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Heartrate Behavior and

Analysis Tool (HBAT)

Sprint 3 Planning Document

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Team 3

# Sprint Overview

This is the final sprint of this project’s development arc. The main objective of this sprint is to polish what we have currently, while also adding in some last minute functionality that will significantly benefit the user’s experience, such as graphical visualization of the results given by the software.

**Scrum Master**: Phillip Thain

## *Scheduled Meetings*

* Weekly:
  + Monday, Wednesday, Friday 11:30-12:30.
  + Thursday, 6-8 p.m.
* Sprint 3 presentation:
  + Monday, April 24th 6:30

## *Risks*

We face a risk this sprint of not being able to finish everything into a polished state. Although there are plenty of features we would be happy to implement, there is only so much time in the rest of the year. That said, there are some features we have planned to accomplish during this sprint that have been difficult to estimate. For example, it is a risk for us to tackle batch processing, because although it seems simple enough to process multiple tasks at one time, it may be a more involved process to give an understandable output of all of those tasks in the form of a ‘batch output’. Ultimately the risk we face now is spending too much time on some specific feature to the point where development in other, more important areas gets sidelined.

# Current Sprint Detail

## *User Stories*

**User Story 1:** As a researcher, I would like to be able to create visualizations of the data.

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| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Research viable options for visualizing the data | Ruhana/Rajith/Manoj | 1 each |
| **2** | Create a graphical interpretation of an output.csv file | Rajith/Ruhana | 8 |
| **3** | Visualize the ‘phases’ of the experiment graphically | Ruhana | 3 |
| **4** | Integrate the graph into the program | Rajith | 2 |

**Acceptance Criteria:**

* Given the user gives the program correct input, after the file is analyzed, then the data viewer should display a graph that is representative of the output.csv.
* Given the user gives the program correct input, after the file is analyzed, then the graph that is displayed should point out the important phases within the graph in some form.

**User Story 2:** As a researcher, I would like to check on multiple infants’ data in a tabular format to spot differences/similarities.

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| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Implement the procedural creation of multiple tabs with corresponding data | Rajith | 5 |
| **2** | Implement a means of returning to the single dataset input window to add a dataset viewable from the data view window. | Rajith | 3 |
| **3** | Implement a way to input datasets without moving between multiple windows | Rajith | 4 |
| **4** | Implement an ‘open’ command from within the toolbar to allow selection of an output.csv | Rajith | 2 |

**Acceptance Criteria:**

* Given the user opens a .csv file that represents the output of a processed trial, the program will then create a new tab within the data viewer to display that information graphically
* Given the user analyzes multiple trials of data at once, when the data viewer is being prepared, then it should open with new tabs already created for each trial

**User Story 3:** As a researcher, I would like the installation process to be easy.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Create an executable | Phillip | 4 |
| **2** | Add options to download executable from GitHub or other data storage service | Manoj | 2 |
| **3** | Write a readme.txt with useful information for the installation | Phillip | 2 |

**Acceptance Criteria:**

* Given the user downloads our executable, when they run it, it should be able to operate without any further installation.
* Given the user downloads our application, when they want to know how to use the software, they should be able to reference the readme to understand the functionality.

**User Story 4:** As a researcher, I would like to open a website to learn more about the HeartRateProgram and download it from the website.

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| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Implement GitHub pages for the Repository and figure out how it works. | Manoj | 5 |
| **2** | Implement the HTML and CSS for the custom website. | Manoj | 10 |
| **3** | Implement a downloadable link to the website to be able to download the executable. | Manoj | 7 |
| **4** | Work on making the website informative and clear about the workings of the program. | Phillip/Manoj | 5 |

**Acceptance Criteria:**

* Given the user is directed to our github page, when they view it, it should allow the user to easily navigate the webpage and learn more about the program.
* Given the user wants to use our program, they should be able to locate it with ease and download a usable version of it.
* Given the user wants to modify our program for their own needs, they should be able to download the source code along with instructions on how to develop and build the software.

**User Story 5:** As a researcher, I would like to export visualizations.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Create button for exporting visualization and integrate code | Rajith | 3 |
| **2** | Interface with the visualization API to create a SVG and JPG of the graph | Phillip | 4 |

**Acceptance Criteria:**

* Given the user wants to be able to share a visualization, when the user clicks the export button, then an image file is saved to the hardrive.

**User Story 6:** As a researcher, I would like to have a summary of each task. (statistics including total time elapsed in the task, the lowest and highest RR value, etc.)

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| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Write functions that will return each statistic specified in the codebook (getTotalTime(), getProportionOfTaskInSustainedInattention()) | Ruhana | 8 |
| **2** | Produce an output of this information in a file with the raw output file | Ruhana | 5 |
| **3** | Display this information in a pleasing manner within the GUI | Rajith | 3 |

**Acceptance Criteria:**

* If the user processes a set of data in a task, a new window should appear that displays the summary statistics for that task.
* If the user wants to store the summary statistics, then they should be able to export that information in a file.

**User Story 7:** As a researcher, I would like the program to be intuitive.

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| --- | --- | --- | --- |
|  | **Description** | **Owner(s)** | **Time (hrs)** |
| **1** | Redesign main menu for options to: create a new task or review a stored task | Phillip | 1 |
| **2** | Add functionality to the dataview page to enable the addition of a new task | Phillip | 1 |
| **3** | Create a dialogue that ensures the program won’t exit unless the user is absolutely sure. | Phillip | 2 |
| **4** | Default tool-tips to show automatically | Phillip | 1 |
| **5** | Make sure there is always correctly formatted information in any fields that someone can type in. | Phillip | 2 |
| **6** | Create a way to edit the input options for an already processed task | Phillip | 2 |
| **7** | Ensure Every button shown in the taskbar has a purpose | Phillip | 2 |
| **8** | Make sure every error, pane title, and tooltip is descriptive and helpful | Phillip | 4 |

**Acceptance Criteria:**

* When the user wants to return to a previous stage of the program (go back to the input page and change a configuration) they should be allowed to do so without restarting the application.
* When the user opens the application, they should be able to understand the options given to them and how to interact with them intuitively, without the need of a tutorial.
* Given the user clicks the ‘x’ button when they don’t intend to, they should have the option to return to the program.
* Given the program returns an error, the message should be helpful to allow the user to take informed action.

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 add in events 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.
22. ~~As a developer, I would like to be able to create a simple way to build the project and test it all it once.~~
23. ~~As a researcher, I would like to know if there are any errors with my input.~~
24. ~~As a developer, I would like to easily be able to create test cases and verify that the software is functioning correctly .~~
25. ~~As a developer, I would like to be able to close/transform GUI forms in order to reduce clutter on the desktop and improve performance.~~
26. As a researcher, I would like to open a website to learn more about the Heart Rate Program and download it from the website
27. .

## *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.