

**Team: The Musketeers**

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# PROJECT PLAN

## ParkingMaster

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## **Cost of Project**

This project has minimized the monetary cost of the entire system by using both free software as well as free trials wherever possible. This means that the cost of the system is close to \$0 even though we will rent a single web server and a single database from a cloud provider for the development of the system using their free tier. When the system is deployed, the size of the user base will determine if the web server and/or database need to be upgraded to a paid version.

The main cost of this project will come in man hours required for research, design, implementation, testing, and deployment. The overall time estimations for completing this project comes out to approximately 800 total man hours. These 800 man hours are divided amongst 7 separate sprints. If these sprints go according to the time estimations, then each of our 4 developers would have to average 12 hours a week in order to finish on schedule.

## **Risk Management**

The largest risk to this project is that each functionality takes longer to implement than was initially estimated. This may occur for due to a lack of understanding of the technology stack or a lack of understanding of how to implement the functionality. Both of these may lead to research and design taking much longer. In order to reduce this risk, developers have been researching these items before the need to use the technology or the need to implement the functionality.

However, sometimes it is inevitable for something to go wrong, whether it be a functionality taking too long to implement or scope creep during the middle development. To help mitigate the damage this may cause, another safety buffer is in place to help ensure that the entire project is finished on time. This safety buffer is the final sprint has less planned man hours to allow for roll over from previous sprints or more importantly, we can better handle scope creep that may come up during the implementation of the project.

## Time Estimations

The estimated time of individual tasks in our system, were determined by determining a realistic time the functionality would take to design, implement, and test. This realistic time was increased by 20% and then rounded up to the nearest Fibonacci number. This should hopefully provide a nice cushion for unforeseen circumstances.

As for error handling, while is is a separate functionality within the project BRD, error handling will be taken care of during the implementation and time estimations of other functionality so it should not be taken into account in the timeline or project roadmap because it is constantly being worked on. A time estimation for error handling was still provided representing how long it is believed to take if it was done all at once.

### User Management

Functionality	Design	Implementation	Testing	Total (Hours)
User Registration	5	8	5	18
User Vehicle Registration	21	5	8	34
Registration by Higher Level Account	21	13	8	42
Account Activation	5	2	3	10
Account Deletion	3	5	3	11
Account Configuration	13	3	5	21
Total	118	38	35	136

### Security

Functionality	Design	Implementation	Testing	Total (Hours)
Login	3	5	5	13
Compromised Password Check	11	5	5	21
Password Reset	3	5	5	13
Logout	3	5	5	13

Authorization	11	5	5	21
User Privacy	11	5	5	21
Total	99	38	36	102

### Error Handling

Functionality	Design	Implementation	Testing	Total (hours)
Exception Handling	13	5	8	21
Total	13	5	8	21

### Audit Management

Functionality	Design	Implementation	Testing	Total (hours)
Logging	13	3	5	21
Archiving	8	2	3	13
Total	21	5	8	34

### System Analytics

Functionality	Design	Implementation	Testing	Total (Hours)
Usage Analysis Dashboard	13	5	3	21
Total	13	5	3	21

### Data Store Access

Functionality	Design	Implementation	Testing	Total (Hours)
Data Store Structure	13	4	4	21
Data Access Layer	13	4	4	21
Data Restriction	5	3	5	13

Total	31	11	13	55
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### Documentation

Functionality	Total (Hours)
Developer Documentation	13
User Manual	8
FAQ	5
Total	26

### Reservation System

Functionality	Design	Implementation	Testing	Total (Hours)
View Parking Lot Map	11	5	5	21
Reserving a Spot	21	7	6	34
Editing Reservations	13	4	4	21
Total	45	16	15	76

### Lot Management

Functionality	Design	Implementation	Testing	Total (Hours)
Adding Lots	11	5	5	21
Deleting Lots	8	8	5	21
Editing Lots	11	5	5	21
Editing Parking Spots	11	5	5	21
Total	33	15	15	84

**Abuse Management**

<b>Functionality</b>	<b>Design</b>	<b>Implementation</b>	<b>Testing</b>	<b>Total (Hours)</b>
Submitting Reports	11	5	5	21
Viewing Reports	5	4	4	13
Verifying Reports	11	5	5	21
Fines and bans	11	5	5	21
Total	38	19	19	76

**Payment System**

<b>Functionality</b>	<b>Design</b>	<b>Implementation</b>	<b>Testing</b>	<b>Total (Hours)</b>
Balance System	34	8	13	55
Charging System	21	5	8	34
Total	55	13	21	89

**Notifications**

<b>Functionality</b>	<b>Design</b>	<b>Implementation</b>	<b>Testing</b>	<b>Estimation (hours)</b>
Notification Center	13	4	4	21
Total	13	4	4	21

**Favorites List**

<b>Functionality</b>	<b>Design</b>	<b>Implementation</b>	<b>Testing</b>	<b>Estimation (hours)</b>
Managing Favorites	8	3	2	13
Favorite Parking Spots	13	4	4	21
Viewing Favorites	4	2	2	8
Total	25	9	8	42

## Timeline

This is a specific timeline on when the team is planning on working on specific functionality. The hours shown are the total hours the functionality will take to implement, including design, implementation, and testing.

### **Sprint 1** (9/18/18 - 10/9/18)

BRD:	Complete
Tech Spec Doc	Complete

### **Sprint 2** (10/9/18 - 11/1/18)

Project Plan	Complete
High Level Design Doc	Complete
Revised BRD	Complete

### **Sprint 3** (11/1/18 - 12/6/18)

User Registration	Delayed
Account Deletion	Delayed
Account Configuration	Delayed
Account Activation	Delayed
Authorization	Delayed
Compromised Password Check	Complete

### **Sprint 4** (1/28/19 - 2/20/19)

Data Store Structure	21 hours
Data Access Layer	21 hours
Data Restriction	13 hours
Authorization	55 hours
Login	Delayed
Logout	Delayed
Total	110 hours

### **Sprint 5** (2/20/19 - 3/13/19)

User Vehicle Registration	34 hours
Lot Management:	
Adding Lots	21 hours
Deleting Lots	21 hours
Logging	21 hours
SSO Project	45 hours



Delete user from SSO portal	
Delete user from SSO ind. app	
Account Deletion	11 hours
Total	153 hours

#### **Sprint 6 (3/13/19 - 4/3/19)**

Password Reset	13 hours
Login	13 hours
User Registration	18 hours
Reg. by Higher Level Acc	42 hours
Usage Analysis Dashboard	21 hours
Reservation System:	
Viewing Lot Map	21 hours
Reserving a Spot	34 hours
Total	162 hours

#### **Sprint 7 (4/3/18 - 4/24/19)**

Payment System:	
Balance System	55 hours
Charging system	34 hours
Reservation System	
Editing Reservations	21 hours
Logout	13 hours
Account Activation	10 hours
Account Configuration	21 hours
Total:	154 hours

#### **Sprint 8 (4/24/19 - 5/6/19)**

User Privacy	21 hours
Archiving	13 hours
Documentation:	
User Manual	8 hours
FAQ	5 hours
Total	47 hours

#### **Sprint 9 (5/20/19 - 6/13/19)**

Abuse Management:	
Submitting Reports	21 hours
Viewing Reports	13 hours

Verifying Reports	21 hours
Fines and Bans	21 hours
Favorites List:	
Managing Favorites	13 hours
Favorite Parking Spots	21 hours
Viewing Favorites	8 hours
Notification Center:	21 hours
Lot Management:	
Editing Lots	21 hours
Editing Parking Spots	21 hours
Total:	181 hours

## Project Roadmap/Milestones

The entire project is expected to be completed by the end of the eighth sprint. The current plan is to complete that sprint by May 6, 2019. The exact end date of the eighth sprint may fluctuate by a few days. However, the end of that sprint should mark a completed system.

As for judging the progress of the project as it is being developed, functionalities were grouped into major milestones where large components of the system are completed. These milestones have projected completion dates in parenthesis next to the milestone title.

1. Base Unique Application (4/3/19)
  - a. Lot management
    - i. Adding lots
    - ii. Deleting Lots
  - b. User vehicle registration
2. Single Sign On integration (4/24/19)
  - a. User registration
  - b. Login
  - c. Logout
  - d. Account Deletion
3. Account Functionality (4/24/19)
  - a. Compromised password check

- b. Registration by a high level account
  - c. Account Activation
  - d. Account Deletion
  - e. Account Configuration
  - f. Password Reset
  - g. Authorization
  - h. User Privacy
- 4. Important Additions to Unique Application (4/24/19)
  - a. Payments
    - i. Adding Balance
    - ii. Charging System
  - b. Finish Reservation System
    - i. Editing a reservation for a spot
- 5. System Analytics (5/6/19)
  - a. Usage analysis dashboard
  - b. Logging
  - c. Archiving
- 6. Documentation (5/6/19)
  - a. View Documentation
    - i. Developer
    - ii. User Manual
  - b. FAQ
- 7. Extra Unique Functionality (6/13/19) - Need extra time for these or must be dropped due to time constraints
  - a. Favorites List
    - i. Managing favorites
    - ii. Favorite parking spots
    - iii. Viewing favorites
  - b. Notifications
    - i. Notification center
  - c. Abuse management
    - i. Submitting reports
    - ii. Viewing reports
    - iii. Verifying reports
    - iv. Fines and bans

- d. Lot Management:
  - Editing Lots
  - Editing Parking Spots

## **Project Summary**

Total resources required to completely finish the project:

- Total hours: 783 hours
- Total cost: \$0
- Total sprints: 9 sprints

## **Project Plan Adjustments**

Due to time constraints from the addition of another project on the developer teams busy schedules, there either needs to be some trimming of functionality or the development team needs more time to properly finish all required functionality. The proposed edit is either add time for 1 more sprint or remove the functionality shown in sprint 8 of the timeline.

Proposed project end dates:

- If all functionality is kept: 6/13/19
- If sprint 8 is dropped to stay within the original time constraint: 4/24/19