**Refined Agile Software Process Planning and Management – FD, SMC**

**The Scrum Methodology**

Agile methodology is a development method in which requirements and solutions evolve through collaborative effort. It is based on iterative development which encourages frequent inspection of the software and its stages. It is reliable when it comes to adaptation to change and developing high quality software as a team. The scrum is a largely popular agile framework which has at its core the sprint. A sprint is based on short periods of development followed by reviews and changes. Scrum meetings are held regularly to ensure clear communication and collaboration.

**How We Planned and Tracked Our Sprints**

We have developed our project using the Scrum methodology and we have benefitted from doing so by being able to adapt to change and keep track of our progress. Once our ideas were clear and we knew in what direction we were heading with our project, we started creating a list of requirements for creating the basic functionality. Based on our set of requirements we decided our first sprint would be 2 weeks. We used GitHub to track our sprint progress. We made use of a Product Backlog where all new requirements went, a Sprint Backlog where we kept the requirements that had to be done in the current sprint, an In Progress column used to suggest someone is currently working on those requirements, a Blocked column that contained requirements that were dependent on other requirements being completed first, an In review column in which the work was awaiting reviewing from the team, and a Done column in which completed work was listed.

With the timescale we had to complete our project, we planned our sprints to be 2 weeks long each and to have 3 sprints throughout the duration of the project. We thought this would be the most beneficial to us as we would have enough time between sprints to organise ourselves in order to prepare for the next sprint, whilst still allowing us to have enough time during each sprint to get a sizeable chunk of the project done.

Our team decided to have meetings twice a week and these were held on Mondays and Thursdays, giving us time to progress in between the meetings. The meetings consisted of reviewing done work, keeping track of our requirements, and making any changes, and combining our set of skills and knowledge to help each other complete the assigned tasks. On the side, documentation was being created to help with the progress and planning of our project. However, we soon realised that this wasn’t enough time per week in order to complete all the work necessary. To increase our contact time, before the country was put into lockdown, we decided to go to the lab session allocated to our group on Thursdays as well.

**Management and Development of Requirements**

Before the start of any sprint, we, as a group, addressed all the tasks we wanted to have completed by the end of the sprint and wrote them down on our sprint backlog. This included addressing all of our requirements for each sprint. By doing so, it allowed us to easily hand out tasks and to clearly see what jobs still needed to be done. During each meeting during the sprints, we discussed if the work done had thrown up any new tasks to be added either to the product backlog or the sprint backlog depending upon its urgency and dependencies.

**How Scrum Meetings Addressed Project Risks**

We managed the development of our requirements through thorough test plans and frequent checking over our list of requirements to see if we had met all the ones we had planned over the course of the relevant sprint. In our Scrum meetings, we addressed project risks and evaluated if any new risks had presented themselves. Our largest project risk developed during the project in the form of COVID-19. Due to the risk of any member of the team catching the virus, and due to the University going online mid-way through our project, we had to take all our meetings online.

During our second sprint, our team was faced with the difficulty of the Coronavirus pandemic, which had grown to become a much larger obstacle than first anticipated. Once it was clear that we would be unable to meet in person, we discussed the options we had. The risk assessment we had previously created helped us be prepared for the situation. We decided to have online calls and use Teams for our regular meetings on the same days as before. Work was consistently uploaded on GitHub and reviewed in the meeting by sharing our screens. The situation has proved difficult, as many of our team members had personal issues created by the pandemic, and it has caused distress for our team. In the beginning people could not attend the meetings as often but we kept communicating through WhatsApp. This slowed down our process and we decided to have a longer sprint than originally planned to be able to complete the work. An extension for the completion of our project was given and we allocated one more week to our second sprint. After a week almost everyone was able to participate in our planned meetings, which we still had twice a week.

**How Our Early Plans Evolved**

Our first sprint consisted of creating login and registration systems for our product, checking credentials, connecting to Spotify and obtaining an authorisation token from them and working on the backend by creating a database using MongoDB and node.js. A testing plan was also created and changed during our sprint. This has helped the developers have a clear understanding of what the software had to accomplish in the end.

The first sprint went as planned with no major changes to the requirements, we finished everything we wanted in the 2 weeks of time allocated. At the end of the sprint our testing plan was containing input output tests for our login and registration system, as well as other tests for the functionality of our product. Our tutor helped us go through and test our software and has told us our first sprint was a success. The documentation made in the first sprint helped us decide where our product was heading and shortly after the first sprint had finished, we had a new set of requirements ready to be completed in the second sprint.

Our second sprint consisted of securing our software by using password hashing and getting data about songs from Spotify. Upon research we decided on a way of classifying the songs based on their attributes. We worked on the algorithms for deciding the mood of a song and implemented it. We have also dealt with user sessions and creating diagrams and charts based on their data for the user to reflect on. We did our sprint review in a Teams meeting by sharing our screens and showing our tutor our testing plan, sprint backlog and how our software worked. The second sprint taught us how important organisation was when trying to coordinate our team from afar.

Our third sprint lasted 2 weeks and we planned it so that we would have 1 week to review and make any last changes to our project. Our third sprint mostly consisted of frontend development. We dealt with the UI and navigating through pages as well as the charts displayed to the user. As for the backend we created a way of working with the data to obtain useful information that will be displayed to the user.