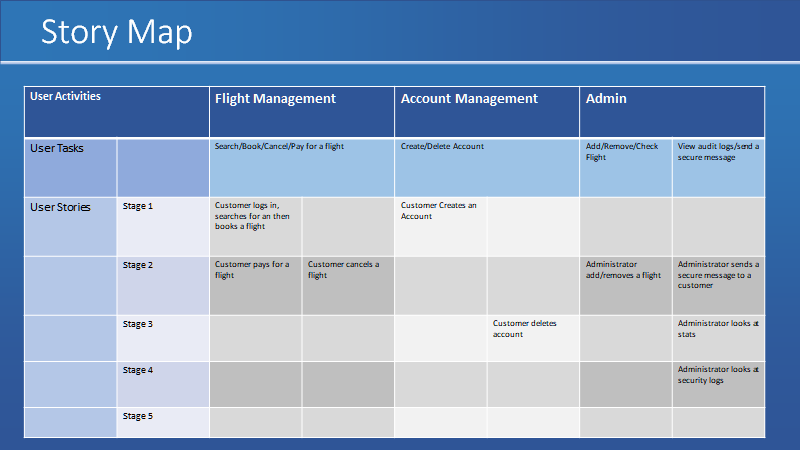
**PRCO204 Project management review**

**Use of the Agile philosophy for this project**

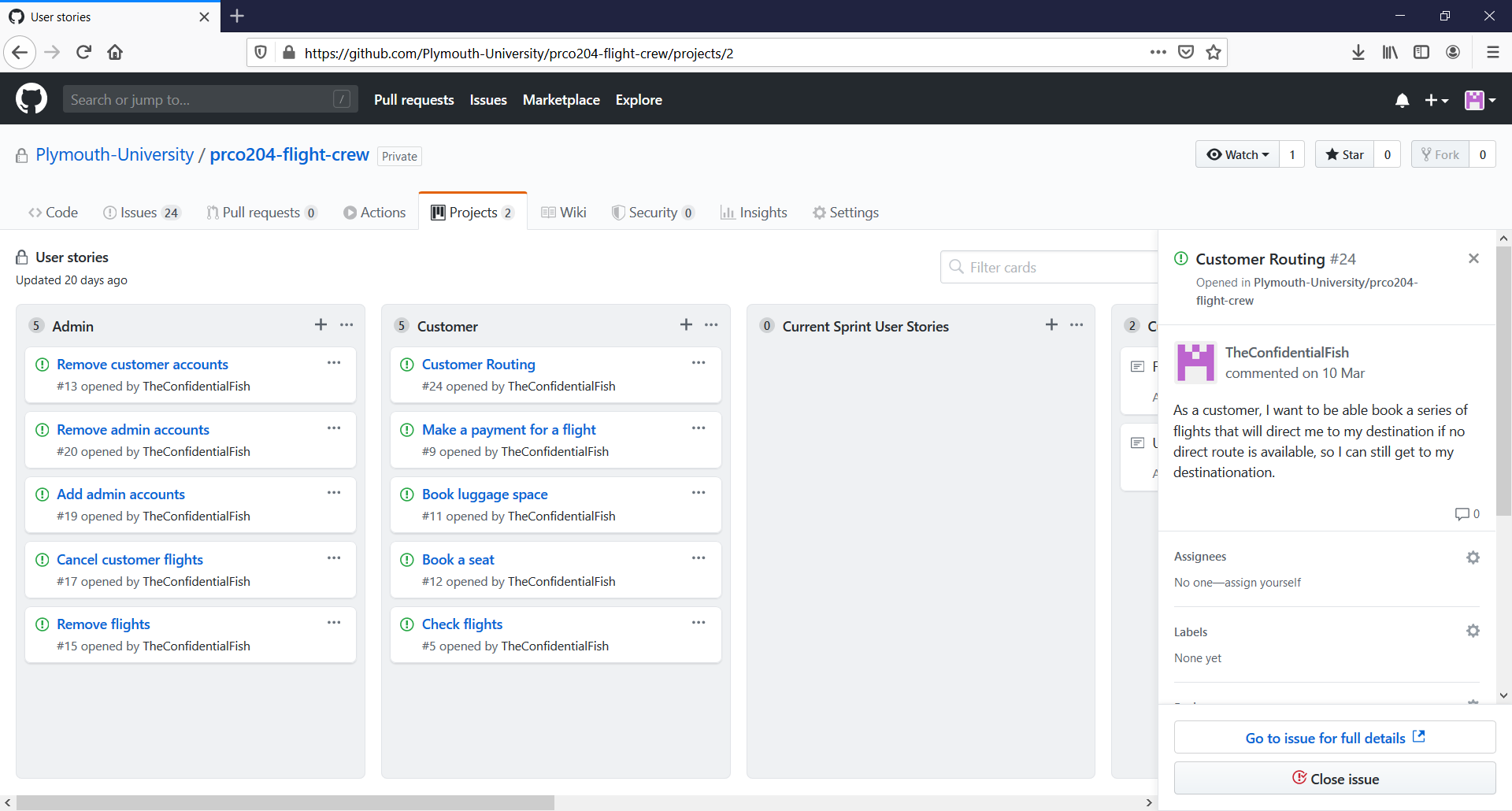
* Roadmap

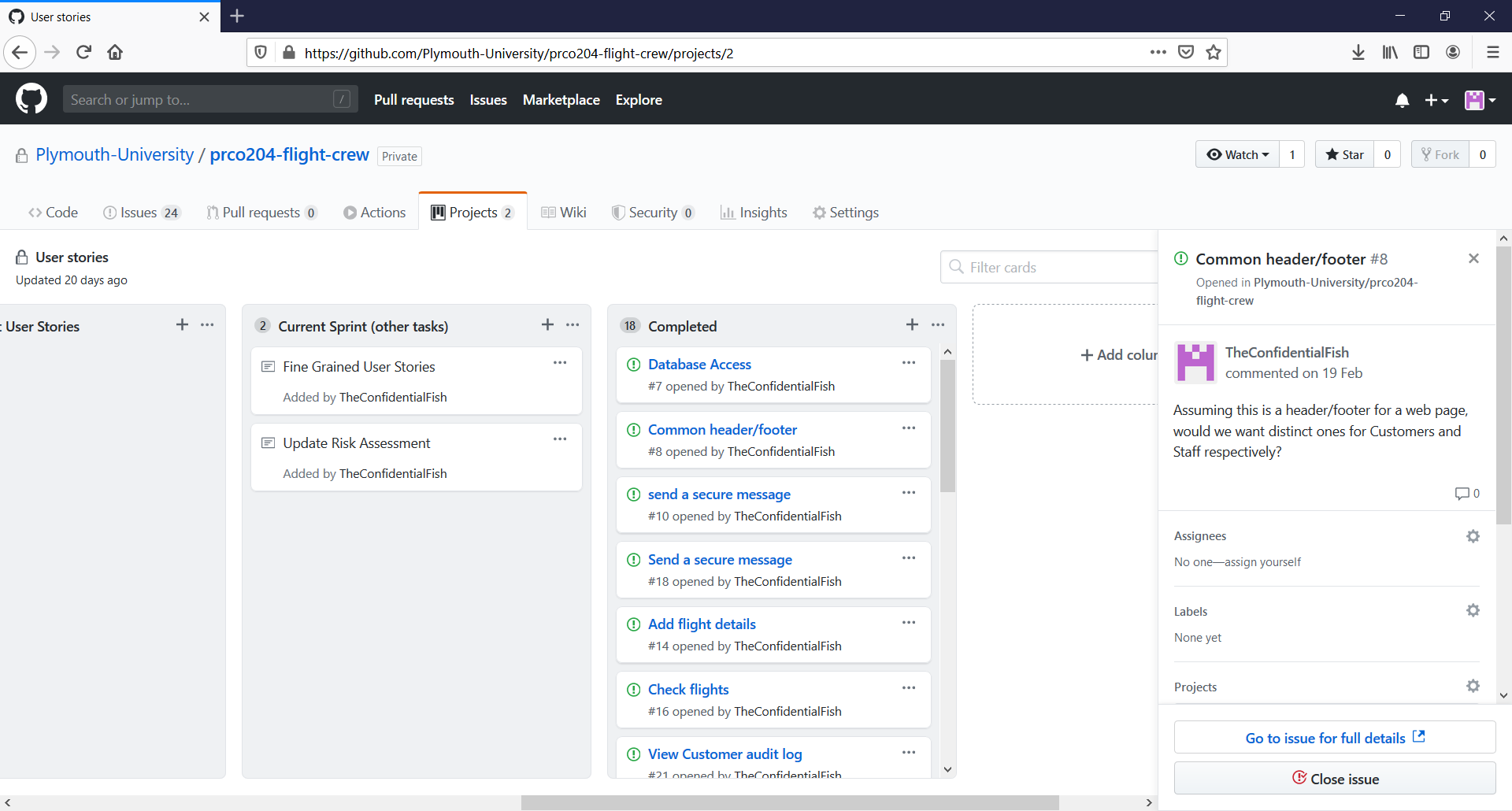
We used a story map as our roadmap, this worked well with the agile philosophy as we were able to set out objectives in terms of functionality for each stage of the project. This helped us set clear goals for what needed to be achieved at each stage of the project. It was then just a matter of dividing up the work for the current sprint and then reviewing progress.



* Backlog / Who implemented what

Online Backlog:





|  |  |  |
| --- | --- | --- |
| User Story | Status | Implemented by |
| As a system user, I want to access the system's database in order to gain access to useful shared information. | Completed | Marc Rasell |
| As a system user, I want to have a common interface between parts of the system in order to ease system use. | Completed | Marc Rasell |
| As a customer, I want to be able to login so I can view my flights | Completed | Amoata Eyorekon |
|  |  |  |
| As a customer, I want to search available flights so I can find a flight that fulfills my need (Time/Date, Departure and Arrival Destination, Cost) | Completed | Initial implementation by Marc Rasell, UI refinement by Jack Edwards |
| As a customer, I want to be able to create an account in order to access the system's functionality | Completed | Joseph Stevens |
| As a user, I want to log in so I can use the system's functionality | Completed | Amoata Eyorekon |
| As a customer, I want to be able to cancel flights to receive a refund. | Partial Completion, Finance Unimplemented | Jack Edwards |
| As an airline administrator, I want to be able to add flights so customers can view them and purchase tickets. | Completed | Marc Rasell |
| As a customer, I want to be able to send a secure message to a representative of the airline so I can query any information not available on the site. | Completed | Marc Rasell |
| As an airline employee, I want to send a secure message to other employees so I can communicate effectively with my team | Completed | Marc Rasell |
| As a customer, I want to be able book a series of flights that will direct me to my destination if no direct route is available, so I can still get to my destinationation. | Incomplete |  |
| As a customer, I want to be able to pay for a flight to save time and having to pay at the airport | Partial Completion (finance features unimplemented) | Amoata Eyorekon |
| As a customer, I want to be able to delete my account so my account can no longer be accessed | Complete | Amoata Eyorekon |
| As a customer, I want to be able to book hold space so I can take extra bags that would not fit in the passenger area. | Incomplete |  |
| As a customer, I want to be able to book a specific seat to make my flight more comfortable. | Incomplete |  |
| As a customer, I want to be able to check the status of a flight so I can know ETA's and boarding information. | Incomplete |  |
| As an employee of the airline, I want to be able to remove customer accounts so customers who have caused problems can no longer access the functionality we can provide. | Incomplete |  |
| As a system admin, I want to be able to remove admin accounts so former employees cannot access system information | Incomplete |  |
| As an airport administrator, I want to view customer audits to view any discrepancies or problems in customer bookings | Complete | Marc |
| As a system admin, I want to be able to add more accounts so system functionality can be carried out by more employees. | Incomplete |  |
| As a airport customer assistant, I want to cancel customer flights in order to prevent a problematic customer from boarding a flight. | Incomplete |  |
| As a airport customer assistant, I want to be able to check the status of flights in order to update customers in the airport. | Incomplete |  |
| As an airline administrator, I want to be able to remove flights so as not to advertise a flight that is not available. | Incomplete |  |
| As an airline administrator, I want to be able to add Flight plans so that many journeys can use a template. | Complete | Marc Rasell |
| As a airline admin, I want to know the distance of each flight available | Complete | Jack Edwards |
| As an Airline administrator, I want to calculate the distance between airports so I can know how long a flight is going to be | Complete | Jack Edwards |

* Gradual implementation of functionality

In this project rather than follow the waterfall approach of development, we gradually added functionality at each stage of the project. This meant even the design was agile and would change as new functionality was added. This approach worked well for a team as it was easy to focus on a small subjection of the project and have a fixed timescale of two weeks to achieve this. We also, created a new branch on GitHub for each new sprint and merged it into master at the end of the sprint. This allowed us to separate our work into sections for each new sprint.

**Meetings & Communication**

Following the agile philosophy, we held regular meetings to assess our progress and as a chance to communicate as a group face to face to resolve any issues and provide any additional support for each other. Each meeting document lists the meeting details, records the actions we achieved within the meeting, the actions to be completed before the next meeting and any additional key information.

During the meeting we would decide on our next sprint, including its duration and workload. Each sprint document entails its running duration, outline of purpose, action plan and action review. The review section was updated at the end of the sprint as a record of how achievable the action plan was and to highlight any issues we may have had.

We decided on having two-week sprints as we deemed this an appropriate amount of time to complete the sprint actions but short enough to be able to continually review our progress along the way. We generally stuck to this plan except for over the Easter holidays where we had a four-week sprint.

Furthermore, COVID19 also influenced our meetings as we were no longer able to meet up in person. However, we quickly adapted to this by holding our meetings over Zoom and missed no meetings as a result.

* Meeting example:

**Meeting x**

Meeting details

Date: xx/xx/xxxx

Time: 09:00 – 10:30

Location: Babbage 208

Attendees: Joseph Stephens, Marc Rasell, Amoata Eyorekon, Jack Edwards

**Roles**

Product owner

Jack Edwards

Amoata Eyorekon

Scrum master

Joseph Stephens

Technical lead

Marc Rasell

Actions

Record actions completed during the meeting

Backlog

Plan actions to be completed in the next sprint

Apologies

List any apologies

* Sprint example:

**Sprint 1**

Sprint title

Start date: xx/xx/xxxx

End date: xx/xx/xxxx

Purpose

Detail the purpose of this sprint. This includes listing the backlog and documentation to be completed.

Action plan

Lis the current backlog and who is going to undertake each task.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task | Start date | Expected completion date | Expected time required  (hours) | To be completed by |
| Task 1 | 20/2/2020 | 27/2/2020 | 2 | Group member |
|  |  |  |  |  |

Sprint review

Completed at the end of each sprint to monitor and document progress.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task | Time required | Status | Expected time required to finish (hours) | Notes |
| Task 1 | 2 hours | Completed | 0 | Successfully completed with no setbacks. |
|  |  |  |  |  |

* Presentation feedback

After each interim presentation, we would collate the feedback received so we could implement it going forward. Here is an example of our presentation feedback document:

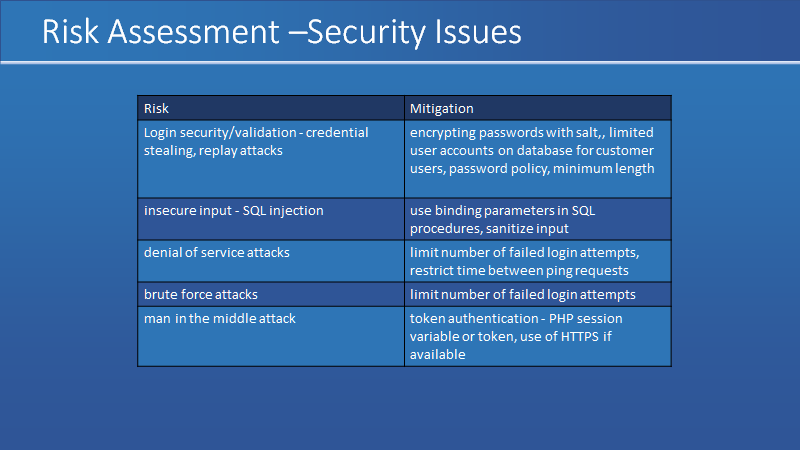
|  |  |
| --- | --- |
| **Feedback** | **Response** |
| Market Research to justify need for our application | Conduct market research to understand our target market and the potential market volume. |
| keep mockups | Remember to document everything we do and keep all rough work and prototypes. |
| External Dependencies Risk | Carry out another risk assessment on external dependencies. |
| HCI process? | Plan how we are going to conduct our usability testing. |

* HCI assessment feedback and response

Firstly, because we didn’t have a client for our product, HCI testing was vital for gaining feedback and suggested improvements. For our usability testing, we prepared 30 scenarios that test our user stories. We split the 30 scenarios into three different tests of 10 scenarios each. Each user was asked to record their test and email us the completed feedback form and voiceover. In total, we had four completed tests which we then reviewed and implemented any notable suggested improvements. Moreover, it was a good opportunity to reveal any bugs which we may have missed during development. Consequently, there were minor bugs that were common across all testing feedback that we quickly resolved.

**Security**

* Security risk assessment



* Mitigation

At the start of the project we included a security risk assessment which identified security vulnerabilities and how they could be mitigated. Hashed passwords we used in the database as a security measure, we did not have access to SSL/HTTPS for this project, but if that was available the security could have been increased. Calls to the database were done using binding parameters which protected against SQL injection and an audit log was added which records all reads and writes to the database. A Caesar cipher was implemented to create secure messages. Not all vulnerabilities were mitigated in the risk assessment as we had limited resources.

* Software bugs

Here are the bugs that were found during our usability testing; the list show, a rank in order of importance, what the user said, where they were found and how we resolved them.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Order of importance | Test no. | Feedback | Application page | Fix implemented |
| 1 | 1,3,4 | There were two London’s and two Zurich's which was confusing | Search flight page | Corrected search.php page to use vw\_AirportCodes rather than sourcing from the FlightPlanCodes |
| 2 | 1 | Consistency with the button style across the website | Contact page | Changed all buttons to the same style. |
| 3 | 4 | cleaning the layout of the “you are now registered page” so that the login link isn’t directly next to the text as seen in the video. | Customer login | Moved the login link to below the confirmation message. |
| 4 | 2 | The exact lat and long couldn’t be entered due to a length limit | Add airport page (admin) | We set a four decimal place limit which is standard as further precision is not necessary. |
| 5 | 1 | The task and the flights didn’t match properly | Bookings page | This error was not repeatable, most likely due to user connection problems. |
| 6 | 2 | Went I tried to return to the page later it stopped working then started working again later | Add flight page (admin) | This error was not repeatable, most likely due to user connection problems. |
| 7 | 2 | When I went to add a journey, nothing but the header loaded | Add journey page (admin) | This error was not repeatable, most likely due to user connection problems. |
| 8 | 2 | The page loaded nothing at all | View audit log page (admin) | This error was not repeatable, most likely due to user connection problems. |
| 9 | 2 | Not all pages would load properly | mix | This error was not repeatable, most likely due to user connection problems. |

**Evaluation / Lessons learned**

* What went well

We managed to finish all task in the required amount of time. We completed every task on the story map and user were able to use all the function implemented in the website.by implementing many sprints we were able to work precisely on each task. Furthermore, we always had a meeting every Friday on zoom or in class, where we are trying to discuss and solve the difficulty everyone was facing on their task. Overall, everything works well and working as a group help us develop our communication skill and project management skill.

* What could have been improved

As a measure of improvement, we could have implemented more task in the website, add some extra functionality that might be suitable for a random user. We could have gotten more user responding to the HCI assessment and prepare efficiently before any weekly presentation.