Florida International University

School of Computing and Information Sciences

# CIS 4911 U01

# Pinecrest People Mover

## Required Documents(RD)

Members:

Ricardo Martinez

Maurice Pruna

September 6, 2014

Mentor:

Gabriela Wilson

Instructor:

Masoud Sadjadi

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Abstract

This document is divided into four sections: Introduction, Feasibility Study, Project Plan, and the Appendix and References. The introduction provides information in regards to the project. This information consists of explaining the problem definition, which includes the desire, expectation, and goal provided by the client, gives a description of the project background, and provides a list of definitions and acronyms used in the document.

The feasibility study sections provides a description of any current system similar to our project, a proposition of the new system, the user requirements provided by the client, and any solutions that will aid in the development process. The project plan section provides an outline to the team personnel, the hardware and software resources needed for the project, and the work breakdown consisting of identifying tasks, milestones, and deliverables. Lastly, the document will have the appendix section, which consists of the project schedule in the form of a Gantt chart, the feasibility matrix, cost matrix, and the diary of the team meetings.

1. Introduction
   1. Problem definition
   2. Scope of the System
   3. Definitions, Acronyms, and Abbreviations
   4. Overview of document
2. Description of Current System (Limitations and Constraints)
3. Project Plan
   1. Project Organization
   2. Identification of Tasks, Milestones and Deliverables (work breakdown)
   3. Cost Estimate
4. Proposed System Requirements

Introduce the chapter (one or two paragraphs)

* 1. Functional Requirements – describes high-level functionality
  2. Analysis of System Requirements

Analysis models – contains the complete functional specification and is mainly for the designers and programmers. This section describes the diagrams in the Appendices B - D and validates the models against the use cases.

* + 1. Scenarios
    2. Use case model
    3. Static model e.g., object diagrams, class diagram
    4. Dynamic model e.g., sequence diagrams or state machines

1. Glossary - define terms used in document, especially domain specific terms.
2. Appendix
   1. Appendix A - Complete use cases
   2. Appendix B - Use case diagram using UML
   3. Appendix C - Static UML diagram
   4. Appendix D - Dynamic UML diagrams
   5. Appendix E - User Interface designs.
   6. Appendix F - Diary of meeting and tasks.
3. References

Please email me the UML diagram in one file before the presentation.

1. Introduction

This section gives a brief idea about what is the problem presented by the community of Pinecrest using their trolley system called People Mover (PPM)

* 1. Problem definition

Pinecrest government would like to design a Web tracker and a Mobile tracker to show residents routes, hours of operation, real-time trolley location (as a list and as an interactive map) and allow for automatic notifications for arrival at user’s favorite stops. The mobile tracker should work well on iPhone and android devices.

* 1. Scope of the System

The Pinecrest People Mover is a free transit bus service operated by the Village of Pinecrest connecting their neighborhoods and schools. It is mostly used by middle and high school students who do not qualify for bus service from the school district.

* 1. Definitions, Acronyms, and Abbreviations

PPM: Pinecrest People Mover

SRS: Software Requirements Specification

UML: Unified Modeling Language

* 1. Overview of document

Chapter 2: Describes the status of the current system.

Chapter 3: Definition of the project plan which consists of the project organization which assigns roles to the team members and the project schedule.

Chapter 4: This chapter contains the proposed system requirements (definition of the scenarios, use case models, Static model, and Dynamic model).

Chapter 5: Glossary with definitions of specific terms.

Chapter 6: Appendix

Chapter 7: References to other works.

2. Description of Current System (Limitations and Constraints)

The village of Pinecrest has two mover routes that are currently operating as a free service (Palmetto Middle School and Palmetto Senior High School). Each one has a north and a south path. Pinecrest citizens mainly use the movers as alternative to get to the local schools. They have no way to know with precision the wait time for next mover while are waiting on a stop, or the nearest stop to their actual position. For that reason Pinecrest government is currently involved on the installation of GPS devices in the movers. A new system will be created to serve the clients desired purposes.

1. Project Plan

This chapter will explain the schedule for the development plan. The roles of each team member are outlined in this section including their assigned roles. The hardware and software resources needed for the development of this project are also provided. Tasks, milestones, and deliverables are also outlined.

* 1. Project Organization

The team implementing this project consists of two students. Being the fact that the team is small, each team member will require having multiple roles, which include project manager, developer, tester, etc. The team members will have to use the resources allocated to them and must be approved by the client in order for the development of project to be a success

* + 1. Project Personnel Organization

The structure of the project organization can be considered hierarchal. Each student will be in constant communication with each other during the development process. The students will be presenting their progress to Masoud Sadjadi, the professor, and Gabriela Wilson, the client. Masoud Sadjadi will be providing feedback to Ricardo Martinez and Maurice Pruna in how to improve project.



|  |  |  |
| --- | --- | --- |
| Name | Roles | Contact |
| Gabriela Wilson | Client/Mentor | gwilson@pinecrest-fl.gov |
| Masoud Sadjadi | Professor | sadjadi@cs.fiu.edu |
| Ricardo Martinez | Front-End Developer, Tester | rmart071@fiu.edu |
| Maurice Pruna | Back-End Developer, Tester | mprun003@fiu.edu |

* + 1. Hardware and Software Resources

Required Hardware

* iOS device
* Android device
* Server

Required Software

* Microsoft Word
* Cacoo
* Mockup Builder
* Microsoft Project
* GitHub
* Trello
* SourceTree
* FIU Moodle
  1. Identification of Tasks, Milestones and Deliverables (work breakdown)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ID | Task Name | Duration | Start | Finish |
| 1 | Meet with Partner |  |  |  |
| 2 | Meet with mentor |  |  |  |
| 3 | Create high level requirements |  |  |  |
| 4 | UI Mockup Designs |  |  |  |
| 5 | Create Use Cases |  |  |  |
| 6 | Create Schedule |  |  |  |
| 7 | Use Case Diagrams |  |  |  |
| 8 | Requirements Document |  |  |  |
| 9 | Project Plan Document |  |  |  |
| 10 | Feasibility Study |  |  |  |
| 11 | Hardware & Software Specifications |  |  |  |
| 12 | Retrieval of client server and database information |  |  |  |
| 13 | Begin Implementations |  |  |  |
| 14 | Design Test Cases based on use case criteria |  |  |  |
| 15 | Present to client product |  |  |  |
| 16 | Present project to class |  |  |  |
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| --- | --- |
| Milestones | Projected Date |
| Finalized Requirements Document | 9/22/14 |
| Finalized Design Document | 10/13 |
| Completion of Implementation | 11/28/14 |
| Testing Phase Completed | 12/4/14 |
| Final Deliverable | 12/11/14 |
| Provide finished product to client | 12/12/14 |

1. Proposed System Requirements

This chapter will contain the detailed requirements for the application. Also there will be information about the different scenarios, uses cases model, class diagram, and sequential diagram.

* 1. Functional Requirements –

1. Hours of Operation

The system shall provide the user with information about hours of operation.

* Usability: The user will access this function in 2 clicks from home.
* Reliability:
* Performance: Data will load in less than 2 seconds.
* Supportability:

1. Alerts

The System shall provide the user with automatic alerts

* Usability: This data doesn’t require any action of the user to get activated.
* Reliability:
* Performance: Data will load in less than 2 seconds and it will close in 5 seconds.
* Supportability:

1. Notification of Arrival to Final Destination

The system shall send an email notification when the mover listed as final destination arrives to the selected stop.

* Usability: This feature is automatically generated.
* Reliability: Depends on the email server.
* Performance: Email will be generated in less than 2 seconds and it will be sent in less than 2 seconds.
* Supportability:

1. Set Final Destination

The system shall allow the user set a final destination in order to receive notifications.

* Usability: The user will access this function in 2 clicks from home.
* Reliability
* Performance: Information would be available within 2 seconds.
* Supportability:

1. Remove Final Destination

The system shall allow the user remove the final destinations entered.

* Usability: The user will access this function in 2 clicks from home.
* Reliability
* Performance: Information would be deleted within 2 seconds.
* Supportability:

1. Estimated Time for a Favorite Stop

The system shall provide the estimated time for a selected stop marked as favorite.

* Usability: The user will access this function in 1 click from home.
* Reliability:
* Performance: Data will load in less than 2 seconds.
* Supportability:

1. Set Favorite Stop

The system shall allow the user set a favorite stop to get instant estimated time

* Usability: The user will access this function in 2 clicks from home.
* Reliability
* Performance: Information would be available within 2 seconds.
* Supportability:

1. Remove Favorite Stop

The system shall allow the user remove the favorite stops entered.

* Usability: The user will access this function in 2 clicks from home.
* Reliability
* Performance: Information would be deleted within 2 seconds.
* Supportability:

1. List Stops

The system shall provide the user a list of all the stops given a route and direction.

* Usability: The user will access this function in 3 click from home.
* Reliability:
* Performance: Data will load in less than 2 seconds.
* Supportability:

1. Map Routes

The system shall provide the user a map given a route and direction.

* Usability: The user will access this function in 3 click from home.
* Reliability:
* Performance: Data will load in less than 2 seconds.
* Supportability:

1. Estimated Arrival Time given Stop

The system shall provide the estimated time for a selected stop.

* Usability: The user will access this function in 3 click from home.
* Reliability:
* Performance: Data will load in less than 2 seconds.
* Supportability:

1. Find Nearest Stop

The system shall provide the nearest stop to the user’s geolocation.

* Usability: The user will access this function in 1 click from home.
* Reliability:
* Performance: Data will load in less than 2 seconds.
* Supportability:
  1. Analysis of System Requirements

Analysis models – contains the complete functional specification and is mainly for the designers and programmers. This section describes the diagrams in the Appendices B - D and validates the models against the use cases.

* + 1. Scenarios

1.) Find the nearest stop

a. The user is on the Pinecrest People Mover application and clicks on the ‘Near Me’ button. The system should use the GPS feature to determine the user’s location and direct the user to a pin indicating the closest stop to their current location. They system will provide the user with the address of the stop and its route information.

2.) Estimated arrival time of mover to stop

a. The user has selected a certain stop. The system should provide the user with information about the closets bus with that stop in its route. Such information should include the ID number, route information, the mover’s next stop, and estimated time of arrival to the user’s selected stop. The estimated time of arrival should be in minute format.

3.) See Map Routes

a. The user is using the application and clicks on the view map button. The system will direct the user to a site with a Google map implemented. This map will have four different colors, which will be used to identify the different routes, and a People Mover icon, which will represent the actual location of the bus. The map will be considered real-time by showing the current location of the mover, so if the mover is driving to the next stop, the icon will be moving as well.

4.) See List Route

a. The user is using the application and wants to see all the stops a mover will make in a certain route. In the menu there will be a ‘List route’ button which will direct the user to another page indicating to choose which destination, Palmetto Middle School or Palmetto High School. He/she then chooses the route. Once the route has been selected, a list of all the stops is now being shown to the user

5.) Define Favorite Spots

a. The user wants to know when bus is reaching a certain stop or how far the mover is from that particular spot. While looking at the routes, the user clicks on a stop icon of their choosing. The icon will then display a Star button, which will tell the system that the stop location is considered a favorite of the user. The user can see all of their favorite spots in the favorites section and add a notification to that particular stop. The system will ask for an email and cell phone information so the user can receive notification as to when the mover is within 5 minutes of the stop and when the stop has arrived at that location

6.) Define final destination and receive notification

a. The user knows of someone using the north route for the Palmetto Senior High mover. Once the mover, has arrived to the Palmetto Senior High stop, the system will send a notification to the user indicating that the mover has arrived safely to the location. This will require an email and cell phone information so the notifications can be sent

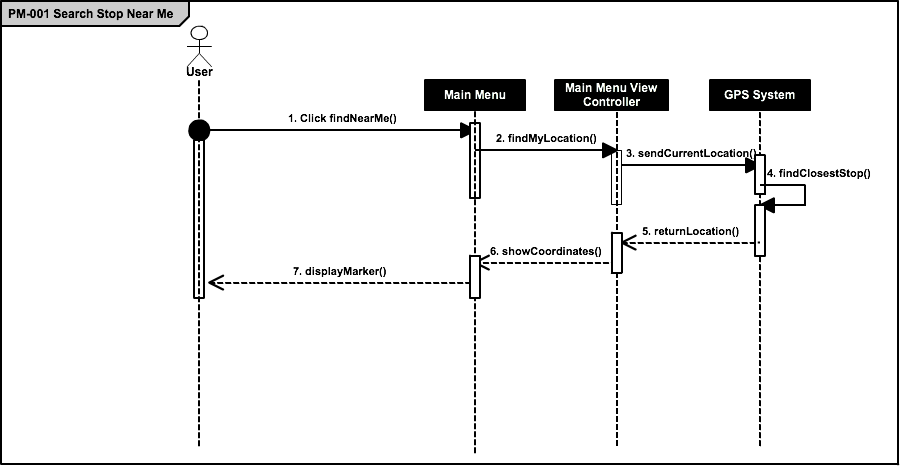
7.) Get default system alarms

a. The system will send notifications to all users in the app indicating that the movers are out-of-service. When the user opens the app a message will appear indicating that there has been a problem with the movers. If the user has provided an email or cell phone, a notification will be sent to them ahead of time.

* + 1. Use case model



* + 1. Static model e.g., object diagrams, class diagram
    2. Dynamic model e.g., sequence diagrams or state machines



1. Glossary - define terms used in document, especially domain specific terms.
2. Appendix
   1. Appendix A - Complete use cases

|  |  |
| --- | --- |
| **Use Case ID** | **PM-001 Search Stop Near Me** |
| **Description** | Allow user to get a list view of the stops located near him. |
| **Actor** | User |
| **Pre-conditions** | 1. Requires The GPS setting enabled on the user’s device or accept localization when using a desktop web browser. |
| **Main success scenario** | 1. The system receives the localization coordinates. 2. The system validates that the location correspond to the area of Pinecrest. 3. The system detect the stops that are immediate close to the user location within a defined radius. 4. The system prints out the all the stops near user on a list view order by distance. |
| **Post-conditions** | 1. The system printed out the all the stops near user localization |
| **Exceptions** | If the localization detected is out of Pinecrest Village the following message will be posted: “You a currently located out of the Village of Pinecrest” |

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| **Use Case ID** | **PM-002 Send Message to System** |
| **Description** | Allow user to send messages to the system. It could be reporting a problem, a feedback or requesting a new stop |
| **Actor** | User |
| **Pre-conditions** |  |
| **Main success scenario** | 1. The system creates a message with a formatted subject with one of the stated topics 2. Send an email to the corresponding authority. |
| **Post-conditions** | 1. The email is sent to the corresponding authority |
| **Exceptions** |  |

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| --- | --- |
| **Use Case ID** | **PM-003 Manage System Settings** |
| **Description** | Allows user to enable/disable alerts, replace email address, change password |
| **Actor** | User |
| **Pre-conditions** | 1. User is logged on the system |
| **Main success scenario** | 1. The system interrupts/starts sending status alerts to user. 2. The system updates user email address if it has been replaced. 3. The system updates the current password. |
| **Post-conditions** |  |
| **Exceptions** |  |

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| --- | --- |
| **Use Case ID** | **PM-004 Login** |
| **Description** | Allows user to Login on the system |
| **Actor** | User |
| **Pre-conditions** | 1. User is registered on the system |
| **Main success scenario** | 1. The system authenticates the user. 2. The system enables the following options on the menu: Send Message to System, Manage System, Manage Favorite Stops, Manage Parental Stop |
| **Post-conditions** | The system enabled options related to the management use cases |
| **Exceptions** |  |

|  |  |
| --- | --- |
| **Use Case ID** | **PM-005 Register User** |
| **Description** | Allows user to Register on the system |
| **Actor** | User |
| **Pre-conditions** |  |
| **Main success scenario** | 1. The system validates that the filed username is populated with an email. 2. The system validates that the password and confirm password entered are equal. 3. If validations is correct the system save the email address and password introduced. |
| **Post-conditions** | The system enabled options related to the management use cases |
| **Exceptions** |  |

|  |  |
| --- | --- |
| **Use Case ID** | **PM-006 Manage Forgot Password** |
| **Description** | Allows user to redefine password |
| **Actor** | User |
| **Pre-conditions** | 2. User is registered on the system |
| **Main success scenario** | 1. The system validates that the password and confirm password entered are equal. 2. If validations is correct the system saves password introduced. |
| **Post-conditions** |  |
| **Exceptions** |  |

|  |  |
| --- | --- |
| **Use Case ID** | **PM-007 Manage Favorite Stop** |
| **Description** | Allows user to add/remove favorite stops |
| **Actor** | User |
| **Pre-conditions** | 2. User is logged on the system |
| **Main success scenario** | 1. The system add/remove a favorite stop previously selected on the on the list of stops |
| **Post-conditions** |  |
| **Exceptions** |  |

* 1. Appendix B - Use case diagram using UML
  2. Appendix C - Static UML diagram
  3. Appendix D - Dynamic UML diagrams
  4. Appendix E - User Interface designs.
  5. Appendix F - Diary of meeting and tasks.

Meeting 1

|  |  |
| --- | --- |
| Date: | Wednesday, September 3, 2014 |
| Location: | Google Hangouts |
| Start time: | 8:00 pm |
| End time: | 8:30 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. Introduction to Teammates |
|  | 2. Discuss ideas and gather information of what may be needed for the project. (use Miami-dade transit website as reference) |
|  | 3. Go over information in regards to PineCrest Mover |
| Assigned Tasks: |  |
|  | 1. Meet September 4, 2014 at FIU |
|  |  |

Meeting 2

|  |  |
| --- | --- |
| Date: | Wednesday, September 4, 2014 |
| Location: | FIU, JCCL Lab |
| Start time: | 8:15 pm |
| End time: | 9:00 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. Gather questions for tomorrow’s conference call with mentor |
|  | 2.Share bootstrap and Google maps API resources |
|  | 3. Go over what is needed in document and feasibility matrix |
| Assigned Tasks: |  |
|  | 1. Meet September 5, 2014 for conference call 12:30pm – 1:30 pm |
| Duration: | 45 minutes |

Meeting 3

|  |  |
| --- | --- |
| Date: | Friday, September 5, 2014 |
| Location: | Conference Call |
| Start time: | 12:30 am |
| End time: | 1:30 pm |
| In Attendance: | Gabriela Wilson, Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. Problem discussion and identification of possible users   * Agreed to start a Web/Mobil app * Defined guest user for general interaction * Defined registered user for “favorite bus stop” * Extra tool requested to manage routes and buses. |
|  | 2. Defined status of the GPS devices on the movers.   * Identified Trolley Company as the source of GPS data. |
|  | 3. Identified similar applications from other local governments. |
|  |  |
| Assigned Tasks: | 1. Create mock ups design 2. Define use cases 3. Contact the trolley company to define the data retrieval |
| Duration: | 60 minutes |

Meeting 4

|  |  |
| --- | --- |
| Date: | Saturday, September 6, 2014 |
| Location: | FIU, JCCL Lab |
| Start time: | 10:30 pm |
| End time: | 4:30 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. Begin Feasibility Study document |
|  | 2.Begin Project Plant document |
|  | 3.Discuss best approach for implementation of project |
| Assigned Tasks: |  |
|  | 1. Meet September 7, 2014 10:30 AM at FIU |
| Duration: | 6 hours |

Meeting 5

|  |  |
| --- | --- |
| Date: | Sunday, September 7, 2014 |
| Location: | FIU, JCCL Lab |
| Start time: | 11:00 pm |
| End time: | 4:45 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. Think of specifications |
|  | 2.Begin Specifications doc |
|  | 3.Discuss best approach for implementation of project |
| Assigned Tasks: |  |
|  | Submit first revision documents |
| Duration: | 5 hours 45 minutes |

Meeting 6

|  |  |
| --- | --- |
| Date: | Tuesday, September 9, 2014 |
| Location: | FIU, JCCL Lab |
| Start time: | 6:30 pm |
| End time: | 8:00 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. Check Requirements Feedback |
|  | 2. Work on the mockups design |
|  |  |
| Assigned Tasks: | Continue working on the mockups |
|  | Improve use cases model |
| Duration: | 90 min |

Meeting 7

|  |  |
| --- | --- |
| Date: | Wednesday, September 10, 2014 |
| Location: | Conference Call |
| Start time: | 12:00 am |
| End time: | 12:30 am |
| In Attendance: | Ricardo Martinez, Maurice Pruna, Gabriela Wilson |
| Agenda: | 1. Check Requirements |
|  | 2. Check mockups design updates |
|  | 3. Check business workflow |
|  | 4. Status of the TSO api and GPS devices |
| Assigned Tasks: | Continue working on the mockups |
|  | Improve use cases model |
| Duration: | 30 min |

Meeting 8

|  |  |
| --- | --- |
| Date: | Thursday, September 11, 2014 |
| Location: | Starbucks |
| Start time: | 7:30 pm |
| End time: | 9:30 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. Read documentation for Sencha |
|  | 2. Did some research for MVC architecture |
|  |  |
| Assigned Tasks: | Continue working on the mockups |
|  | Begin with interfaces |
| Duration: | 2 hours (120 minu) |
|  |  |

Meeting 9

|  |  |
| --- | --- |
| Date: | Sunday, September 14, 2014 |
| Location: | FIU JCCL Labs |
| Start time: | 3:30 pm |
| End time: | 7:00 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. Continue with Interface implementation |
|  | 2. Provide feedback and assign roles |
| Assigned Tasks: | Continue with Interface Implementation |
|  | Improve use cases model |
| Duration: | 3hours 30 min |
|  |  |
|  |  |

Meeting 10

|  |  |
| --- | --- |
| Date: | Wednesday, September 17, 2014 |
| Location: | Conference Call |
| Start time: | 12:00 pm |
| End time: | 1:00 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna, Gabriela Wilson, David Gonzalez (TSO) |
| Agenda: | 1. Ask questions in regards to usage of API |
|  | 2. Database integration |
| Assigned Tasks: | Look over API Documenation |
|  |  |
| Duration: | 60 min |
|  |  |
|  |  |

Meeting 11

|  |  |
| --- | --- |
| Date: | Sunday, September 21, 2014 |
| Location: | FIU JCCL Lab |
| Start time: | 3:30 pm |
| End time: | 7:00 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. Go over API Documentation |
|  | 2. Continue with interface implementation |
| Assigned Tasks: |  |
|  |  |
| Duration: | 3hour 30 min |
|  |  |
|  |  |

Meeting 13

|  |  |
| --- | --- |
| Date: | Thursday, September 25, 2014 |
| Location: | FIU JCCL Lab |
| Start time: | 7:30 pm |
| End time: | 9:00 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. API Connection |
|  | 2. Continue with interface implementation |
| Assigned Tasks: |  |
|  |  |
| Duration: | 1hour 30 min |
|  |  |
|  |  |

Meeting 14

|  |  |
| --- | --- |
| Date: | Saturday, September 27, 2014 |
| Location: | Starbucks |
| Start time: | 3:00 pm |
| End time: | 6:00 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. API Connection |
|  | 2. Continue with interface implementation |
| Assigned Tasks: |  |
|  |  |
| Duration: | 3 hours |
|  |  |
|  |  |

Meeting 15

|  |  |
| --- | --- |
| Date: | Sunday, September 28, 2014 |
| Location: | Starbucks |
| Start time: | 3:00 pm |
| End time: | 7:00 pm |
| In Attendance: | Ricardo Martinez, Maurice Pruna |
| Agenda: | 1. Prepare Documentations |
|  |  |
| Assigned Tasks: | Ready to present for tomorrow’s class presentation |
|  |  |
| Duration: | 4 hours |
|  |  |
|  |  |

1. References

Please email me the UML diagram in one file before the presentation.