it made asking questions and transcribing take a little longer than planned.*

#### **1.3.2 Risks**

*One problem that I can predict for the future is ensuring that my patient and medical student have the time to use the application for a trial and can give feedback. I also have to complete my application in January to allow them adequate time to do this and for myself to interpret the results. The application will need work over the holidays to finish the tracking features with photograph input etc.*

### **1.4 Plan**

- *Week 1 Understand project and meet supervisor.*
- *Week 2 Finalise questions and ethics for interviews.*
- *Week 3 Interviews and start to transcribe.*
- *Week 4 Transcribing (delays due to AI inaccuracy).*
- *Week 5 Finish and analyse design problems.*
- *Week 6 Finalise designs prototypes to get feedback.*
- *Week 7 Get final design feedback and pick code base to start code.*
- *Week 8 Start coding some pages possibly and connect back end.*
- *Week 9 Create the buttons on the landing page and get them to go to correct pages/perhaps a logo for the app.*
- *Week 10 As I was sick in week 9, get logo and work on individual pages.*
- *Week 11 Do more work on individual pages i.e education page.*
- *Week 12 [PROJECT WEEK] Education page finished onto other pages.*
- *Week 13 [PROJECT WEEK] Status report submitted - do more pages.*

- *!! Winter Break !!*
- *!! Spring Semester !!*
- *Week 14 Finish application.*
- *Week 15 Get trial for application done and write dissertation.*
- *Week 16 Get feedback from users and write dissertation.*
- *Week 17 Write dissertation.*
- *Week 18 Write dissertation.*
- *Week 19 Write dissertation.*
- *Week 20 Write dissertation.*
- *Week 21 Write dissertation.*
- *Week 22 Write dissertation.*
- *Week 23 [TERM ENDS] Write dissertation.*
- *Week 24 Dissertation submission deadline and presentations.*

## **1.5 Ethics and data**

*I have verified that the ethics checklist applies to the interviews and have signed it with my supervisor and the interviewees. I have also informed them of how their data is stored, used, if they want it removed to contact me, and that I will keep it private. When the medical student and patient use the application I will get another ethics checklist to cover that scenario and to gather their feedback after.*