# I Dream of Parking

# Project Plan

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## 1. Introduction

This Project Plan will outline the organizational decisions made for the “I Dream of Parking” application. “I Dream of Parking” will be programed in the C# language, using .NET libraries to help create the systems needed for the application to be built successfully. This team will be using Github to allow for simultaneous work to be completed and to allow for contributions to be uploaded nearly immediately for other team members to use. The application has a hard deadline of April 30th, in which time the “I Dream of Parking” application will be able to address and complete all the specifications outline in the Requirements Specifications document for this project. Potential risks and mitigation strategies have been considered and provided in order to guarantee delivery dates and milestones are achieved on time. A full list of tasks, their respective dependencies, team member assignments, and activity chart diagram are included in this plan. Finally, an expected plan to ensure Quality Assurance is provided.

# 2. Project Organization

1. Mina Anis: The team player. Will be working on front end and wherever else is needed.
2. Vincent Cottone: The researcher. Takes on new challenges and researches on how to do certain tasks.
3. William Lin: The software project manager. In charge of planning and keeping the team members on task.
4. Dan Mackey: The visionary coder. Explains how to implement our project design into code.

# 3. Risk Analysis

Risks outlined in 3.1. will be addressed according to their probability and numbering in 3.2.

## 3.1. Potential Risks

1. High Risk
   a. GUI development is delayed because of team members having no prior experience with GUI libraries (T7, T8, T9, T10) (High Likelihood).
   b. A team member cannot work on the project due to outside interference, e.g. sick, drops class, leaves Hofstra, etc. (Low Likelihood).
2. Medium Risk
   a. Integration of the Parking Lot System and the Automated Input System is delayed due to team members having insufficient experience in multiprocessing (T3) (Low Likelihood).
   b. Project is not ready for debugging, final testing, and presentation preparation (T11, T12) and as a result causes the team to not be ready to present on time (Low Likelihood).
   c. Changes to Requirements Specifications cause delays due to restructuring Project Plan and adjusting existing project to fit new requirements (Low Likelihood).
3. Low Risk
   a. Tasks are behind schedule due to team members needing to look up documentation for programming in C# (Low Likelihood).

    b. Tasks are delayed from issues arising from Github and Configuration Management (Medium Likelihood).

## 3.2. Risk Mitigation Strategies

Overall, weekly team meetings, along with continuous online conversations between team members, will help to mitigate risks and address potential blocks as they arise. These meetings will allow team members to update the team to what they have done, what they will do, and identify any blockers they may have.

1. High Probability Risk
    a. With T7 being the first task involved with GUI creation, the 15 days of slack will allow for all members of the team to be involved in learning the library that will be used for this project.
    b. Each task outlined is assigned to more than one team member in the event that a team member is unable to complete their work for the project.
2. Medium Probability Risk
    a. Microsoft, amongst other resources, provides detailed documentation for tutorials surround the C# language.
    b. Early identification of blockers either in team meetings or through online conversations will allow for the team to be ahead of issues and blockers before they mount into a larger issue.
    c. The Requirements Specification document should not expect to see many large changes to the project after the schedule starts, however if changes need to be made they will be addressed immediately, even if before the next team meeting is

scheduled.  Additional time will be set aside to allow for changes to be made while still trying to maintain the schedule outlined in this Project Plan.

3. Low Probability Risk
   a. Team meetings and immediate team conversation online will allow for questions and blockers to be addressed.
   b. Resources available for learning how to use Github will be gathered to assist team members in committing changes to the project.

# 4. Work Breakdown

## 4.1.Key Milestones and Delivery Dates

1. Tuesday, February 5th : Assignment of Project Teams
2. Monday, February 25th: Project Schedule Begins
3. Tuesday, March 5th : Term Project Status Updates
4. Sunday, March 10th: Standalone GUI Designed (T5)
5. Monday, March 25th: Parking Lot System Integrated with Automated Input System (T3)
6. Thursday, March 28th : Term Project Group Implementation I
7. Tuesday, April 2nd : Term Project Group Implementation II
8. Thursday, April 4th : Term Project Group Implementation III
9. Saturday, April 6th: Integration of GUI with Parking Lot System (T8)
10. Thursday, April 7th : Quality Assurance - Test Cases for Another Project
11. Sunday, April 14th: Integration of GUI, Parking Lot System, and Automated Input System (T9)

12. Monday, April 22nd: GUI Design and Implementation Completed (T10)

13. Tuesday, April 30th: Final testing and presentation preparation (T12)

## 4.2.Requirements Traceability

| Task | Traceability to Requirements Specifications Document |
|---|---|
| T1 | 3.1.1, 4.1.1, 4.4.1-2 |
| T2 | 3.1.10, 4.2.2-6, 4.4.2-4 |
| T3 | 3.1.1, 3.1.10, 4.4.1-4 |
| T4 | 3.1.2-5, 4.1.4, 4.2.1 |
| T5 | 3.1.8-9, 4.3.1-2 |
| T6 | 3.1.7, 4.2.6, 4.4.1-4 |
| T7 | 3.1.6-7, 3.2.1-14 |
| T8 | 3.2.1-14, 3.3.1-5 |
| T9 | 3.2.1-14, 3.3.1-5, 4.2.1-6, 4.3.1-2 |
| T10 | 3.1-3, 4.1-6 |
| T11 | 4.1.2-3, 4.4.1-4, 5.1-4 |
| T12 | 4.1.2-3, 4.5.1-4, 5.1-4 |

## 4.3.Task Assignment

| Task | Assigned |
|---|---|
| T1 | Dan |
| T2 | Mina, Will |
| T3 | Dan |
| T4 | Vincent |
| T5 | Vincent, Will, Dan |
| T6 | Mina |
| T7 | Mina, Vincent, Will, Dan |
| T8 | Mina, Vincent, Will, Dan |

| | |
|---|---|
| T9 | Mina, Vincent, Will, Dan |
| T10 | Mina, Vincent, Will, Dan |
| T11 | Mina, Vincent, Will, Dan |
| T12 | Mina, Vincent, Will, Dan |

# 5. Project Schedule

## 5.1.Dependency Chart

| Task | Description | Dependency | Duration |
|---|---|---|---|
| T1 | Generate array data structure for Parking Space Objects. | None | 10 days |
| T2 | Automated Input Generation (Car Object Variables). | None | 7 days |
| T3 | Parking Lot System integrated with Automated Input System. | T1/T2 | 12 days |
| T4 | Develop algorithm to optimally fill parking lot array structure. | T3 | 7 days |
| T5 | Administration settings completed. | T1 | 5 days |
| T6 | Develop ability to remove cars from parking lot array structure. | T3 | 4 days |
| T7 | Standalone GUI Designed. | None | 14 days |
| T8 | Integration of GUI with Parking Lot System. | T4/T5/T6/T7 | 7 days |
| T9 | Integration of GUI, Parking Lot System, and Automated Input System. | T8 | 9 days |
| T10 | GUI Design and Implementation Completed. | T9 | 9 days |
| T11 | Debugging. | T10 | 5 days |
| T12 | Final testing and presentation preparation. | T11 | 5 days |

## 5.2.Activity Chart Diagram

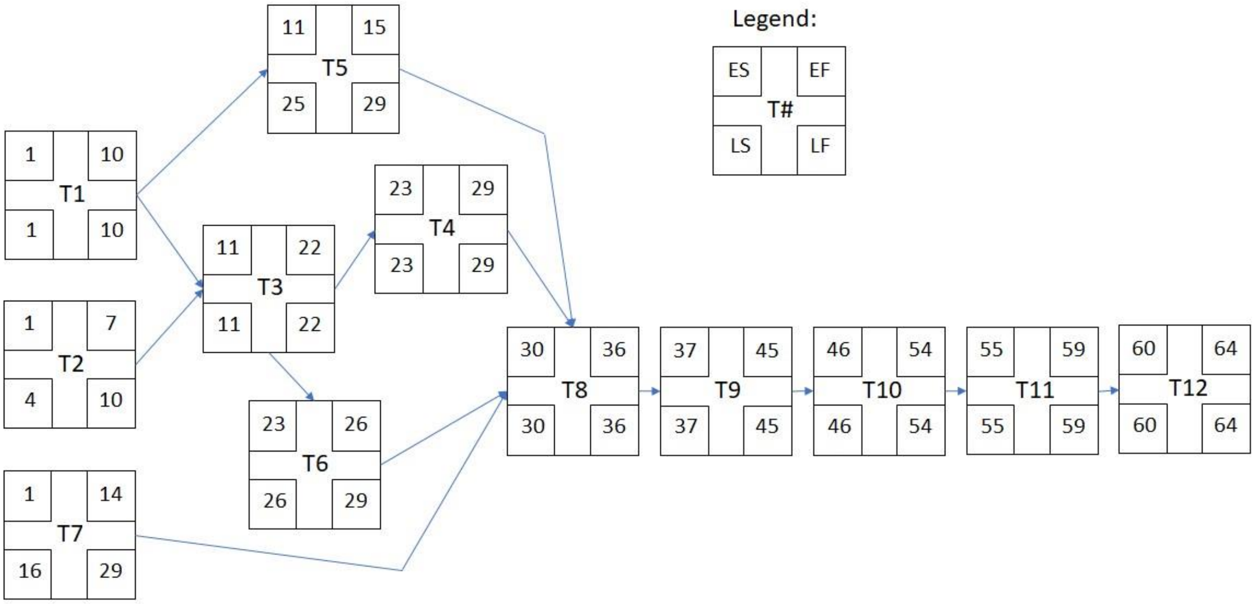

Figure 1. Activity chart diagram with 12 tasks calculated in days.

The critical path is T1,T3,T4,T8,T9,T10,T11, and T12. T2 has a slack of 3 days. T5 has a slack of 14 days. T6 has a slack of 3 days. T7 has a slack of 15 days.

# 6. Quality Assurance Planning

1. Black-Box and White-Box Testing is expected to take place following T1, T2, T3, T6, T11, and T12.
2. This will ensure that tasks are being testing before furthering the project, minimizing potential risk where project components do not work when attempting to integrate subsystems.