<3

Heartrate Behavior and

Analysis Tool (HBAT)

Sprint 1 Planning Document

Ruhana Azam, Manoj Polisetti, Rajith Weerasinghe, Phillip Thain

Team 3

Table of Contents

[**Sprint Overview**](#_vjw8xs45jl48) **3**

[Scheduled Meetings](#_imqj2ickrcei) 3

[Risks](#_svmnc5e90crg) 3

[**Current Sprint Detail**](#_4vddctsf4ie6) **4**

[User Stories](#_jum6uaq1gi9s) 4

Backlog[:](#_9qyb5k812ab) 8

[Core Features:](#_2dtudjdswp8k) 8

[Additional Features:](#_3emq6fmg7odv) 8

# Sprint Overview

The objective of this sprint is to create a usable prototype of a GUI desktop application that will process heartrate data against behavioral data and produce the results in a table format.

**Scrum Master**: Phillip Thain

## Scheduled *Meetings*

* Sundays, 2-4 p.m.
* Thursdays, 6-8 p.m.
* Every Monday, Wednesday, Friday starting February 20th - Stand-up Meeting to discuss progress and challenges

## *Risks*

This is our first sprint. Therefore, we are not particularly confident in estimating how long it will take our team to finish tasks. For example, while we have researched some different methods for creating an appealing GUI, it may be a challenge to learn how to use all of the tools at our disposal effectively. If the tools do take more time to learn than estimated, it could set back development.

# Current Sprint Detail

## User Stories

**User Story 1:** As a researcher, I would like to process heartbeat data in order to analyze it against behavioral data.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Create preliminary heartbeat analysis class containing data and basic functions. | Ruhana, Manoj | 6 each |
| **2** | Create preliminary behavior class containing data and basic functions. | Ruhana, Manoj | 6 each |
| **3** | Implement the algorithm that determines phases | Ruhana, Manoj | 8 each |

**Acceptance Criteria:**

* Given that the program has access to heart rate and behavioral data, when the user requests to process that data then the program should return a dataset that reveals which phase a child is in during different points in the trial.

**User Story 2:** As a researcher, I would like to input data in a form of a CSV file.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Create a Parser class | Manoj | 6 |
| **2** | Create a GUI widget that allows for the input of the file, ie file explorer dialog | Rajith | 2 |

**Acceptance criteria:**

* Given that the program has a correctly formatted CSV file, when the user passes it to the program then she expects it to be interpreted correctly so it can be used for analysis.
* Given the GUI is implemented, when the user uploads a spreadsheet file with the paths to the behavioral and heart rate data the path is retrieved correctly .
* Given the parser class is implemented correctly when the user chooses the correct files paths, then the data from the files will be correctly be parsed by the program.

**User Story 3:** As a researcher, I would like to export results in CSV files.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Create a button that will signal the export process | Phillip | 1 |
| **2** | Determine what information belongs in the output and parse that into a CSV file | Manoj | 3 |

**Acceptance Criteria:**

* Given that the datasets have been analyzed correctly, when I request to export the data, then the program will return a CSV file containing the results of our analysis.

**User Story 4:** As a researcher, I would like to be able easily access the program through a graphical interface.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Compare and contrast the functionality and ease of use of JavaFX vs Swing to finalize which library would be better suited for the task. (GUI CLASS) | Rajith, Phillip | 2 each |
| **2** | Design layout for each page of the GUI as represented in Activity Diagram from the Design Document (Main Menu) | Rajith | 5 |
| **3** | Design layout … (New Trial Form) | Rajith | 5 |
| **4** | Design layout … (Trial Viewer/Results page) | Phillip | 5 |
| **5** | Design layout … (File Loader Page) | Phillip | 3 |
| **6** | Connect GUI elements with their relevant classes (a.k.a connect the design to the functionality) (Main Menu) | Rajith | 5 |
| **7** | Connect GUI elements… (New Trial Form) | Rajith | 5 |
| **8** | Connect GUI elements … (Trial Viewer/Results page) | Phillip | 5 |
| **9** | Connect GUI elements … (File Loader Page) | Phillip | 3 |
| **10** | Make GUI more aesthetically pleasing than default settings | Rajith,  Phillip | 3 each |

**Acceptance criteria (from user story 4):**

* Given that the GUI classes are implemented correctly, when the program is used, there will be a window for the main menu, and for uploading new behavioral and heartrate data.
* Given that the action listeners for the GUI are implemented correctly, when file uploading button is clicked on the main menu, the GUI will direct the user to the window where they can upload data.
* Given that the GUI is implemented correctly, when the user uploads a spreadsheet with file paths, the files can be uploaded by the user to be analyzed.

**User Story 5:** As a researcher, I would like to easily sync up the data inputs to start at the same time stamp.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Take timesync data and shift the timestamp times depending on when the user specifies to sync the times. (PARSER CLASS) | Manoj | 2 |
| **2** | Create a button that will signal the export process | Phillip | 1 |

**Acceptance criteria:**

* Given that the behavioral and heart rate data do not start measuring at the same timestamps, when the user inputs the correct shift then timestamp can be shifted depending on the starting point of the experiment.
* Given multiple data sets from the same experiment trial, when the user uploads behavioral and heart rate files, the different datas from that experiment will have synced start times.
* Given that the shift is implemented correctly, when the user uploads data, then start times for both behavioral and heart rate data will be at 0.00 seconds.

**User Story 6:** As a developer, I would like to organize information with classes

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Create classes for Group, Child, Trial to organize data sets | Ruhana | 4 |
| **2** | Create classes DataPoint and Attribute to organize data points of type Behavioral and HeartRate. | Ruhana | 4 |

**Acceptance Criteria:**

* Given that the classes are organized correctly, when the developer needs to access experiment data for other classes, they can easily access information pertaining to data in experiments.

**User Story 7:** As a researcher, I want to see the output file in spreadsheet form from within the GUI window.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Implement a visual table form. | Phillip | 4 |
| **2** | Parse output data such that it can be easily sent to the GUI. | Manoj | 1 |

* Given that a table GUI is implemented, when opens the GUI to view data, then behavioral, heartrate, and analyzed data ,pertaining the the data they just analyzed, on a table.
* Given that the GUI access the analyzed data correctly, when the user opens the GUI to view data, then the user will be able to view correct information.

Backlog

## Functional Requirements:

#### Core Features:

1. ~~As a researcher, I would like to process heartbeat data in order to analyze it against behavioral data.~~
2. ~~As a researcher, I would like to input data in a form of a CSV file.~~
3. ~~As a researcher, I would like to export results in CSV files.~~
4. As a researcher, I would like to be able to create visualizations of the data.
5. As a researcher, I would like to export visualizations.
6. As a researcher, I would like “tool-tips” for features I may not understand.
7. ~~As a developer, I would like to organize information with classes~~
8. ~~As a researcher, I want to see the output file in spreadsheet form from within the GUI window.~~

#### Additional Features:

1. As a researcher, I would like to combine other sets of data and analyze them.
2. As a researcher, I would like to have a general summary of each experiment.
3. As a researcher, I would like to input data from Excel.
4. As a researcher, I would like to export results as an Excel file format.
5. As a researcher, I would like to drag and drop necessary files within the GUI to input them.
6. As a researcher, I would like to be able to process and organize data in batches.
7. As a researcher, I would like to customize how the data is batched together.
8. As a researcher, I would like to be able to create unique trials.
9. As a researcher, I would like to be able to access old trials.
10. As a researcher, I would like to check on multiple infants’ data in a tabular format to spot differences/similarities.
11. As a researcher, I would like to be able to organize batch data by characteristics of the data (Male vs. Female, Low vs High-risk, etc.).
12. As a researcher, I would like be able to specify different phases throughout the timeframe of the experiment.
13. As a researcher, I would like to graphically represent those phases.
14. As a researcher, I would like to customize the appearance of the graph, such as colors, fonts, icon shapes, etc.
15. As a researcher, I would like to be able to see a progress bar when processing datasets which take a long time.
16. As a researcher, I would like to be able to do certain functions in multiple ways (e.g. Export with menu bar, right click, and java.swing button).
17. ~~As a researcher, I would like to easily sync up the data inputs to start at the same time stamp.~~
18. As a researcher, I would like to be able to manually be able to type in the behavioral data at specific timestamps.
19. As a researcher, I would like to add event notes at specific timestamps.
20. As a researcher, I would like to be able to access patient data from within the program.
21. As a researcher, I would like to be able to calculate basic statistics for specific phases of data.

## Non-Functional Features

1. As a researcher without a programming background, I would like this to be easy to use.
2. As a researcher, I would like the application to work in both Windows and Mac operating systems.
3. ~~As a researcher, I would like to be able easily access the program through a graphical interface.~~
4. As a developer, I would like the project to be easily extensible.
5. As a researcher, I would like the program to be intuitive.
6. As a developer, I would like to create a file type to store patient data.
7. As a researcher, I would like the installation process to be easy.
8. As a researcher, would like to have it analyze quickly.
9. As a user, I would like the GUI to be responsive.