

SENG3011 Engineering Workshop 3



Deliverable 4

ANALYTICS PLATFORM FOR PREDICTING EPIDEMICS: Project Management Report

By team4masters

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Team Structure

The team structure was calibrated by the skill sets and capacities of individual members and what they wanted to primarily focus on during the project. The key delegation of responsibility was then split as originally intended. However there was a key change during the duration of the project, in which Kieran took on the role as a full-stack developer to accommodate for constrained resources on backend development, which shall be noted on throughout the report.

Otherwise no changes had occurred in roles and responsibilities since D1.

Table 1. Team Members & Team Responsibilities

Name	Role	Delegation
Navid Bhuiyan	Project, Tech Lead, Scrum Lead	Project management, task delegation and responsible for the overall design of the app. Gets involved in all aspects of development. Manages and designs agile practices within the team.
Adrian Borjigin	Full-stack Developer	Responsible for designing the scraping and data display services for the frontend.
Kieran Nguyen	Full-stack Developer	Responsible for designing and developing the backend architecture for our APIs and database and data services for the frontend.
Aaron Guan	Backend Developer	Responsible for designing and developing the backend architecture for our scraping services and APIs.
Jin-Ao Olson Zhang	Backend Developer	Responsible for designing and developing the backend architecture for our APIs and cloud services.

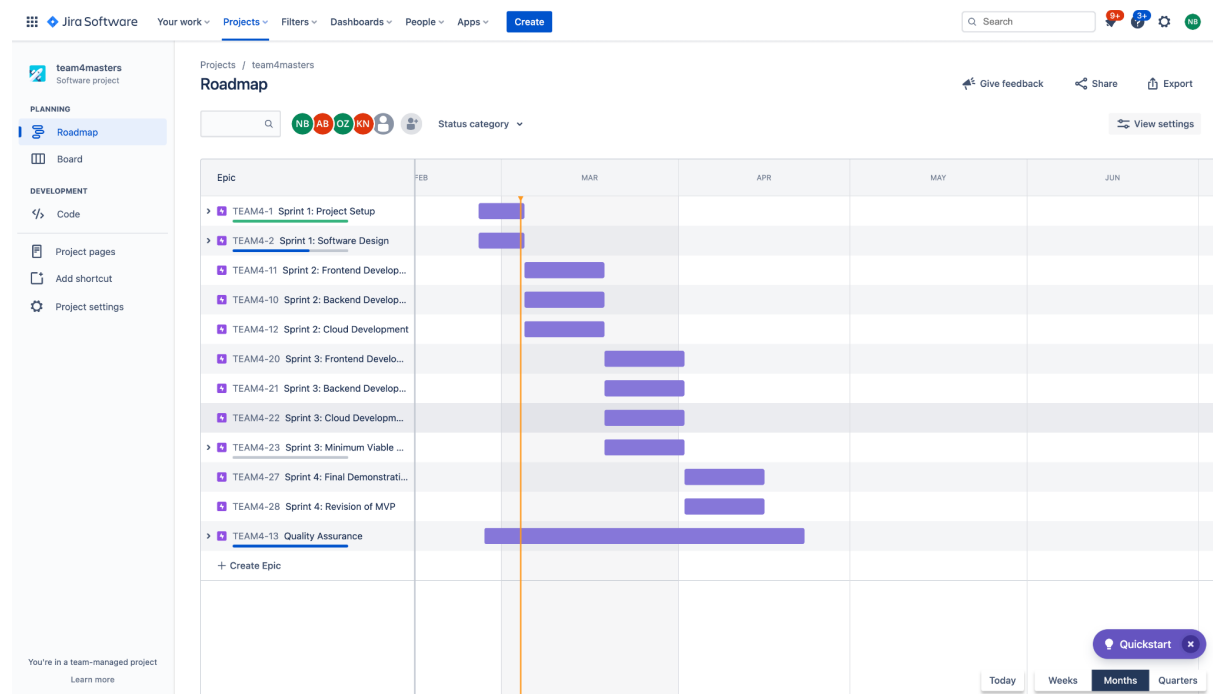
Agile Management

As initially proposed in Deliverable 1, it was planned to follow an Agile methodology to plan, develop and execute our project objectives per deliverable split via four sprints as presented in the Kanban board and table below.

Table 2. Sprint and Deliverable Timeline

Sprint	Deliverables	Deliverable Deadline
Sprint 1	Deliverable 1	4/03/2022 at 5 pm
Sprint 2	Deliverable 2	18/03/2022 at 5 pm
Sprint 3	No Deliverables, although expect core MVP to be completed.	Not Applicable
Sprint 4	Deliverable 3	14/04/2022 to 08/04/2022 (Exact timing TBA)
No Sprint in Session	Deliverable 4	25/04/2022 at 5 pm

Image 1. Initial Jira Roadmap



However during each sprint, there was a breakdown on available team resources, which caused constraints during deliverables, which the team needed to suddenly adapt to these changes.

Sprint Breakdowns

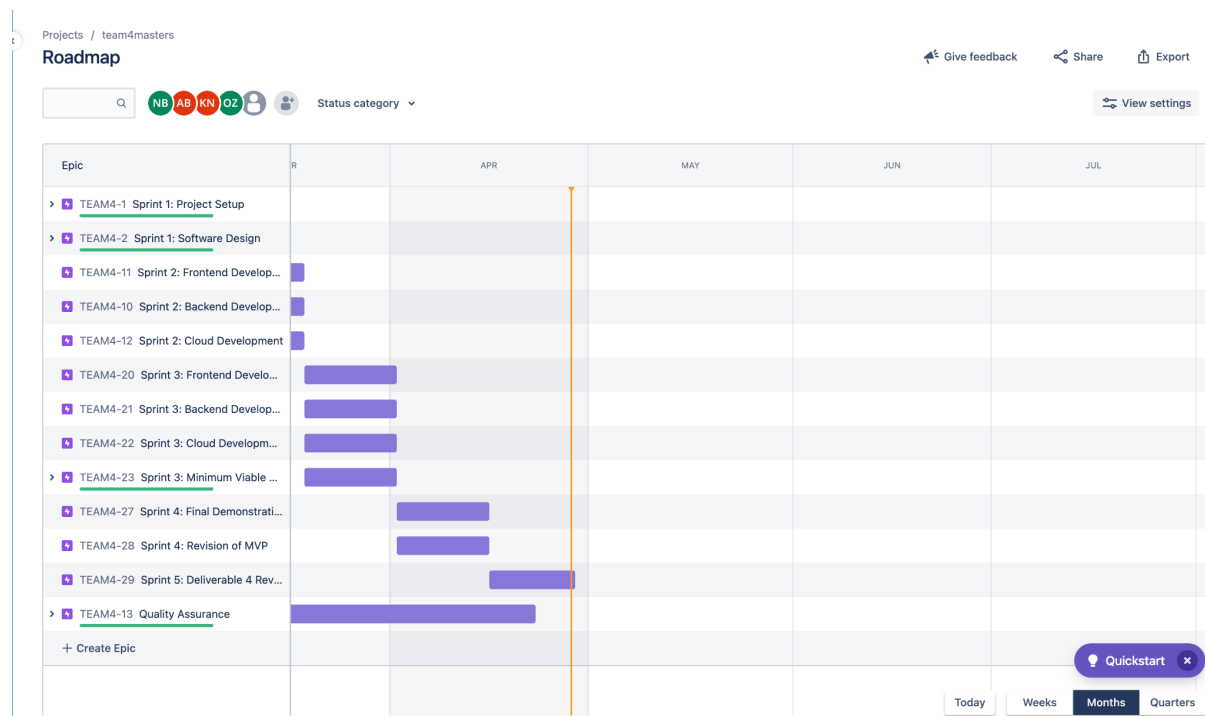
During each sprint, human resource and management issues started arising and created cause for concern for delivering parts of our application. These are outlined during each sprint and how our team has adapted to make up for project downfalls.

There was an additional Sprint 5 added to accommodate for losses obtained in Deliverable 2 i.e. Sprint 2. Issues were also experienced on-going issues throughout the project and the team had to adapt to facilitate losses caused by these issues.

Table 2. Updated Sprint and Deliverable Timeline

Sprint	Deliverables	Deliverable Deadline
Sprint 1	Deliverable 1	4/03/2022 at 5 pm
Sprint 2	Deliverable 2	18/03/2022 at 5 pm
Sprint 3	No Deliverables, although expect core MVP to be completed.	Not Applicable
Sprint 4	Deliverable 3	14/04/2022 to 08/04/2022
Sprint 5	Deliverable 4	28/04/2022 at 5 pm

Image 2. Final Jira Roadmap



Sprint 1

During this Sprint, where initial design reports had to be generated, there were not many general issues as adherence to our original practices illustrated in Deliverable 1 was strongest. Although communicating clearly to each other the expectations of adherence to stand-ups was an issue, the team generally mostly resolved this at the time.

Sprint 2

During this Sprint, the team had lost adherence to the original practices outlined in Deliverable 1 and lost adherence to key responsibilities being mis-judged and misplaced. It had caused a shift of team responsibility to the fullstack developers and the Project Lead to take over the responsibilities of other members during the time. This led to the result of not being able to execute Delivery 2 to a passable standard.

During this sprint, the team then adapted to the following human resource mismanagement:

- Allocation of Kieran to take up full stack responsibilities to continue backend development of the APIs
- Allocation of Navid to temporarily take over backend development and build code base to run and host the API
- Continue with running with our practices only with active human resources
- Notify external stakeholders of issues to notify of late and misplaced delivery of Deliverable 2

Practices were not changed during this sprint, as the key objective was to deliver and continuously implement Deliverable 2. At the time of delivery the solution was mostly incomplete, with only a few key documentation being available and the API being hosted on an EC2 instance to compensate for losses in not being able to set up the original intended platform.

Sprint 3

During this Sprint as there was no deliverable due, the Sprint was originally to initiate and execute Deliverable 3 application development but then it was decided to restructure the sprint to accommodate for losses during Sprint 2 and Deliverable 2.

The key objectives as originally outlined on the roadmap were un-officially changed at the time to focus on the primary key objectives:

- Develop baseline functionality for APIs
- Update Swagger

The other Deliverable 2 requirements were dropped, as they were not required to be delivered upon Deliverables 3 and 4.

Issues in Sprint 1 and 2 were reflected upon, and it mainly contributed to a misunderstanding of key responsibilities and practices as mentioned in the previous sprint. The main issue was how expectations and accountability were to be communicated upon

Our agile practices were also adapted:

- Pair programming sessions to commence between members to ensure development
- Increase usage of ad-hoc meetings from the Project Lead to the team members to clarify any confusions about the project

Sprint 4 and 5

Upon each sprint past Sprint 3, there were still on-going issues with maintaining accountability, as the application then halted its development during this period. Since the final deliverables for the oral presentations needed to be finalised, then temporary role re-allocations were commenced.

These were the following shifted responsibilities:

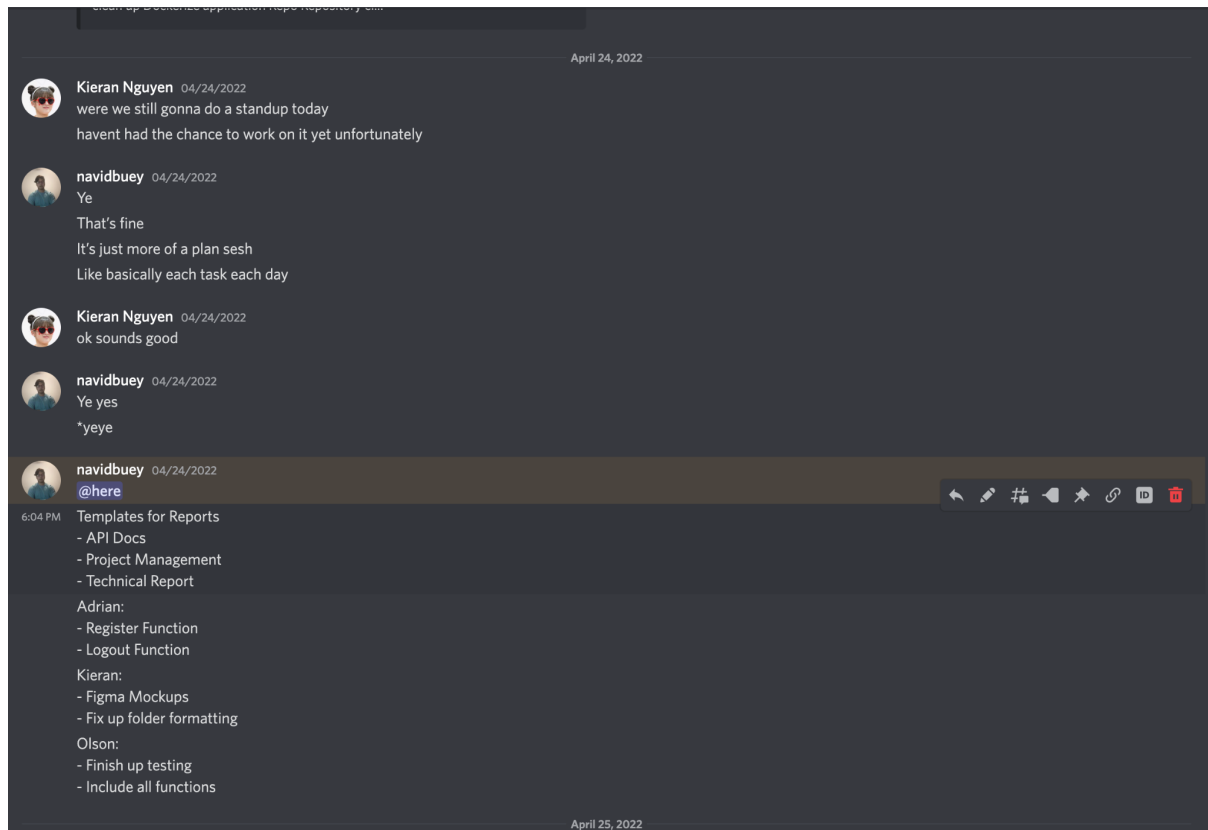
- Allocation of Navid to focus on presentation, business ideation and document drafting
- Rest of the team to focus on continuing development and adding documentation to parts that they worked on

For Deliverable 3 and 4 due to prior communication with external stakeholders, leniency was thus granted for future deliverables to accommodate for prior losses. Deliverable 3 was a success, but parts of Deliverable 4 were delayed. Due to the Project Lead getting infected with COVID-19, there was a halt in development, however an extension was granted to have our deliverables ready.

To finalise and push for the last two sprints the following agile strategy were adapted:

- Daily stand-ups to communicate what we have done each day until the due date
- Provide notifications and daily summaries in the channel to track team member objectives

Image 3. Notification of Team Member Objectives



This had sped up most project progress, although ended up in a delay in the delivery of certain reports.

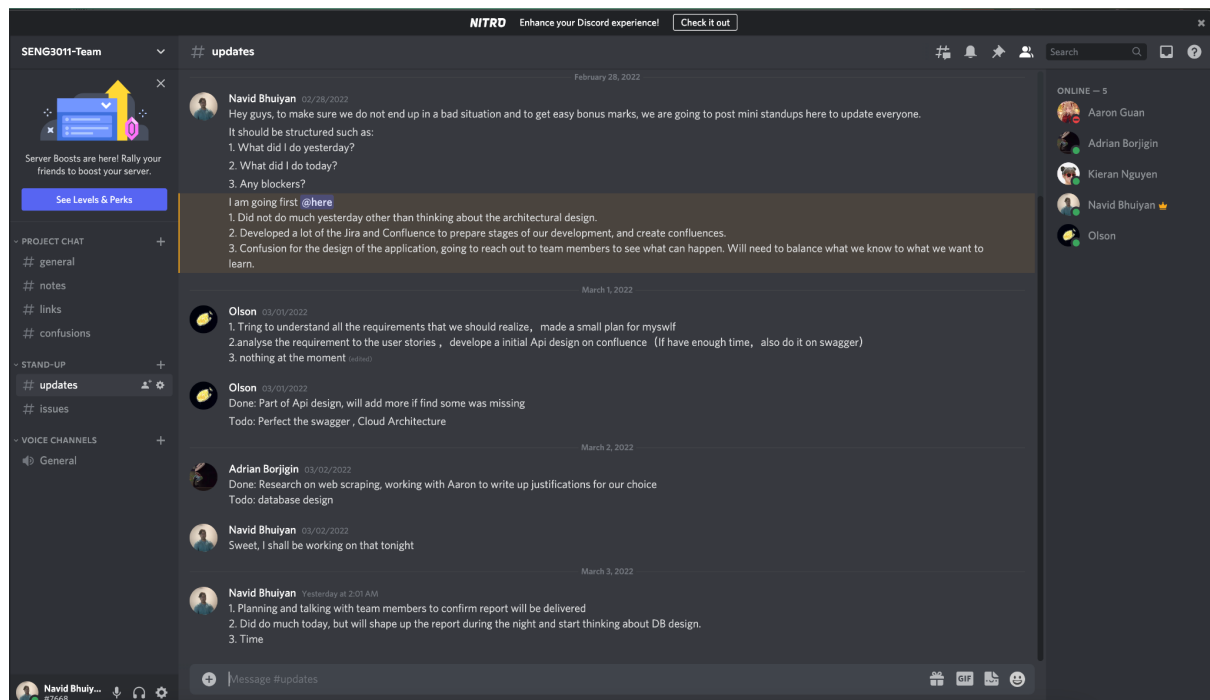
Agile Practices Revision Brief

Our key agile practices that we attempted to maintain are meetings twice a week, daily standups, outlining progress per sprint's requirements and each project member managing their allocated ticket on the Kanban board.

Originally our meetings are meant to be coordinated on Monday and Friday at 10 am or 6pm, to cover our overall progress in the week and to enable sessions where the team can ask questions. These meetings are often flexible and offer the time to do pair programming and to discuss initiatives and bugs. Our daily standups are all managed on the Discord platform, as each developer has allocated themselves available on the platform to track their own progress daily. If no one attends the stand-up then it is up to the discretion of the Scrum Master to catch up with team members on their progress and to prompt them to record on Discord.

There were attempts of us doing so throughout the project as shown below. In Image 2 it is proof of somewhat up-holding how we do asynchronous updates throughout the week. These were not daily at best, but acted as a hub for when people had made progress on their task, they updated it on our discord channel.

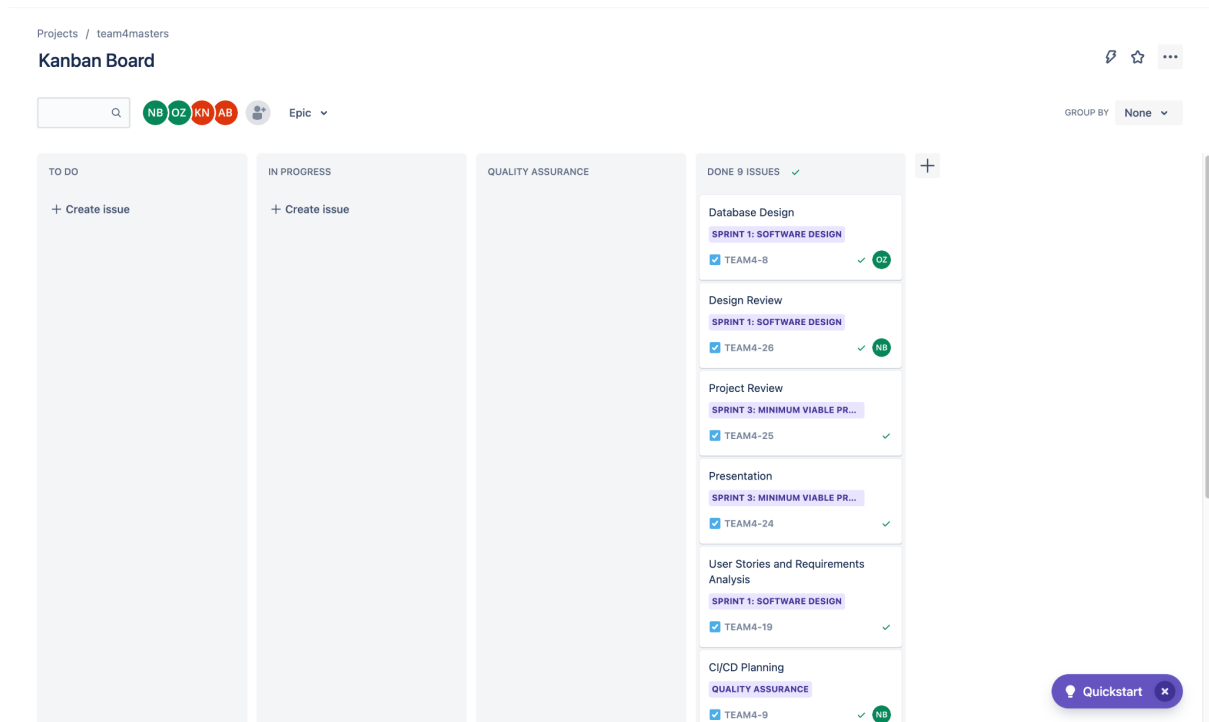
Image 4. Stand-up Channel



As for our original meeting schedule, this was not sustained well, and instead in Sprint 4, we started to do daily stand-ups instead to ensure proper accountability and push for finalised project progress.

In terms of our agile practices maintained throughout the term, just as the use and inclusion of our Jira Kanban board, were not maintained nor used as the entire team experienced communication and accountability issues to maintain it, as responsibilities were continuously shifted throughout the project. The roadmap was then only qualitatively used to structure what would need to happen in the project and adapt to what was required in each Sprint phase.

Image 5. Kanban Board



Reflection

Starting this project as a team presented many struggles initially. As it is with any group project at UNSW, especially one delivered online, we have never met each other before and it took us a while to get aligned with each other and work out a common meeting time, expectations for the semester, roles and delegations etc. We saw many changes throughout our overall project management as the deliverables went on, based on our performances. Initially we started off with many stand-ups per week, but we got complacent with a good mark in Deliverable 1, and decided to meet less often which was reflected in our Deliverable 2 mark. After this incident, we decided to up the number of stand ups per week in a bid to get back on track.

From the Agile methodology, our team found that one of the practices that worked well was pair programming. Throughout development, some of our team members had differences in experience with certain programming languages and frameworks, thus it became necessary to communicate the ways in which certain components worked to other members who may not be familiar. In particular, many of the components of the Flask server were pair programmed, in order to understand what forms of data were being sent from the backend to the frontend. We found that this worked quite well throughout the deliverables to help streamline the development process, and likely should have been standardised in order to maintain accountability and facilitate

communication between team members, as many pair programming sessions were organised spontaneously.

Without face-to-face meetings, many of us found it hard to stay extremely motivated throughout the semester, but in an attempt to remedy this issue, we had frequent standups online with our cameras on. However, many issues with working online still persisted such as a sense of loneliness, lack of communication and accountability for our work. These issues were attempted to be minimised, but many aspects still remained as this is the reality of living in the COVID-19 pandemic. Another issue faced was despite the fact that we had many channels and tools to keep us accountable, we failed to utilise them to their full extent. One example is the use of our Discord channel, where we held most of our meetings there, but often it was the case that someone forgot to join the meeting. A solution to this would just be to create a notifications channel to keep track of dates of when we will meet in the future and keep these notifications pinned. This example can be a bit trivial, but many of these issues can lead to distractions throughout our project, especially one as large as SENG3011.

To entirely reflect for teamwork in the future, here is what we would do differently:

- Team Contract
 - Clearly outline and agree upon expectations officially throughout the course of the term
 - Encourage people to honestly take on responsibilities that they will take
- Frequent Team Meetings
 - Catch losses early by notifying each other early to accommodate and encourage accountability
 - Ensure people are more frequent to communicate with each other
- Structure Agile Properly to the Team's Needs
 - Agile can be applied differently to each team, the core principles need to be addressed
 - Seek out what is comfortable with the team, and organisation sessions to learn how to apply practices
- Create Activities to Facilitate Team Chemistry
 - Generate team chemistry so members commit to tasks better, and learn to collaborate with each other instead of being in isolation.

Conclusion

Overall, in spite of the issues and complications presented with the ongoing pandemic and the online nature of the project, our team utilised and adapted the Agile methodology in different ways to meet the teams needs to build a platform where users can quickly and efficiently find disease reports and information on diseases in different countries as outlined in our Project overview.

Upon reflecting from this experience, there are valuable lessons to be learnt in how to facilitate better teamwork, but also learning that Agile does not have to be applied conventionally and that it should be applied in such a way to properly utilise its core principles with the team.