# PROJECT PLAN

**22, January 2020**

ASSOCIATED ENGINEERING


**Version:**
0.1

**Team**:
AE3: Team Turtle

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## Changelog:

01-22-2020, v0.1

Documenting the first implementation of the Project Plan.

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## Strategy

We have divided our team into smaller teams focussing on different areas of development. Our deep strategy is to parallelize the whole process in order to not waste any resources (time, skills and individuals) within our team.

For this project, we are all using **Microsoft Visual Studio CE** as our Integrated Development Environment of choice. For front-end, we are sticking with **React JavaScript,** and **Node.js** for the client solution. The authentication will be handled by **Microsoft Azure**. The database will be handled by **Microsoft SQL Server Express.** For personal and project use, we are using **Git**. We will be using **GitHub** for our personal repo, and **GitLab** for the course.

We are using the Waterfall methodology during the entire cycle of development of the project. The project is, technically, divided into stages: **Back-End**, **Front-End** and **Integration**. There will be both Blackbox and Whitebox testing at every stage. Integration, Unit testing and End-to-End tests will also be parts of our testing process. For testing, we may use Virtualization or Dockerization. All three of the stages will comprise of three further sub-stages: Programming/Scripting, Data Storage/Accesses/Manipulation, and Testing.

The back-end stage will primarily implement the basic functions dealing with data and the database. The front-end will be responsible for the implementation of the GUI for the client, integration with the Azure API and storage of the data/info received. The integration section will mostly focus on the complete integration of the front-end modules with the server and with the back-end.

## Responsibilities

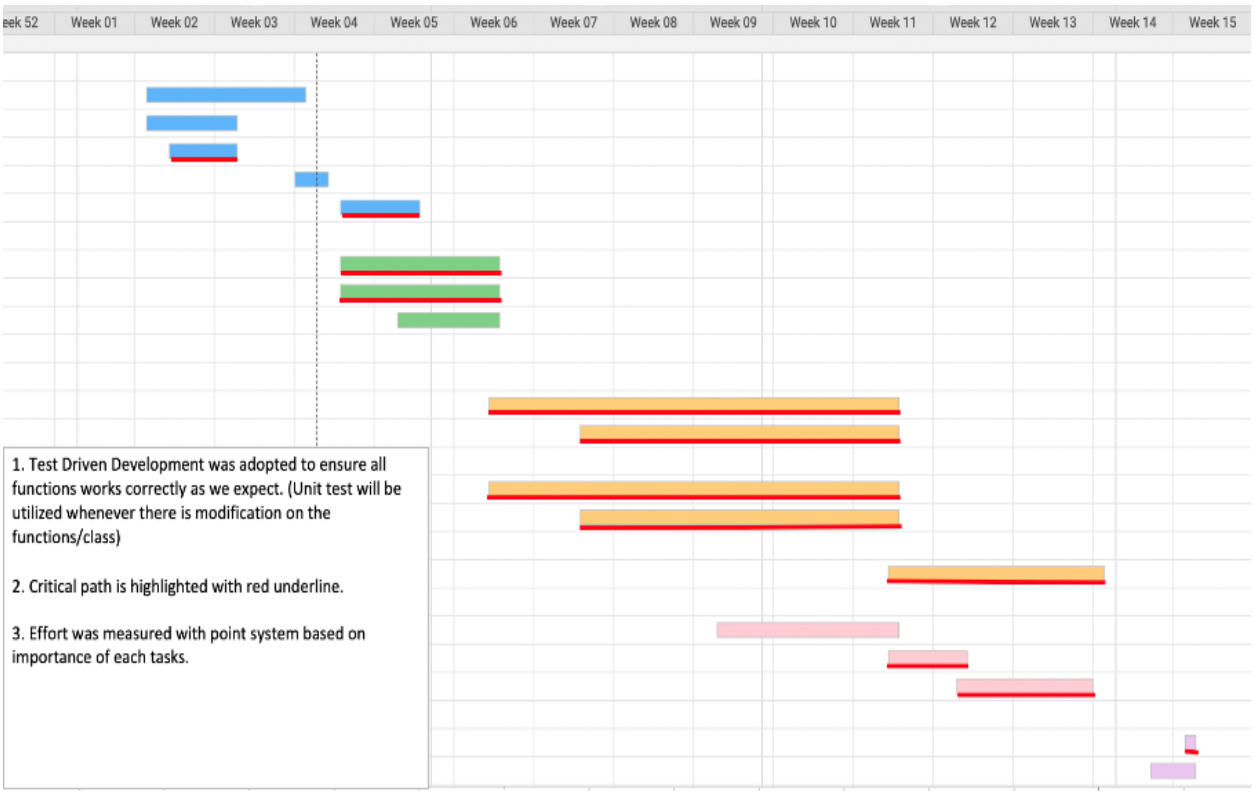
Our team has 6 members and we have mutually approved and accepted our roles. Note: The roles can change and are not permanent throughout any stage.

| | Back-End | Front-End | Integration |
|---|---|---|---|
| Programming | Bob Ghosh<br>Jungwook Jang<br>Shuaiqi Zhang | Eddie Huang<br>Jungwook Jang<br>Wenhong Zhang | Bob Ghosh<br>Eddie Huang<br>Shuaiqi Zhang |
| Data | Bob Ghosh<br>Siddhartha Gupta | Siddhartha Gupta<br>Eddie Huang | Siddhartha Gupta<br>Wenhong Zhang |
| Testing | Jungwook Jang<br>Shuaiqi Zhang<br>Wenhong Zhang | Siddhartha Gupta<br>Eddie Huang<br>Shuaiqi Zhang | Bob Ghosh<br>Jungwook Jang<br>Wenhong Zhang |

Document Control will be done by Bob Ghosh and Jungwook Jang.

The Plan

| Task Name | Start | Finish | Duration | Effort |
|---|---|---|---|---|
| 1. Planning Phase | | | | |
| 1.1 Analyzing and gathering Requirements | 20. 01. 07 | 20. 01. 20 | 10d | 34p |
| 1.2 Defining risks of the project | 20. 01. 07 | 20. 01. 14 | 6d | 20p |
| 1.3 Releasing the terms of reference | 20. 01. 09 | 20. 01. 14 | 4d | 20p |
| 1.4 Setting up the environment for the project | 20. 01. 20 | 20. 01. 22 | 3d | 50p |
| 1.5 Releasing the document for the requirements | 20. 01. 24 | 20. 01. 30 | 5d | 20p |
| 2. Designing Phase | | | | |
| 2.1 Designing base UI configuration | 20. 01. 24 | 20. 02. 06 | 10d | 45p |
| 2.2 Building prototype class for Back-end part | 20. 01. 24 | 20. 02. 06 | 10d | 45p |
| 2.3 Overall Design Review | 20. 01. 29 | 20. 02. 06 | 7d | 70p |
| 3. Implementation Phase | | | | |
| 3.1 Front end Components | | | | |
| 3.1.1 Implement Front-end UI | 20. 02. 06 | 20. 03. 12 | 26d | 80p |
| 3.1.2 Unit Test | 20. 02. 14 | 20. 03. 12 | 20d | 35p |
| 3.2 Back end Components | | | | |
| 3.2.1 Implement Back-end part | 20. 02. 06 | 20. 03. 12 | 26d | 80p |
| 3.2.2 Unit Test | 20. 02. 14 | 20. 03. 12 | 20d | 35p |
| 3.3 End product component | | | | |
| 3.3.1 connecting the components | 20. 03. 12 | 20. 03. 30 | 13d | 90p |
| 4. Testing Phase | | | | |
| 4.1 releasing Test plan | 20. 02. 26 | 20. 03. 12 | 12d | 50p |
| 4.2 Integration Test | 20. 03. 12 | 20. 03. 18 | 5d | 45p |
| 4.3 End-To-End Test | 20. 03. 18 | 20. 03. 29 | 9d | 40p |
| 5. Deployment Phase | | | | |
| 4.1 Releasing Demo Product | 20. 04. 07 | 20. 04. 07 | 1d | 100p |
| 4.2 Demo presentation | 20. 04. 04 | 20. 04. 07 | 3d | 100p |




# Appendix

1. Planning Phase

   *This is the first step to any project. Here, we will present the first set of documentations and gather the pre-requisites needed to complete the project. This will be done together as a team.*

   1.1. Analyzing and Gathering Requirements

   *The requirements are set forth by AE (in our case). We will make sure that their expectations are met, and the project achieves their acceptance criterion. This will be a primary and permanent concern throughout the development cycle.*

   1.2. Defining the risks of the project

   *There are risks attached to any project. We need to make sure that we get to know most of them before-hand, in-order to tackle and better mitigate when we encounter them. The Terms of Reference consists a detailed list of risks. The document will be updated if we encounter more.*

   1.3. Releasing the Terms of Reference

   *The Terms of Reference consists of the overview, risks, costs, responsibilities among few other details about the project. This is a live document and will be updated with time.*

1.4. Setting up the development environment

*Development Environment would comprise of elements that we, as a team, mutually agree on. There are a few things that are set as a requirement by AE and we will use them as per the requirement. The Document for the Requirements would detail them.*

1.5. Releasing the Document for the Requirements

*The Document for the Requirements would detail the requirements of the project. Understanding the requirements make for an important part of the project planning phase.*

2. Designing Phase

*The second phase in our Waterfall scheme is Designing. We will use the High-Level understanding from the previous phase to design an UI. Also, by now, we will have a strong foundation as to what functions and methods we would need in the back-end. This will be done together as a team.*

2.1. Designing the base UI config

*This would form as the end-user interactable interface. This is a critical step in the project as this is what the users would look at, and work with.*

2.2. Building prototypes for Back-End

*We need to have a base design for how the back-end should look like. We need to make sure that the functions are easy to integrate with other components and APIs, they have to be modifiable, and they need to do everything we need them to do.*

2.3. Overall Design Review

*This is the final step in this phase. We will go over the complete (integrated) design of the project and finalize or modify it.*

3. Implementation Phase

*This is the most critical step in the entire cycle of the project. In this stage we will implement the modules as designed in the previous stage. We have separate sub-teams to make sure that we parallelize resources as much as we can.*

3.1. Front-End Modules

*The main UI will be implemented in this stage. We will use Microsoft Azure to authenticate, get the data, compare and/or store into our database and do queries/lookups.*

3.1.1. UI

*The User Interface will be implemented by the sub-team of Front-End programmers. While the Integration team will focus on integrating Azure and using the data.*

3.1.2. Unit Tests

*The Front-End testers will implement the Unit Tests for this part. They will be testing if the front-end module is able to perform as per the module design. Modifications might be in order, and we might go back and forth with programming and testing.*

3.2. Back-End Modules

*This will be the main system and server configuration for the whole project. We will define functions here that will hook into the database and parse the result based on the things we want to do (as per the requirements).*

3.2.1. Functions

*We will define the functions here based on the prototype design. This module will be responsible for server, database and the system, and so is a critical part of the project. The Back-End programmers will be responsible for the implementation in this part.*

3.2.2. Unit Tests

*The Back-End tester team will be responsible for designing Unit Tests for this the back-end part. Modifications might be in order, and we might go back and forth with programming and testing.*

3.3. End Product Modules

*This is also a critical stage as well integrate the front-end to the back-end.*

3.3.1. Integration

*The Integration programmers will be responsible to make sure every module is well connected and are working as a complete system.*

4. Testing Phase

*After the complete integration is done, following a period of unit testing, there comes a stage where a more formal integrated and full system tests. We might use Docker or Virtualization to test on different systems.*

4.1. Releasing the test plan

*Document for test plan would detail the overall test plan of the project. It may include detailing the objectives, resources, and processes for specific test for the project. It would also include a detailed understanding of the overall control-flow of the application.*

4.2. Integration Test

*Even though we have unit test for each components of the project. we would like to introduce Integration test to ensure combined modules work properly.*

4.3. End-to-End Test

*End User test will be used to make sure all possible control flow works correctly, and there is no unexpected behaviour of the application.*

5. Deployment Phase

*This is the final step in the project cycle. We will be releasing and demoing the project to explain our design process and our implementation.*

5.1. Releasing the Alpha

*We will be releasing the first complete version of our tested system at this stage.*

5.2. Demo Presentation

*This presentation would be our chance to showcase how we designed the project and what the end-result came out to be.*