



## Retrospective Sprint 4 of Group RTMST1

### Real-Time Wine Sensing Tool

by

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# Snapshots (Group):

## First Snapshot:

## Product Backlog and Task Board:



Figure 1. Product Backlog

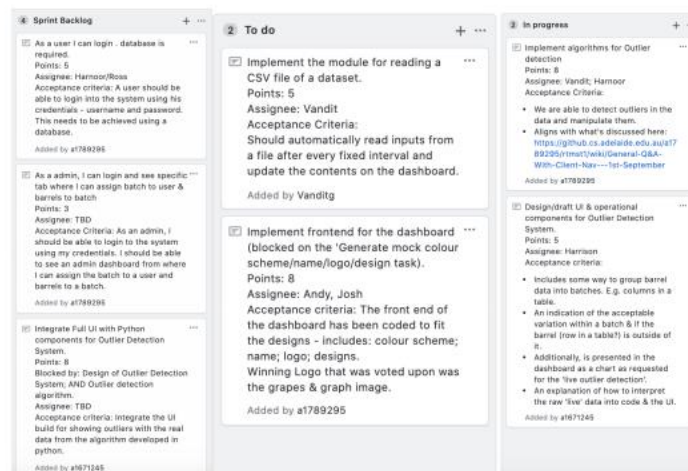


Figure 2. Task Board

## Sprint Backlog and User Stories:

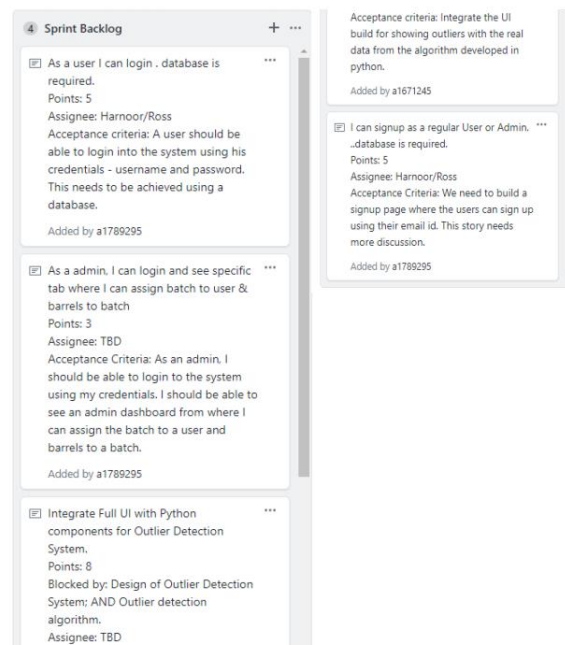


Figure 3. Sprint Backlog

### ▪ Wine Quality Prediction for test set:

Design and implement an algorithm that determines the quality of the wine based on test set data.

**Acceptance Criteria:** We have an algorithm that can take input data and return a value for the quality of the wine.

### ▪ Implement the module for reading a CSV file of a dataset

Create a python module for reading input CSV files.

**Acceptance Criteria:** We have a code module that can parse input files in CSV format.

### ▪ Design UI & operational components for Outlier Detection System

Design a user interface that contains the necessary functional components for detecting outliers in the reading of a barrel.

**Acceptance Criteria:** We have a design of the user interface that includes a method of grouping barrel data, indicates acceptable variance within a batch, presented in the dashboard as a chart, and includes an explanation of how to implement it into code.

- **Design UI & operational components for Fermentation Tracking**

Design a user interface that contains the necessary functional components for tracking fermentation of a barrel.

**Acceptance Criteria:** The design of the User Interface includes a method of tracking fermentation of the same barrel over time, tracking the average of a batch of barrels.

- **Implement frontend for the dashboard**

Create HTML and CSS code to implement the User Interface as specified in the designs.

**Acceptance Criteria:** The front end of the dashboard has been coded to fit the designs.

- **Generate mock color scheme/name/logo/design**

Create some drafts of a User Interface design. Create a name and a logo for the project.

**Acceptance Criteria:** As a group we have decided on a name, logo, and design for our project User Interface which would best engage and interest the user

- **Implement algorithms for Outlier Detection System**

The data will have outliers that will skew the results of our machine learning programs, these outliers need to be removed to provide more precise analysis of the data.

**Acceptance Criteria:** We have a definition of an outlier. We have an algorithm that detects outliers which can reliably inform the user when a wine is at risk.

Align with what's discussed here:

<https://github.cs.adelaide.edu.au/a1789295/rtmst1/wiki/General-Q&A-With-Client-Nav---1st-September>

- **Implement user login**

As a user, I can login to view my batches data, using a username and password.

**Acceptance criteria:** We have implemented a database and enabled user logins using credentials

- **Implement admin dashboard**

As an admin, I can log in and see specific tabs where I can assign barrels to batches and batches to specific users.

**Acceptance criteria:** We have implemented an admin dashboard, where admins can login using their credentials and see different tabs for assigning barrels to batches and batches to users.

- **User/admin sign-up**

As a user or an admin, we can sign up using an email ID.

**Acceptance criteria:** Users and admins can create an account using an email ID.

## **Definition of Done:**

Please find below the definition of done for each user story, in sprint 4:

- The sprint was planned and mutually understood, reviewed, and accepted by all members of the team.
- Coding and designed have been completed.
- All or as many sprint items as possible (described in the previous ‘User Stories’ section) that were in the state of To Do or In Progress have met their respective acceptance criteria.
- All sprint items that have met their acceptance criteria have been verbally or explained in writing and understood by all.
- All sprint items that have met their acceptance criteria have been moved to Done status.
- All sprint items that have not met their acceptance criteria have been moved into the next sprint or back to Sprint Backlog.

## **Summary of changes:**

This last snapshot was the two weeks leading up to the holidays, so motivation was a little low and not a whole heap of tasks actually got completed. However the majority of the tasks were larger ones so while they were not actually completed progress was made on them. This includes the User Interface, the outlier detection.

We have also made the decision and start making progress on a log in and a sign up page as new information has come from the client regarding assigning of batches and barrels to specific users.

# Second Snapshot: Product Backlog and Task Board:

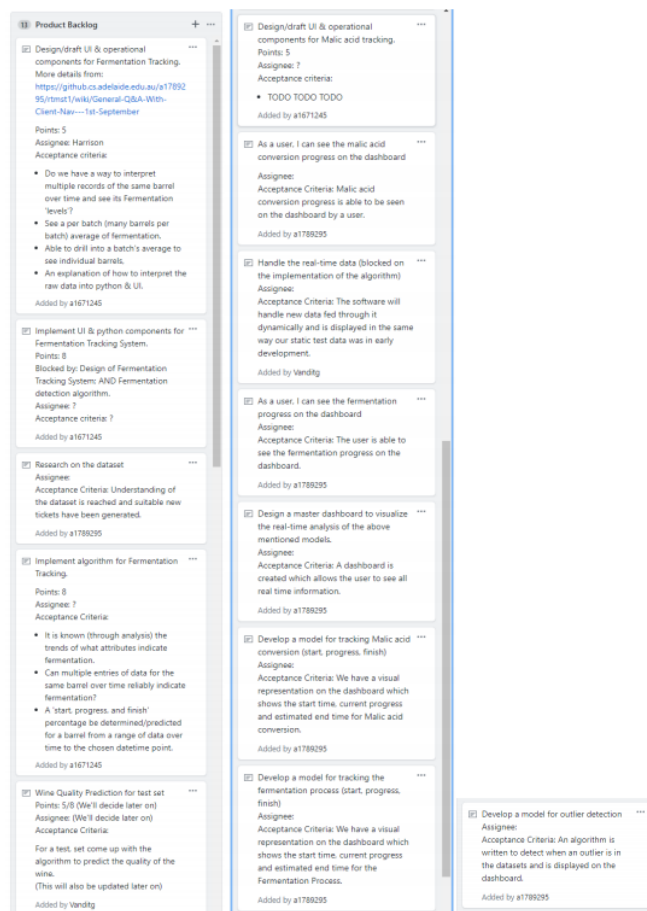


Figure 4. Product Backlog

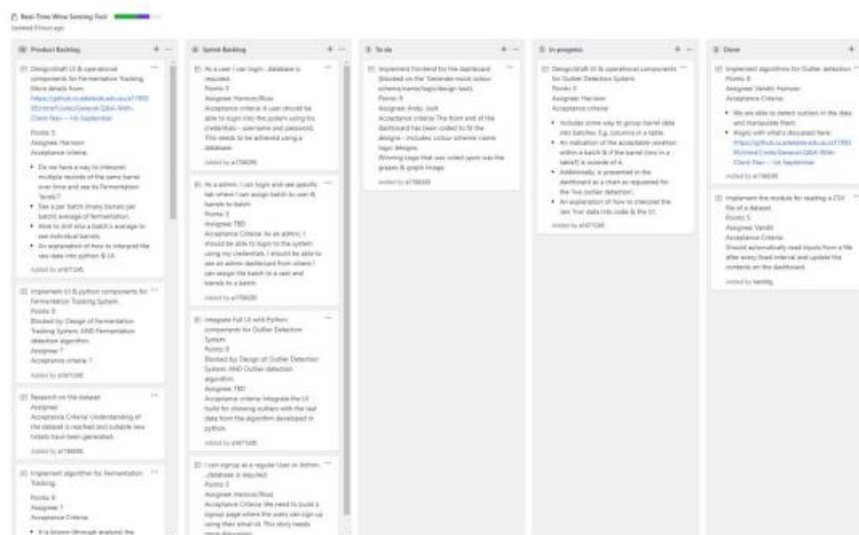


Figure 5. Task Board

## Sprint Backlog and User Stories

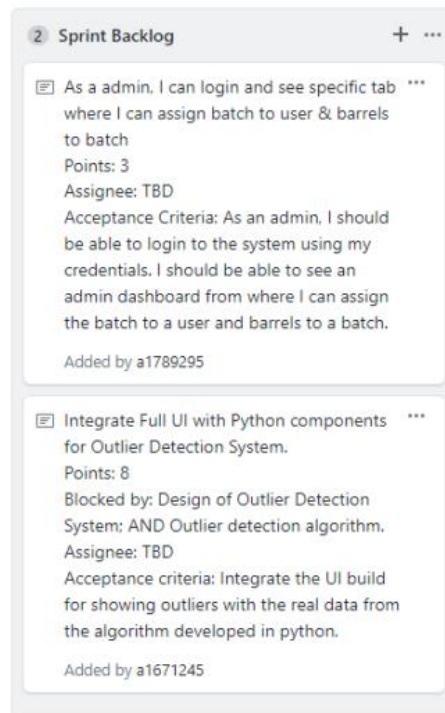


Figure 6. Sprint Backlog

- **Wine Quality Prediction for test set**

Design and implement an algorithm that determines the quality of the wine based on test set data.

**Acceptance Criteria:** We have an algorithm that can take input data and return a value for the quality of the wine.

- **Design UI & operational components for Outlier Detection System**

Design a user interface that contains the necessary functional components for detecting outliers in the reading of a barrel.

**Acceptance Criteria:** We have a design of the user interface that includes a method of grouping barrel data, indicates acceptable variance within a batch, presented in the dashboard as a chart, and includes an explanation of how to implement it into code.

- **Design UI & operational components for Fermentation Tracking**

Design a user interface that contains the necessary functional components for tracking fermentation of a barrel.



**Acceptance Criteria:** The design of the User Interface includes a method of tracking fermentation of the same barrel over time, tracking the average of a batch of barrels.

- **Implement frontend for the dashboard**

Create HTML and CSS code to implement the User Interface as specified in the designs.

**Acceptance Criteria:** The front end of the dashboard has been coded to fit the designs.

- **Implement user login**

As a user, I can login to view my batches data, using a username and password.

**Acceptance criteria:** We have implemented a database and enabled user logins using credentials

- **Implement admin dashboard**

As an admin, I can log in and see specific tabs where I can assign barrels to batches and batches to specific users.

**Acceptance criteria:** We have implemented an admin dashboard, where admins can login using their credentials and see different tabs for assigning barrels to batches and batches to users.

## **Definition of Done:**

Below states our Definition of Done for the sprint. The sprint is 'done' when:

- The sprint was planned and mutually understood, reviewed, and accepted by all members of the team.
- The current snapshot (Described in the 'User Stories') have met respective acceptance criteria for individual items.
- CSV Loader and Outlier detection module have been implemented.
- Designing of the UI and merge the outlier detection module with the dashboard in the final stage for completion.

- The implementation for the Dashboard and Sign-in options are currently in working stage.
- The tasks which have been not initiated nor completed have been moved to the next phase for priority tasks.

### **Summary of changes:**

A lot more was completed this last snapshot than the previous one with some substantial progress being made in some tasks and a couple items getting ticked off the list. One of the tasks that some progress was made in was the authentication of the user. The log in and sign up screen will be completed by the end of the next sprint hopefully.

As well as this the UI was completed for the site and the HTML and CSS has been started which also will hopefully be completed in the next two weeks. Some more work has been completed on the outlier reading to help this tie in more correctly with the site.

**Declaration:** I have attended sprint 4 planning meeting on 7<sup>th</sup> October 2020 and sprint 4 retrospective meeting/sprint 5 planning on 21<sup>st</sup> October 2020 with the tutor Mr. Navpreet Singh Ahuja.

## **What went well in the sprint (Individual):**

The fourth sprint was all about completing the necessary modules which will be helpful in the integration for the final product such as the CSV file reader module, Final Outlier Detection algorithm module, implement the dashboard (Front-end), and Design UI for Outlier Detection System. So far with each sprint going forward, we did a tremendous job progressively and this will eventually be helpful in the final sprint, where it will be very easy for the team to integrate every module/framework/system in a smooth and effective way. One of the most important tasks was to implement the dashboard in such a way to fulfill the client's provided conditions, and we successfully implemented it with a good design infra-structure. Also, we created a CVS file reader module in both ways using Python's standard libraries and one of the open-source libraries – using Pandas [1]. Considering the Outlier Detection algorithm, we have used two approaches based on the discussion in team meetings – Standard Deviation approach [2] and using Support Vector Machines [3]. The implementations in this sprint were based on the user stories that team members selected for the fourth sprint backlog.

## **What could be improved (Individual):**

As we progressed to the final sprint, there were certain limitations I figured out during the fourth sprint retrospective.

- There was a minor issue, in developing the login module in the system, where based on the credentials, the user can access the data in the dashboard. However, the task was pretty tough as none of the team members had knowledge of developing this module. Thus, unfortunately, we had to move the implementation to the final sprint.
- I had focused on two modules – CSV file reader and Outlier Detection algorithms modules. The issue, I faced during the development was about how to create such a module where without changing the internal code, the user can just pick one of the CSV files of barrels and visualize it in the dashboard. There was a miscommunication from my side and eventually, I created two separate modules based on the standard libraries and open-

sourced libraries, which took more time than expected. Thus, If I could have understood the user story thoroughly, this task might have been completed even faster than our team have anticipated.

## **What will be the group commit to improve in the next sprint(Individual)?**

In our last daily scrum meeting of the fourth sprint, we discussed minor issues and decided to follow certain rules and strategies in the development phase for efficient product development. As we got the sample data from the client, we did minor experiments with it in terms of visualization and outlier detection.

- Initially, we created and tested our outlier detection algorithms on a similar dataset to compare to the sample data that we did receive during the mid-semester break. So, the task was pretty easy for the team members to integrate the outlier detection module in the final product, however, we were struggling with the UI design infrastructure as some of the team members were learning and due to the lack in one of the scrum meetings, we have had to shift the deadline to 3 days back. However, we completed the UI infrastructure, but we have had to shift the integration with the outlier detection module to the next sprint. So this was the learning lesson for our team to coordinate well in some unprecedented times.
- As we were moving to the final sprint, progressively each last sprint was becoming one of the best sprints. However, we need to be precautious in terms of final integration of the product as the time is less and the final integration part is divided into several smaller tasks. So with efficient communication, completion of the divided tasks in a timely manner, and updating the team members with completion of assigned tasks, the team is looking forward to the final product demo and presentation.

## References:

- [1] McKinney, Wes. "pandas: a foundational Python library for data analysis and statistics." Python for High Performance and Scientific Computing 14.9 (2011).
- [2] Kriegel, Hans-Peter, Peer Kröger, and Arthur Zimek. "Outlier detection techniques." Tutorial at KDD 10 (2010): 1-76.
- [3] Cortes, Corinna, and Vladimir Vapnik. "Support-vector networks." Machine learning 20.3 (1995): 273-297.

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