

# **Title of the Project here**

Project Team

Student Name 1 19P-1234  
Student Name 2 19P-1234  
Student Name 3 19P-1234

Session 2018-2022

Supervised by

Mr./ Ms./ Dr. Supervisor Name

Co-Supervised by

Mr./ Ms./ Dr. Supervisor Name



**Department of Computer Science**

**National University of Computer and Emerging Sciences  
Peshawar, Pakistan**

**June, 2022**

## Student's Declaration

We declare that this project titled "*Title of the Project here*", submitted as requirement for the award of degree of Bachelors in Computer Science, does not contain any material previously submitted for a degree in any university; and that to the best of our knowledge, it does not contain any materials previously published or written by another person except where due reference is made in the text.

We understand that the management of Department of Computer Science, National University of Computer and Emerging Sciences, has a zero tolerance policy towards plagiarism. Therefore, We, as authors of the above-mentioned thesis, solemnly declare that no portion of our thesis has been plagiarized and any material used in the thesis from other sources is properly referenced.

We further understand that if we are found guilty of any form of plagiarism in the thesis work even after graduation, the University reserves the right to revoke our BS degree.

Student Name 1

Signature: \_\_\_\_\_

Student Name 2

Signature: \_\_\_\_\_

Student Name 3

Signature: \_\_\_\_\_

---

Verified by Plagiarism Cell Officer

Dated:

# Certificate of Approval



The Department of Computer Science, National University of Computer and Emerging Sciences, accepts this thesis titled *Title of the Project here*, submitted by Student Name 1 (19P-1234), Student Name 2 (19P-1234), and Student Name 3 (19P-1234), in its current form, and it is satisfying the dissertation requirements for the award of Bachelors Degree in Computer Science.

## Supervisor

Mr./ Ms./ Dr. Supervisor Name

Signature: \_\_\_\_\_

## Co-Supervisor

Mr./ Ms./ Dr. Supervisor Name

Signature: \_\_\_\_\_

---

Name of FYP Coordinator

FYP Coordinator

National University of Computer and Emerging Sciences, Peshawar

---

Dr. Head of Computer Science Department

HoD of Department of Computer Science

National University of Computer and Emerging Sciences

# Acknowledgements

Your acknowledgments here

Student Name 1

Student Name 2

Student Name 3

## **Abstract**

Briefly state the (1) research problem, (2) methodology, (3) key results, and (4) conclusion. Generally, abstracts are between 150 and 200 words—roughly 10-15 sentences.

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	my section . . . . .	1
1.1.1	my subsection . . . . .	2
<b>2</b>	<b>Review of Literature</b>	<b>3</b>
<b>3</b>	<b>Project Vision</b>	<b>5</b>
3.1	Problem Statement . . . . .	5
3.2	Business Opportunity . . . . .	5
3.3	Objectives . . . . .	5
3.4	Project Scope . . . . .	5
3.5	Constraints . . . . .	5
3.6	Stakeholders Description . . . . .	5
3.6.1	Stakeholders Summary . . . . .	5
3.6.2	Key High Level Goals and Problems of Stakeholders . . . . .	5
<b>4</b>	<b>Software Requirements Specifications</b>	<b>7</b>
4.1	List of Features . . . . .	8
4.2	Functional Requirements . . . . .	8
4.3	Quality Attributes . . . . .	8
4.4	Non-Functional Requirements . . . . .	8
4.5	Use Cases/ Use Case Diagram . . . . .	8
4.6	Sequence Diagrams/System Sequence Diagram . . . . .	8
4.7	Test Plan (Test Level, Testing Techniques) . . . . .	8
4.8	Software Development Plan . . . . .	8
4.9	Wire-frames . . . . .	8

4.10	UI Screens . . . . .	8
<b>5</b>	<b>Iteration Plan</b>	<b>9</b>
<b>6</b>	<b>Iteration 1</b>	<b>11</b>
6.1	Domain Model/ Class Diagram . . . . .	11
6.2	Component Diagram . . . . .	11
6.3	Layer Diagram . . . . .	11
6.4	Structure Chart . . . . .	11
6.5	Flow Diagram . . . . .	12
6.6	Data Flow Diagram (DFD) . . . . .	12
6.7	Data Dictionary . . . . .	12
6.8	Activity Diagram . . . . .	12
6.9	Network Automata/ Graphs or State Machine . . . . .	12
6.10	Call Graph or Sequence Diagram . . . . .	12
6.11	Interaction Overview Diagram . . . . .	12
6.12	Schema Design/ ER Diagram . . . . .	12
6.13	Data Structure Design . . . . .	12
6.14	Algorithm Design . . . . .	12
6.15	Development Phase . . . . .	13
6.15.1	Unit Test . . . . .	14
6.15.2	Suites or Test Cases . . . . .	14
6.16	Maintainable Phase . . . . .	14
6.16.1	CI/ CD . . . . .	14
6.16.2	Deployment Diagram . . . . .	14
6.16.3	System-Level Test Suites, Test Cases . . . . .	14
6.16.4	SVN or GitHub (Optional) . . . . .	14
6.16.5	Configuration/ Setup and Tool Manual (Optional) . . . . .	14
<b>7</b>	<b>Iteration 2</b>	<b>15</b>
7.1	Domain Model/ Class Diagram . . . . .	15
7.2	Component Diagram . . . . .	15

7.3	Layer Diagram . . . . .	15
7.4	Structure Chart . . . . .	15
7.5	Flow Diagram . . . . .	16
7.6	Data Flow Diagram (DFD) . . . . .	16
7.7	Data Dictionary . . . . .	16
7.8	Activity Diagram . . . . .	16
7.9	Network Automata/ Graphs or State Machine . . . . .	16
7.10	Call Graph or Sequence Diagram . . . . .	16
7.11	Interaction Overview Diagram . . . . .	16
7.12	Schema Design/ ER Diagram . . . . .	16
7.13	Data Structure Design . . . . .	16
7.14	Algorithm Design . . . . .	16
7.15	Development Phase . . . . .	17
	7.15.1 Unit Test . . . . .	18
	7.15.2 Suites or Test Cases . . . . .	18
7.16	Maintainable Phase . . . . .	18
	7.16.1 CI/ CD . . . . .	18
	7.16.2 Deployment Diagram . . . . .	18
	7.16.3 System-Level Test Suites, Test Cases . . . . .	18
	7.16.4 SVN or GitHub (Optional) . . . . .	18
	7.16.5 Configuration/ Setup and Tool Manual (Optional) . . . . .	18
<b>8</b>	<b>Iteration 3</b>	<b>19</b>
8.1	Domain Model/ Class Diagram . . . . .	19
8.2	Component Diagram . . . . .	19
8.3	Layer Diagram . . . . .	19
8.4	Structure Chart . . . . .	19
8.5	Flow Diagram . . . . .	20
8.6	Data Flow Diagram (DFD) . . . . .	20
8.7	Data Dictionary . . . . .	20
8.8	Activity Diagram . . . . .	20



8.9	Network Automata/ Graphs or State Machine . . . . .	20
8.10	Call Graph or Sequence Diagram . . . . .	20
8.11	Interaction Overview Diagram . . . . .	20
8.12	Schema Design/ ER Diagram . . . . .	20
8.13	Data Structure Design . . . . .	20
8.14	Algorithm Design . . . . .	20
8.15	Development Phase . . . . .	21
8.15.1	Unit Test . . . . .	22
8.15.2	Suites or Test Cases . . . . .	22
8.16	Maintainable Phase . . . . .	22
8.16.1	CI/ CD . . . . .	22
8.16.2	Deployment Diagram . . . . .	22
8.16.3	System-Level Test Suites, Test Cases . . . . .	22
8.16.4	SVN or GitHub (Optional) . . . . .	22
8.16.5	Configuration/ Setup and Tool Manual (Optional) . . . . .	22
<b>9</b>	<b>Iteration 4</b>	<b>23</b>
9.1	Domain Model/ Class Diagram . . . . .	23
9.2	Component Diagram . . . . .	23
9.3	Layer Diagram . . . . .	23
9.4	Structure Chart . . . . .	23
9.5	Flow Diagram . . . . .	24
9.6	Data Flow Diagram (DFD) . . . . .	24
9.7	Data Dictionary . . . . .	24
9.8	Activity Diagram . . . . .	24
9.9	Network Automata/ Graphs or State Machine . . . . .	24
9.10	Call Graph or Sequence Diagram . . . . .	24
9.11	Interaction Overview Diagram . . . . .	24
9.12	Schema Design/ ER Diagram . . . . .	24
9.13	Data Structure Design . . . . .	24
9.14	Algorithm Design . . . . .	24

9.15 Development Phase . . . . .	25
9.15.1 Unit Test . . . . .	26
9.15.2 Suites or Test Cases . . . . .	26
9.16 Maintainable Phase . . . . .	26
9.16.1 CI/ CD . . . . .	26
9.16.2 Deployment Diagram . . . . .	26
9.16.3 System-Level Test Suites, Test Cases . . . . .	26
9.16.4 SVN or GitHub (Optional) . . . . .	26
9.16.5 Configuration/ Setup and Tool Manual (Optional) . . . . .	26
<b>10 Implementation Details</b>	<b>27</b>
<b>11 User Manual</b>	<b>29</b>
<b>12 Conclusions and Future Work</b>	<b>31</b>
<b>References</b>	<b>33</b>

# List of Figures

# List of Tables

# Chapter 1

## Introduction

State (1) the purpose of the investigation, (2) the problem being investigated, (3) the background (context and importance) of the problem (citing previous work by others), (4) your thesis and general approach, and (5) the criteria for your study's success [1].

- the purpose of the investigation
- the problem being investigated
- the background (context and importance) of the problem (citing previous work by others)
- your thesis and general approach
- the criteria for your study's success

### 1.1 my section

alkkjsf alksdjf lakssjfd lajfd lkasjf dlkasj sfdlkajs fldkjasldf jlaskdfj alkjaslkfjalkssjflkajsd-  
dfk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkf-  
jalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsd-  
flk alkjaslkfjalkssjflkalk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflka-  
jsdfk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslk-

fjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk

### **1.1.1 my subsection**

alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkksjflakssjfd lakssjfd lajfd lkasjf dlkasj sfdlkajs fldkjasldf jlaskdfj alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkksjflakssjfd lakssjfd lajfd lkasjf dlkasj sfdlkajs fldkjasldf jlaskdfj alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkksjflakssjfd lakssjfd lajfd lkasjf dlkasj sfdlkajs fldkjasldf jlaskdfj alkjaslkfjalkssjflkajsdflk alkksjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk alkksjflakssjfd lakssjfd lajfd lkasjf dlkasj sfdlkajs fldkjasldf jlaskdfj alkjaslkfjalkssjflkajsdflk alkksjflkajsdflk alkjaslkfjalkssjflkajsdflk alkjaslkfjalkssjflkajsdflk

# Chapter 2

## Review of Literature

A literature review is a survey of scholarly sources on a specific topic. It provides a critical overview of current knowledge, allowing you to identify relevant theories, methods, and gaps in existing research.

Note: Each student should cite at least 15 latest (state-of-the-art) papers not older than the previous five years from the current date. For a source selected, adopt the following nomenclature to explain each of them:

**Introduction** The introduction should clearly establish the focus and purpose of the literature review.

**Body** The body should contain a summary and critical evaluation of each source, focusing on the research design and conclusion.

**Conclusion:** In your conclusion, you should summarize the key findings you have taken from the literature and emphasize their significance to your topic.

There must be a tabular analysis of the research papers.





# **Chapter 3**

## **Project Vision**

This chapter should have the following information in it.

### **3.1 Problem Statement**

### **3.2 Business Opportunity**

### **3.3 Objectives**

### **3.4 Project Scope**

### **3.5 Constraints**

### **3.6 Stakeholders Description**

#### **3.6.1 Stakeholders Summary**

#### **3.6.2 Key High Level Goals and Problems of Stakeholders**



# **Chapter 4**

## **Software Requirements Specifications**

This chapter will have the functional and non functional requirements of the project.

## 4.1 List of Features

## 4.2 Functional Requirements

## 4.3 Quality Attributes

## 4.4 Non-Functional Requirements

## 4.5 Use Cases/ Use Case Diagram

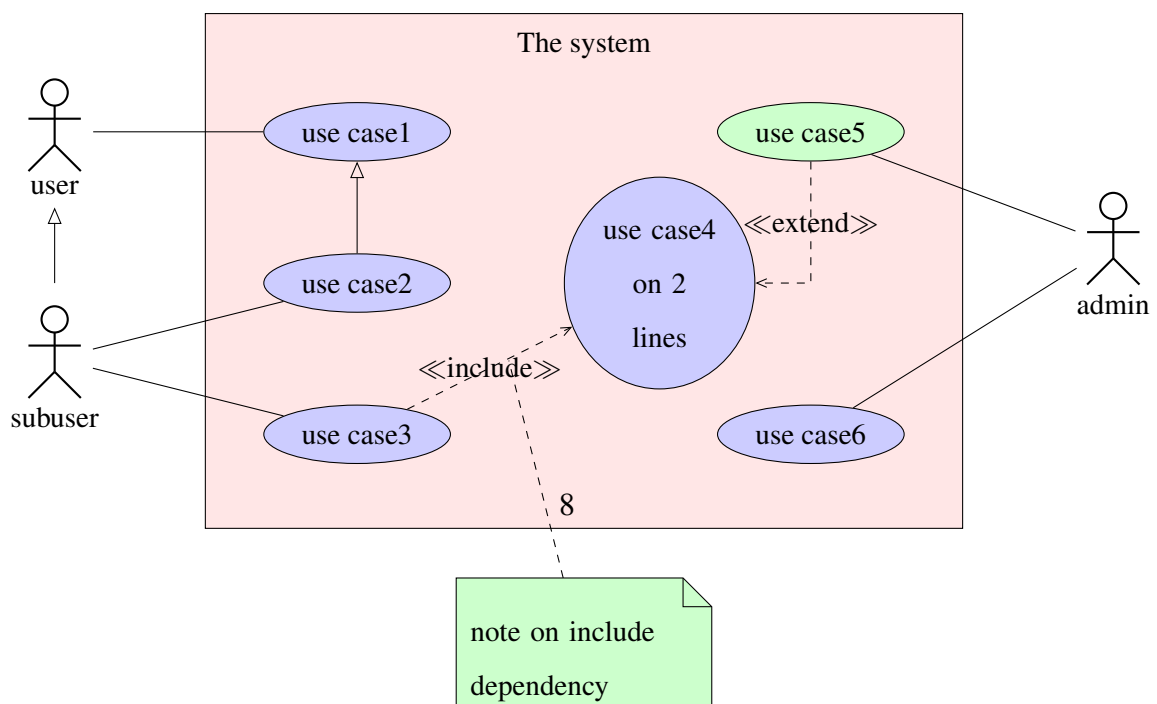
## 4.6 Sequence Diagrams/System Sequence Diagram

## 4.7 Test Plan (Test Level, Testing Techniques)

## 4.8 Software Development Plan

## 4.9 Wire-frames

## 4.10 UI Screens

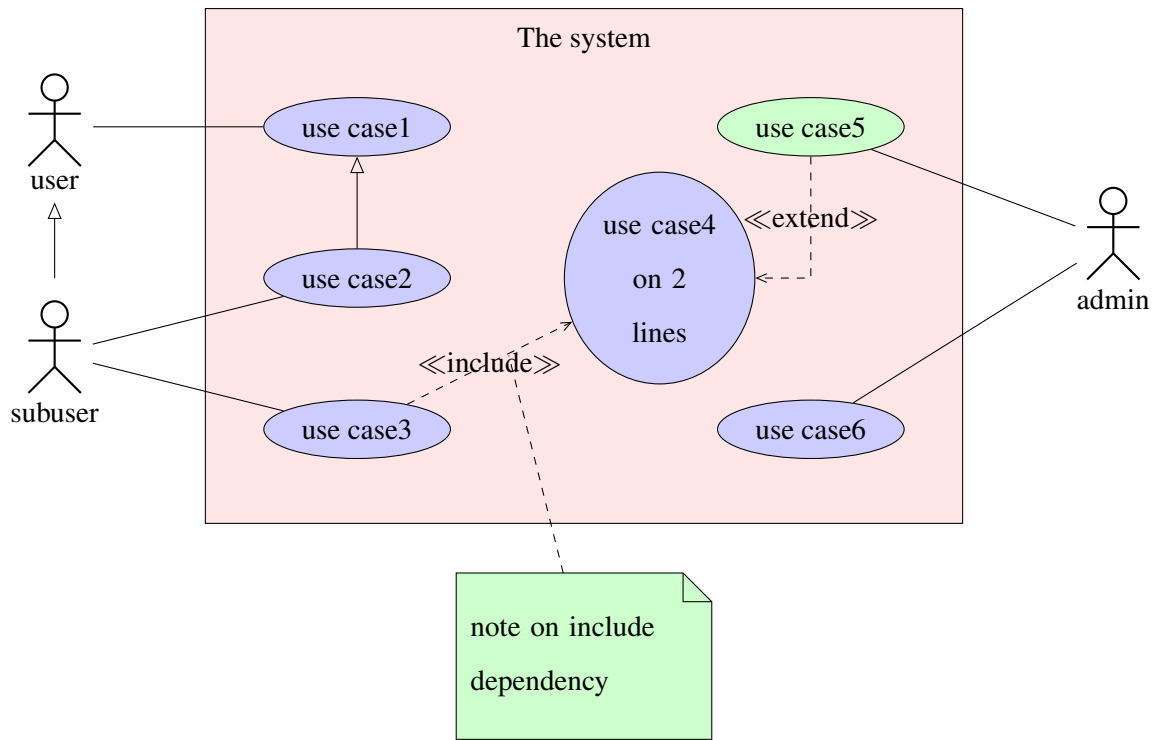


# Chapter 5

## Iteration Plan

This chapter is used to describe the iteration plan of the project. How will try project proceeds to complete all the requirements. The chapter will guide about the modules of the project and development of those modules. In this chapter students are required to discuss the plan of execution of the project in terms of phases:

- Midterm FYP 1
- Final FYP 1
- Midterm FYP 2
- Final FYP 2



# Chapter 6

## Iteration 1

The first iteration is expected to be completed by the midterm of the FYP-1. This chapter will have some of the artifacts based on system design. The requirements analysis section is same for all the systems while the design may vary. There may have two types of designs the structural design or Behavior Design. First section is for the structural design.

**structural design**

### **6.1 Domain Model/ Class Diagram**

### **6.2 Component Diagram**

### **6.3 Layer Diagram**

### **6.4 Structure Chart**

**Behavior Design**

## **6.5 Flow Diagram**

## **6.6 Data Flow Diagram (DFD)**

## **6.7 Data Dictionary**

## **6.8 Activity Diagram**

## **6.9 Network Automata/ Graphs or State Machine**

## **6.10 Call Graph or Sequence Diagram**

## **6.11 Interaction Overview Diagram**

For all above designs

## **6.12 Schema Design/ ER Diagram**

## **6.13 Data Structure Design**

Any information

## **6.14 Algorithm Design**

Any information



## **6.15 Development Phase**

Comments, Naming Conventions, Static Analysis of Code, etc.,

### 6.15.1 Unit Test

### 6.15.2 Suites or Test Cases

## 6.16 Maintainable Phase

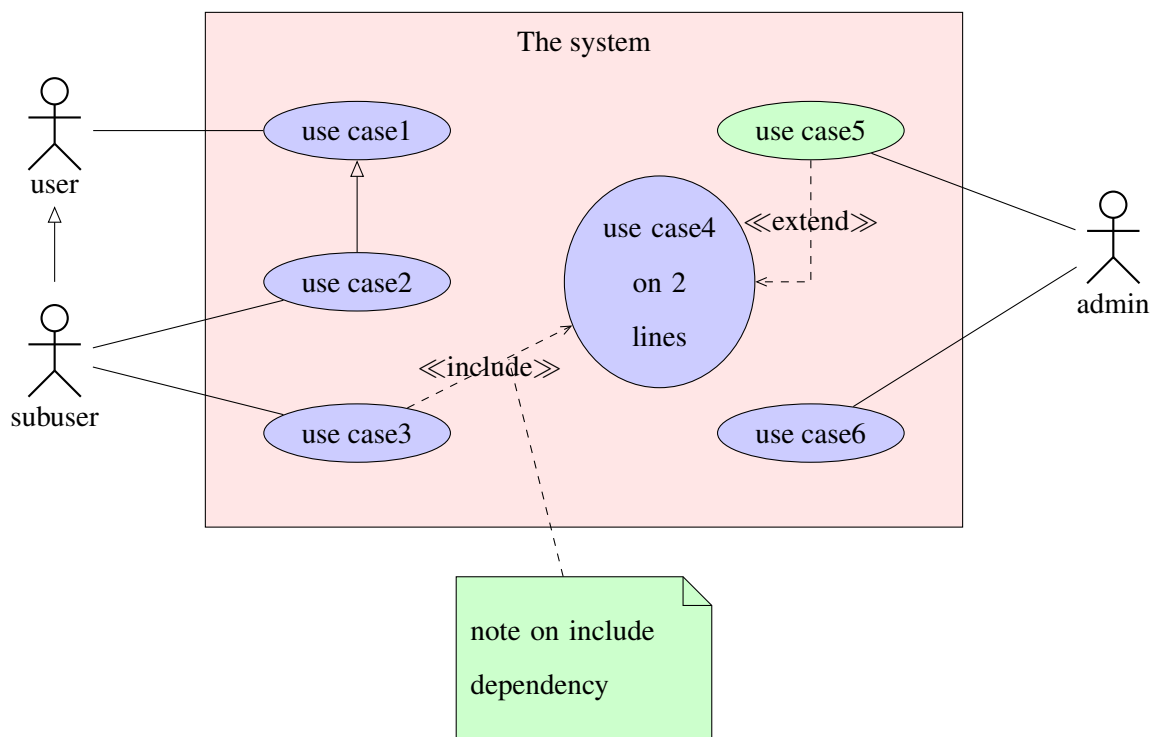
### 6.16.1 CI/ CD

### 6.16.2 Deployment Diagram

### 6.16.3 System-Level Test Suites, Test Cases

### 6.16.4 SVN or GitHub (Optional)

### 6.16.5 Configuration/ Setup and Tool Manual (Optional)



# Chapter 7

## Iteration 2

The first iteration is expected to be completed by the final of the FYP-1. This chapter will have some of the artifacts based on system design. The requirements analysis section is same for all the systems while the design may vary. There may have two types of designs the structural design or . First section is for the structural design.

structural design

### **7.1 Domain Model/ Class Diagram**

### **7.2 Component Diagram**

### **7.3 Layer Diagram**

### **7.4 Structure Chart**

Behavior Design

## **7.5 Flow Diagram**

## **7.6 Data Flow Diagram (DFD)**

## **7.7 Data Dictionary**

## **7.8 Activity Diagram**

## **7.9 Network Automata/ Graphs or State Machine**

## **7.10 Call Graph or Sequence Diagram**

## **7.11 Interaction Overview Diagram**

For all above designs

## **7.12 Schema Design/ ER Diagram**

## **7.13 Data Structure Design**

Any information

## **7.14 Algorithm Design**

Any information

## **7.15 Development Phase**

Comments, Naming Conventions, Static Analysis of Code, etc.,

### 7.15.1 Unit Test

### 7.15.2 Suites or Test Cases

## 7.16 Maintainable Phase

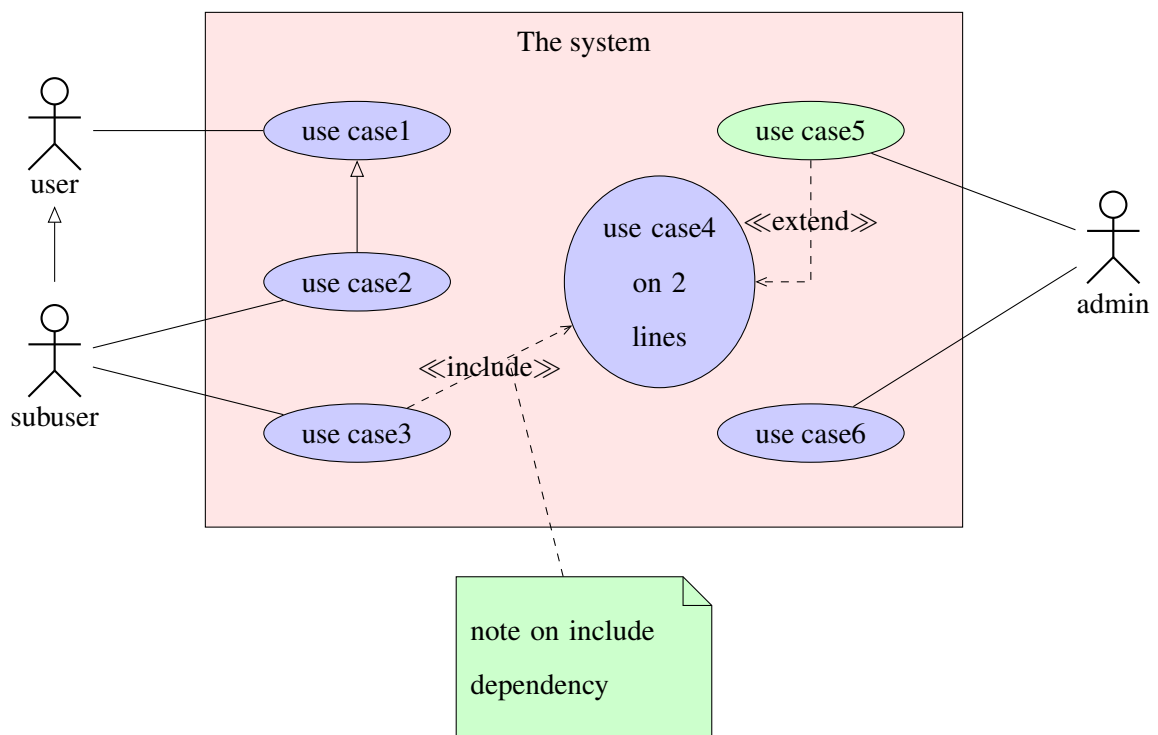
### 7.16.1 CI/ CD

### 7.16.2 Deployment Diagram

### 7.16.3 System-Level Test Suites, Test Cases

### 7.16.4 SVN or GitHub (Optional)

### 7.16.5 Configuration/ Setup and Tool Manual (Optional)



# Chapter 8

## Iteration 3

The first iteration is expected to be completed by the midterm of the FYP-2. This chapter will have some of the artifacts based on system design. The requirements analysis section is same for all the systems while the design may vary. There may have two types of designs the structural design or . First section is for the structural design.

structural design

### **8.1 Domain Model/ Class Diagram**

### **8.2 Component Diagram**

### **8.3 Layer Diagram**

### **8.4 Structure Chart**

Behavior Design

## **8.5 Flow Diagram**

## **8.6 Data Flow Diagram (DFD)**

## **8.7 Data Dictionary**

## **8.8 Activity Diagram**

## **8.9 Network Automata/ Graphs or State Machine**

## **8.10 Call Graph or Sequence Diagram**

## **8.11 Interaction Overview Diagram**

For all above designs

## **8.12 Schema Design/ ER Diagram**

## **8.13 Data Structure Design**

Any information

## **8.14 Algorithm Design**

Any information



## **8.15 Development Phase**

Comments, Naming Conventions, Static Analysis of Code, etc.,

### 8.15.1 Unit Test

### 8.15.2 Suites or Test Cases

## 8.16 Maintainable Phase

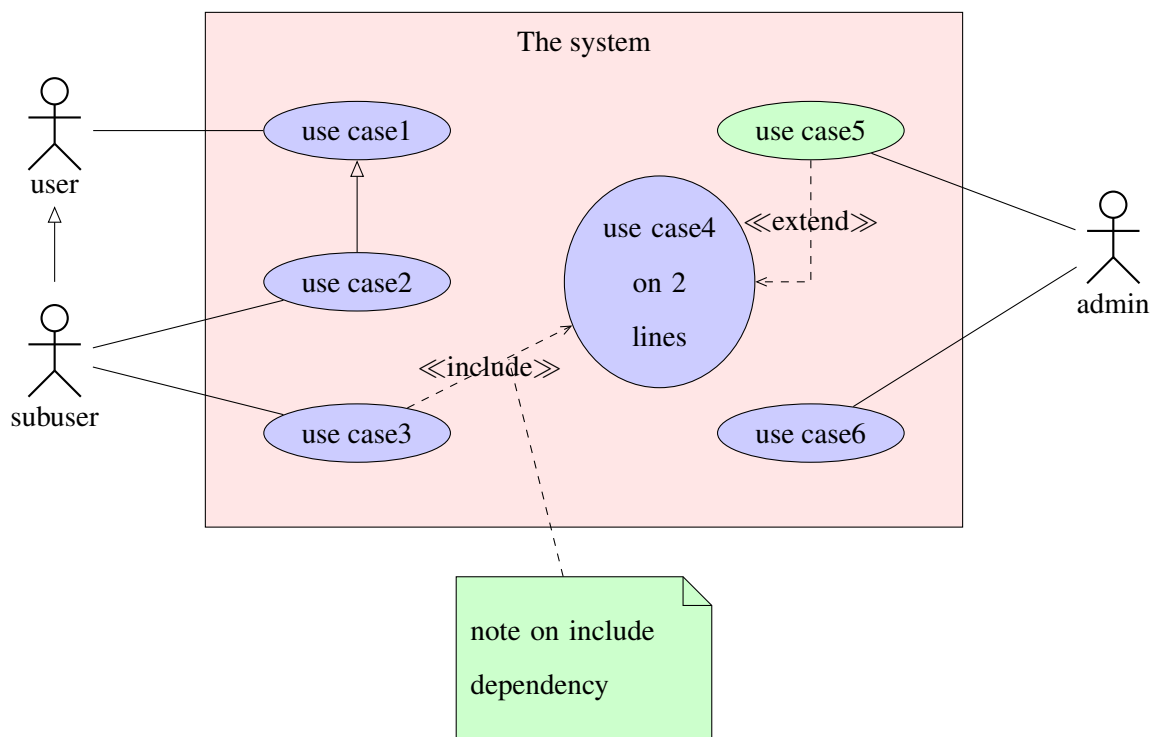
### 8.16.1 CI/ CD

### 8.16.2 Deployment Diagram

### 8.16.3 System-Level Test Suites, Test Cases

### 8.16.4 SVN or GitHub (Optional)

### 8.16.5 Configuration/ Setup and Tool Manual (Optional)



# Chapter 9

## Iteration 4

The first iteration is expected to be completed by the final of the FYP-2. This chapter will have some of the artifacts based on system design. The requirements analysis section is same for all the systems while the design may vary. There may have two types of designs the structural design or . First section is for the structural design.

structural design

### 9.1 Domain Model/ Class Diagram

### 9.2 Component Diagram

### 9.3 Layer Diagram

### 9.4 Structure Chart

Behavior Design

## **9.5 Flow Diagram**

## **9.6 Data Flow Diagram (DFD)**

## **9.7 Data Dictionary**

## **9.8 Activity Diagram**

## **9.9 Network Automata/ Graphs or State Machine**

## **9.10 Call Graph or Sequence Diagram**

## **9.11 Interaction Overview Diagram**

For all above designs

## **9.12 Schema Design/ ER Diagram**

## **9.13 Data Structure Design**

Any information

## **9.14 Algorithm Design**

Any information

## **9.15 Development Phase**

Comments, Naming Conventions, Static Analysis of Code, etc.,

### 9.15.1 Unit Test

### 9.15.2 Suites or Test Cases

## 9.16 Maintainable Phase

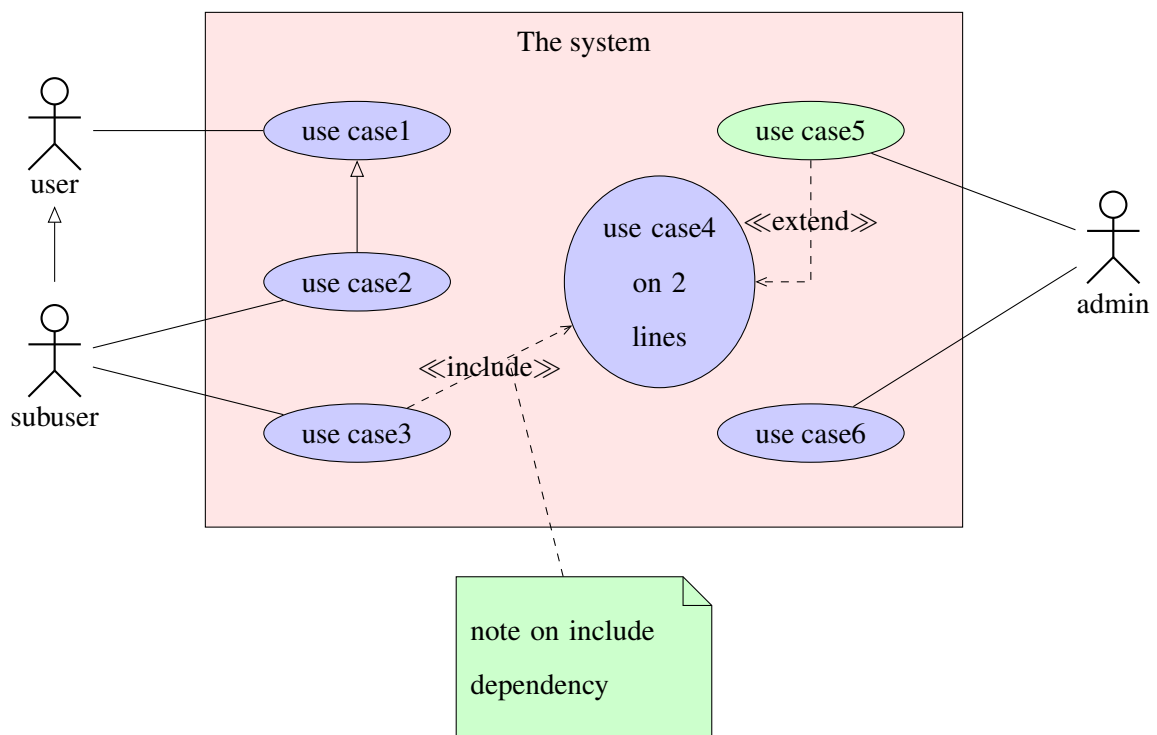
### 9.16.1 CI/ CD

### 9.16.2 Deployment Diagram

### 9.16.3 System-Level Test Suites, Test Cases

### 9.16.4 SVN or GitHub (Optional)

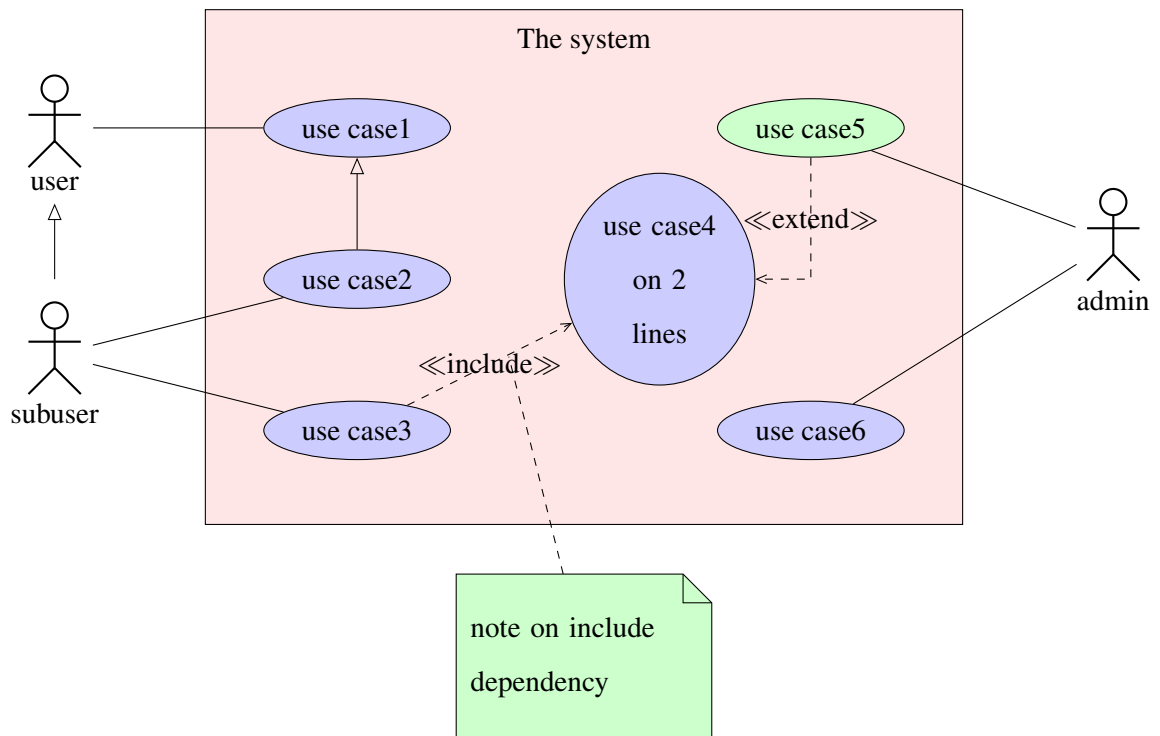
### 9.16.5 Configuration/ Setup and Tool Manual (Optional)



# Chapter 10

## Implementation Details

not the programming code but the algorithmic and procedural details especially related to the hidden/ backend algorithms that are not covered in the design



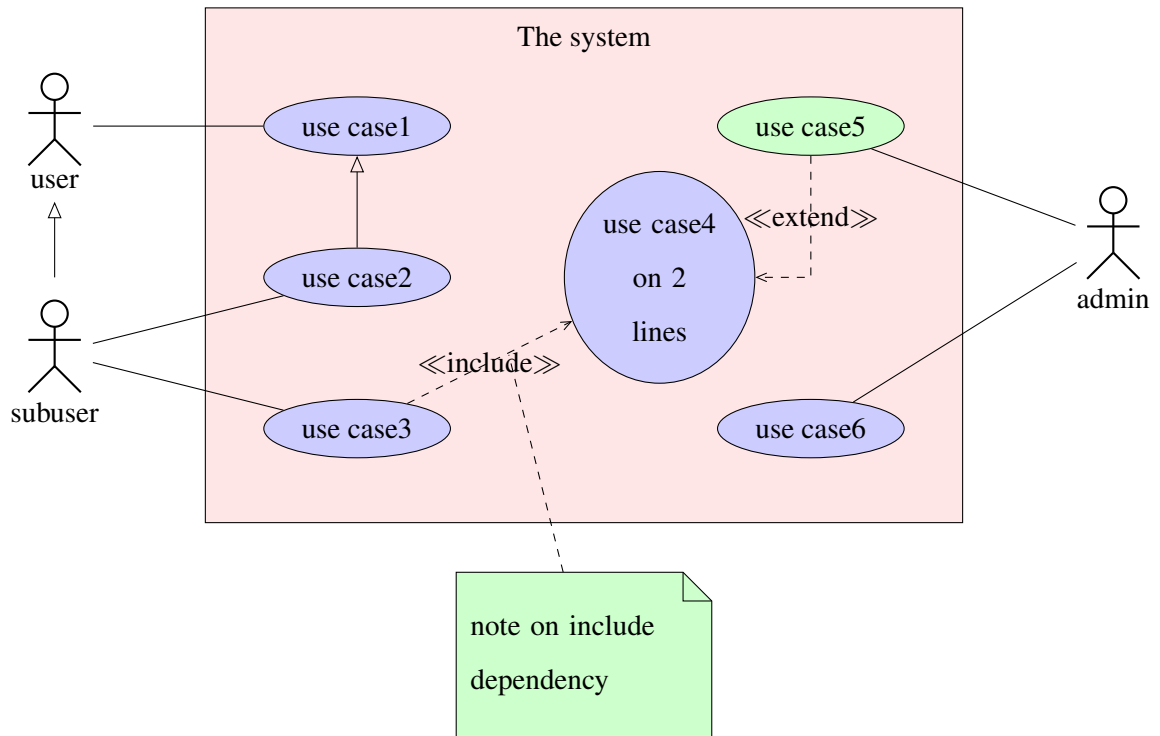




# Chapter 11

## User Manual

This chapter will have the user manual.





# **Chapter 12**

## **Conclusions and Future Work**

conclusions here



# Bibliography

- [1] A Kolyshkin and S Nazarovs. Stability of slowly diverging flows in shallow water. *Mathematical Modeling and Analysis*, 2007.