

**18CSC206J Software Engineering and Project  
Management Semester - 4**

**Project Title - Apartment Management System**

**Team Members –**

**Sakshil Verma (RA1911031010071)**

**Saksham Thareja (RA1911031010065)**

**Akarshit Vats (RA1911031010066)**



**DEPARTMENT OF COMPUTER SCIENCE AND  
ENGINEERING**  
**COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY**

**JUNE 2021**

**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY**  
**KATTANKULATHUR-603203.**

**BONAFIDE CERTIFICATE**

Certified that this report titled "**Apartment Management System**" is the bonafide work of **Sakshil Verma (RA1911031010071)**, **Saksham Thareja (RA1911031010065)** and **Akarshit Vats (RA1911031010066)** who carried out the work under our supervision.

**Dr.L.N.B.Srinivas**  
Course Faculty

**Dr.K.Nimala**  
Course Faculty



## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	1a
<b>Title of Experiment</b>	To identify the Software Project
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	28/01/2021

### Mark Split Up

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Presentation	5	
2	Project Description	5	
<b>Total</b>		<b>10</b>	

**Staff Signature with date**

## Aim

To Frame a project team, analyze and identify a Software project

## Team Members:

Sl No	Register No	Name	Role
1	RA1911031010071	Sakshil Verma	Lead
2	RA1911031010065	Saksham Thareja	Member
3	RA1911031010066	Akarshit Vats	Member

## Project Title: Apartment Management System

### Project Description

As there are lots of people living in a single apartment or a single society sometimes it gets very complex and irritating for the people to register complaints for the issues they are facing be it related to maintenance, or water or electricity related problem, or if they want to convey important information for the people living around them, or if they want something to change or improve in their surroundings, or if they want to book an extra parking slot for their guests for few days, or if they want to contribute towards the society and many more things. Also in this case becomes really difficult and hectic job for the people who are concerned for these different activities to happen as there are lots of people who all have different kinds of issues and queries. So this project will not only help the residents of the society but it will also help security guards, secretary, accountants etc. Therefore this project aims in building an Apartment Management System which will help in overcoming these barriers as well as help each and every person around in every possible way it can. This software would be having a very simple and basic interface so that the elderly or even the less educated people can use it with ease. Some features of this software includes Facilities Management, Maintenance Committee, Notices Section, Management Committee, Member Management Option, Complaint Management as well as Parking Manager along with an option to raise queries regarding the upgradation of the software if it lacks some features which are essential for the users. So this software is built for the ease of the user, to benefit them in every possible way it can and also to save their precious time.

### Result:

Thus, the project team formed and the project is described

**DEPT. Of Computer Science Engineering**

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	1b
<b>Title of Experiment</b>	Create Business Case, Arrive at a Problem Statement
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	28/01/2021

**Mark Split Up**

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Presentation	5	
2	Business Case	5	
<b>Total</b>		<b>10</b>	

**Staff Signature with date**

**Aim:**

To create a business case and Arrive at a Problem Statement for the <title of the project>

**Business Case**

<Incorporate the Business Case template>

**Result**

Thus the business case was prepared and the problem statement was arrived

TEAM MEMBERS- 1)SAKSHAM THAREJA - RA1911031010065  
2)SAKSHIL VERMA - RA1911031010071  
3)AKARSHIT VATS - RA1911031010066

L-1 BATCH

# *Business Case and Project Charter*

***Lab Session #1-b***

***18CSC206J – Software Engineering &Project Management***

***School of Computing***

***SRM Institute of Science and Technology***

## ***Business Case***

*A business case captures the reasoning for initiating a project or task. It is often presented in a well-structured written document, but may also come in the form of a short verbal agreement or presentation*

## ***Business Case Template***

*The business-case template relies on information gathered to address several issues, including explaining why the project is necessary, recommending business solutions, defining organizational benefits, determining how much money, resources and time are necessary, identifying risks and measuring the financial impact.*

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## 1. Executive Summary

This project is framed to help the residents of various apartments along with the people concerned for various activities which takes place around these apartments which includes security guards, accountants, maintenance people, etc. Therefore this project aims in building an Apartment

Management System which will help each and every person around in every possible way it can. This software will have a very user friendly interface.

## 2. Strategic Business Context

### 2.1. Business Need

A huge variety of people live in the societies these days and it is not easy for the physical management to check on every individual's complaint and also to keep track on the various bills, maintenance etc paid by the residents. So by sighting this problem we decided to come up with an easy way of communication within a well managed program for the members of the society.

### 2.2. Business Outcomes

The expected outcomes seem to be positive as this seems to be a software which not many societies have but this is the one which many need for ease of communication, management and maintenance of the societies and apartments.

Maybe after targeting one type of society, more RWAs take up the idea of visual management through this software and this may come up as success.

## 3. Detailed Business Problem

### 3.1. Problem/Opportunity Statement

Generally in apartment records are maintained of maintenance, bill payments, functions, notices, details of people living in apartment,etc.

So to overcome these issues, the software is created so that all the information regarding maintenance, functions or gatherings, record of workers doing basic duties, bill payments of residents, etc can take place from a single platform. This software will provide a platform for an easy way of communication within members of the society .

### 3.2. High Level Requirements

1. Because there are also senior citizens living in apartment so the software will have to be as simple to use it easily.
2. There can be different kind of issues or problems of people facing in apartment so it may require extra work to create a software so that for each and every problem we can provide solution respectively.
3. Because the software will be used by all people of apartment so there can be server issues or other technical issues, therefore it may require extra time & budget for bug-fixing and solving server problems.

### 3.3. Assumptions

State assumptions that, for planning purposes, are considered to be true, real, or certain. These assumptions will be validated during the planning process. Inaccurate, inconsistent, or incomplete assumptions result in project risks.

S.No	Assumptions
------	-------------

1.	Solution for the problem will be provided within 10 days.
2.	Software will be user-friendly.
3.	No additional cost will be charged for the users.

### 3.4. Constraints

S.No	Category	Constraints
1.	Time constraint	Software will be completed for use before May,2021.
2.	Scope constraint	To connect all the people of apartment so that they can join in each function or gatherings and also register their basic problems related to maintenance.
3.	Budget constraint	As little money as possible.
4.	Quality constraint	All the technical issues will be resolved so that software works smoothly.

### 3.5. Dependencies

Dependency Description	Critical Date	Contact
Maintenance workers	01-05-2021	7895785421
Electricity supplier	05-05-2021	9856231475

### 3.6. Stakeholder Analysis

Name	Designation	Role in Project
Sakshil Verma	Corporate Head for Sales & Marketing	Executive Sponsor
Saksham Thareja	Chief Information Officer Or Regional Head of Sales & Marketing	Project Sponsor
Akarshit Vats	Finance Head	Cost Approver
Sakshil Verma	Department Head(s)	Scope / Requirement Approver
Akarshit Vats	Business User(s)	Validate the functionalities

## 4. Detailed Analysis

### 4.1. Evaluation Criteria

Evaluation Criteria	Deal Breakers (5)	Minimum Requirement (3)	Non-essential (1)	Score
Eg. Personal Identifiable Information (PII): Data must be encrypted ‘At Rest and ‘On Transit’	Y	N	N	5
Quality workforce	N	Y	N	3

## 4.2. Cost of each Possible Options

Options (#)	One Time [CapEx]		Operational [OpEx]			Total Cost in INR
	Effort (Cost)	Infrastructure Cost	License Cost	Maintenance Cost	Infrastructure Increment	
#	2000.00	3000.00	10000.00	1000	500	16500

Category	Cost in INR
One Time (CapEx)	5000
Operational (OpEx)	11500

## 4.3. Risks

Risk ID (#)	Risk Description	Risk Category [Low/Medium/High]	Risk Appetite [Accept/Mitigate/Transfer/Transfer]
R01	Server issues	High	Accept
R02	Bugs fixing	Medium	AccepT

## 5. Implementation & Governance

### 5.1. Required Skills

To make a program like this with good UI and features we would require all sorts of skills from front end development to make the site appealing and also the backend to make the site responsive to every task the user throws at it. The following are some skills necessary for the development of the software:-

Skills	More Info
UX Designer	Designing experience of user
Frontend Development	Design and Develop UI and frontend layer
Backend Development	Design Database and Develop Service / API
Testing	Develop Test Cases
Project Management	Project Planning, Scheduling, Executing, Monitoring and Controlling

### 5.2. Milestone

Identify the significant points or events in the project. This table can also represent a high-level project schedule.

S.No	Project Milestone	Description	Expected Date
1)	Basic structure ready.	Base structure will be ready on which the frontend and backend work will take place upon.	MARCH
2)	Front end interface ready.	Design and Develop UI and frontend layer using various programming languages to give an appealing view to the user.	APRIL

3)	Backend connectivity ready.	Design Database and Develop Service / API using backend languages to connect all the links and also to make the UI more responsive.	MAY
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### 5.3. Change Management

First of all the team must be ready to encounter any changes in the initial as well as the final stage of the program as per the user demands and the testing process.

The execution phase would be the most important phase as we would get to know how the end result of the components together looks like and we can experience it as a user.

And for the changes we would have blueprints of every major milestone as well as small stages in separate files for quick engagement in changing the design as per the reviews of users as well ourselves after the testing phase.

### 5.4. Performance Measurement

Return in timeline	Return in INR	Investment (INR)	Remaining Investment
Return on 1 <sup>st</sup> year	33000	16500	16500
Return on 2 <sup>nd</sup> year	45000	20000	25000
Return on 3 <sup>rd</sup> year	60000	25000	35000
Return on 4 <sup>th</sup> year	90000	45000	45000
Return on 5 <sup>th</sup> year	150000	80000	70000

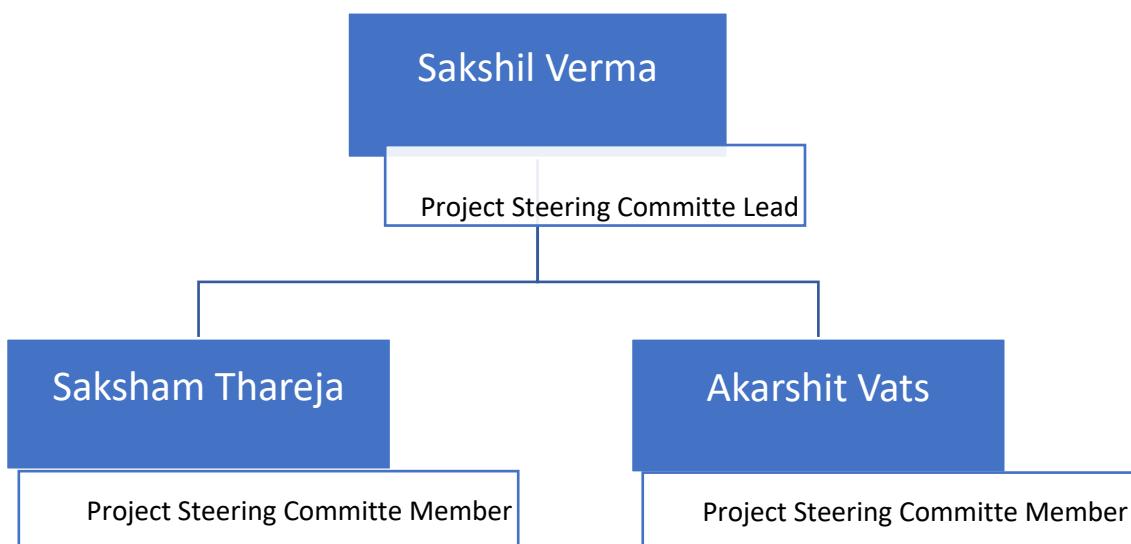
## 6. Project Charter

### 6.1. Simplified Project Charter

Section	Details
Project Scope	As there are lots of people living in a single apartment or a single society sometimes its gets very complex and irritating for the people to register complaints for the issues they are facing be it related to maintenance, or water or electricity related problem, or if they want to convey important information for the people living around them, or if they want something to change or improve in their surroundings, or if they want to book an extra parking slot for their guests for few days, or if they want to contribute towards the society and many more things. Also in this case becomes really difficult and hectic job for the people who are concerned for these different activities to happen as there are lots of people who all have different kinds of issues and queries. So this project will not only help the residents of the society but it will also help security guards, secretary, accountants etc. Therefore this project aims in building an Apartment Management System which will help in overcoming these barriers as well as help

	each and every person around in every possible way it can. This software would be having a very simple and basic interface so that the elderly or even the less educated people can use it with ease. Some features of this software includes Facilities Management, Maintenance Committee, Notices Section, Management Committee, Member Management Option, Complaint Management as well as Parking Manager along with a option to raise queries regarding the upgradation of the software if it lacks some features which are essential for the users. So this software is build for the ease of the user, to benefit them in every possible way it can and also to save their precious time.
Project Schedule	<ul style="list-style-type: none"> <li>• Basic structure ready -&gt; March</li> <li>• Front end interface ready -&gt; April</li> <li>• Backend connectivity ready -&gt; May</li> </ul>
Project Cost	INR 16500
Constraints	<ul style="list-style-type: none"> <li>• Time constraint</li> <li>• Scope constraint</li> <li>• Budget constraint</li> <li>• Quality constraint</li> </ul>
ROI	100% for the first year
Intangible Benefit	<p>Brand Value Increase [Improve Safety of the car can change the perception about the brand]</p> <p>Government Recognition [Emission Control – New Engine , Electric Vehicle ]</p>

## 6.2. Project Team Structure



### 6.2.1. Roles & Responsibilities

<b>Project Role</b>	<b>Responsibilities</b>	<b>Assigned To</b>
Project Steering Committee (Executive Sponsor)	Review the progress and performance of project.	Sakshil Verma(Executive Sponsor) Saksham Thareja(Project Sponsor) Akarshit Vats(Finance Head)
Project Sponsor	Evaluates the project's actual progress against what was planned.	Saksham Thareja
Project Manager	Responsible for planning, organizing, and directing the completion of project.	Sakshil Verma
Technical Lead	Oversee the company's technical team and the projects undertaken, analyze briefs, write progress reports, identify risks, and develop work schedules.	Sakshil Verma
Business Analyst	Creating a detailed business analysis, outlining problems, opportunities and solutions for a business.	Saksham Thareja
Developer	Researching, designing, implementing, and managing software programs.	Sakshil Verma Saksham Thareja Akarshit Vats
Tester	Creating Test Plan and Develop Test Cases	Akarshit Vats

### 6.3. Approval

<b>Name</b>	<b>Designation</b>	<b>Role in Project</b>	<b>Signature</b>
Ms.K.Nimala	Faculty -Incharge	Evaluator	

### Reference

1. <https://www.pmi.org/>
2. <https://www.projectmanagement.com/>



## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	2
<b>Title of Experiment</b>	<i>Identification of Project Methodology and Stakeholder Description template Attached.</i>
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	04/02/2021

### Mark Split Up

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Presentation	5	
2	Project Methodology	2.5	
3	Stakeholder Identification	2.5	
<b>Total</b>		<b>10</b>	

## **Staff Signature with date**

### **Aim**

To identify the appropriate Process Model for the project and prepare Stakeholder and User Description.

### **Team Members:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	<b>RA1911031010071</b>	<b>Sakshil Verma</b>	<b>Lead</b>
<b>2</b>	<b>RA1911031010065</b>	<b>Saksham Thareja</b>	<b>Member</b>
<b>3</b>	<b>RA1911031010066</b>	<b>Akarshit Vats</b>	<b>Member</b>

### **Project Title: Apartment Management System**

Incorporate ***Identification of Project Methodology and Stakeholder Description template Attached.***

### **Result**

Thus the Project Methodology was identified stakeholders were described.

# *Project Methodology and Stakeholder Identification/Analysis*

***Lab Session #2***

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3.2.	Interest and Influence matrix .....	3
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	<b><i>Reference</i></b> .....	<b>5</b>

## 1. Executive Summary

In this section of the project development journey we have chosen the methodologies or the guidelines with which we will proceed with the project. We have chosen Agile methodology as our basic guideline because of it being very flexible, making changes is very easy in any stage of development and it is easy to manage with less planning required.

Also we have divided the stakeholders on the basis of the work they are being allotted and also in hierarchical manner which is listed in below points.

## 2. Selection of Methodology

We have selected Agile methodology and from the name itself, we get to know that it is a model with main focus on process adaptability and customer satisfaction by delivery of working software product.

Agile Methods break the product into small incremental builds. These builds are provided in iterations. Each iteration typically lasts from about one to three weeks. Every iteration involves cross functional teams working simultaneously on various areas like –

- Planning
- Requirements Analysis
- Design
- Coding
- Unit Testing and
- Acceptance Testing

Also it is not a traditional model and hence It has many advantages such as:-

- Promotes teamwork and cross training.
- Functionality can be developed rapidly and demonstrated.
- Resource requirements are minimum.
- Suitable for fixed or changing requirements
- Delivers early partial working solutions.
- Good model for environments that change steadily.
- Minimal rules, documentation easily employed.
- Enables concurrent development and delivery within an overall planned context.
- Little or no planning required.
- Easy to manage.
- Gives flexibility to developers.
- It is a very realistic approach to software.

## 2.1. Roles and Methods

Our team comprises of three stakeholders and each one of us has a specific role in the project. As we have chosen Agile model so we will be implementing its methods to create our software.

We are creating code and putting our efforts to avoid bugs during our work because one single defect may be a reason to run the entire project from the very beginning. One of our member has to find all bugs in final software. As a business analyst we will make our software product popular and trustworthy in apartment so that all people can use it and all the maintenance, details, etc regarding the apartment can be projected from a single digital platform.

Several events and meetings happen on weekend to discuss the various requirements for the software. Research is being done daily to gather the knowledge of our thoughts and ideas so that we can do our best and create a quality software to manage the apartment issues.

## 2.2. Agile Development and Testing[optional]

Agile development based on iterative development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams.

Agile testing can begin at the start of the project with continuous integration between development and testing. It is not sequential but continuous. While in the traditional project management approach is linear where all the phases of a process occur in sequence.

This is where the modern approach of the Agile model helps us a lot in testing and then being able to easily rebuild the software without much hassle according to the needs of the customer.

## 3. Stakeholder Management

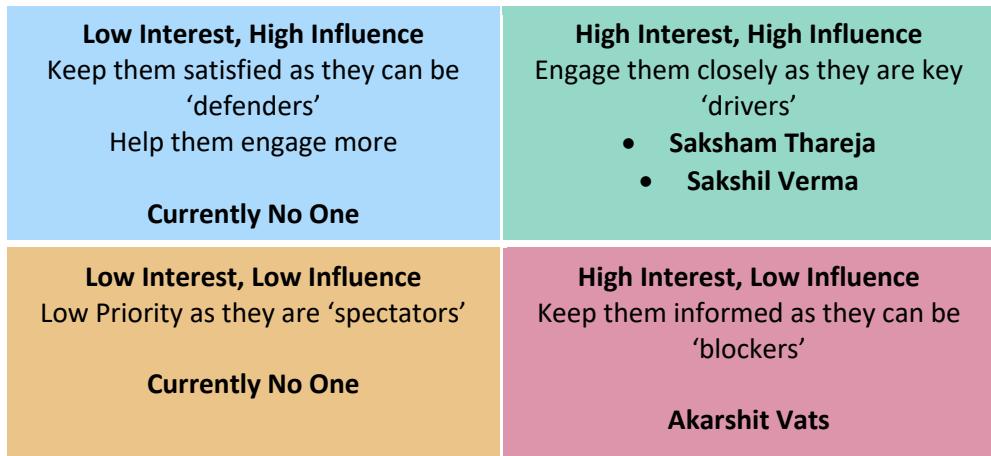
### 3.1. Identification of Stakeholders

Our team comprises of mainly three stakeholders, namely, Sakshil Verma (Project Steering Committee Lead), Saksham Thareja (Project Steering Committee Member) and Akarshit Vats (Project Steering Committee Member). We all are committed in helping the people around us in every way possible. We have different domains of interests be it researching, designing, programming, planning, organizing, marketing, interacting with different kinds of people, knowing their needs and preferences, etc. So with a wide variety of interests along with capabilities we have great potential to impact the project in a very positive way.

### 3.2. Interest and Influence matrix

Interest	Influence
High	High
Low	Low

Low	High
High	Low



Stakeholder Name	Activity / Area / Phase	Interest	Influence	Priority (High / Medium/Low)
Regional Head of Sales & Marketing –  <b>Saksham Thareja</b>	Project Sponsor	High	High	1
Finance Account Receivable consultant-  <b>Akarshit Vats</b>	Cost Approver	High	Low	2
Corporate Head for Sales & Marketing-  <b>Sakhil Verma</b>	Executive Sponsor	High	High	1

### 3.3. Communication Plan for Stakeholders

In its simplest form, a stakeholder communications plan outlines who you need to communicate with, about what, how you're going to do it, and how often. There are also a few important considerations such as timing and budget. So on regular basis our team of Stakeholders discuss the progress of the project. Daily meetings happen in the evening where all the updates about the project for the day are given by each and every team member, and they are duly noted. Then the suggestions meeting takes place in which the stakeholders discuss and also suggest about improvements that need to be done and plan for the upcoming day. On weekends a special meeting takes place in which all the information and updates regarding the project for the previous week are discussed, and the plan for the next week is too discussed. And on the 1<sup>st</sup> of every month a monthly meeting takes place in the which progress about the project is discussed among the stakeholders and milestone & budget for the next month is set.

So our team have regular communication with the help of team meetings along with some personal meetings, in which we try to support and help each other out.

### Reference

1. <https://www.pmi.org/learning/library/stakeholder-analysis-pivotal-practice-projects-8905>



# SRM

INSTITUTE OF SCIENCE & TECHNOLOGY  
(Deemed to be University u/s 3 of UGC Act, 1956)

## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	3
<b>Title of Experiment</b>	Identify/collect the Requirements and document them as Infrastructure Requirements, Functional Requirements and Non-Functional Requirements
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	18/02/2021

### Mark Split Up

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Presentation	5	
2	Requirements document	5	
<b>Total</b>		<b>10</b>	

## **Staff Signature with date**

### **Aim**

To Identify and document the Requirements of a Software system

### **Team Members:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	RA1911031010071	Sakshil Verma	<b>Lead</b>
<b>2</b>	RA1911031010065	Saksham Thareja	<b>Member</b>
<b>3</b>	RA1911031010066	Akarshit Vats	<b>Member</b>

### Requirements

<Incorporate the requirements template>

### Result:

Thus, the requirements are identified, collected and documented.

# *Project Scope and Requirements Management*

*Lab Session #3*

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<b>4. Requirements.....</b>	<b>3</b>
<b>4.1. Functional Requirements.....</b>	<b>3</b>
<b>4.2. Non-Functional Requirements.....</b>	<b>4</b>
<b>4.3. Infrastructure Requirements .....</b>	<b>5</b>
<b>4.4. Requirement definition in Agile [Optional ... Use according to methodology chosen by student]</b> .....	<b>5</b>
<b>Reference .....</b>	<b>6</b>

## 1. Executive Summary

This project is framed to help the residents of apartment for various activities which includes facilities management, display notices, register their complaints related to electricity & other technical issues. The scope of the project is not only upto residents but also to provide help to security guards, secretary, accountants etc. So, all the residents, and other apartment staff can connect with each other and register their problems regarding apartment using a single online platform. This software would be very simple so that even less educated people and senior citizens also comes in the scope of this project.

## 2. Project Scope

As there are lots of people living in a single apartment or a single society sometimes its gets very complex and irritating for the people to register complaints for the issues they are facing be it related to maintenance, or water or electricity related problem, or if they want to convey important information for the people living around them, or if they want something to change or improve in their surroundings, or if they want to book an extra parking slot for their guests for few days, or if they want to contribute towards the society and many more things. Also in this case is becomes really difficult and hectic job for the people who are concerned for these different activities to happen as there are lots of people who all have different kinds of issues and queries. So this project will not only help the residents of the society but it will also help security guards, secretary, accountants etc.

S.No	Activities In Scope	Activities Out of Scope
1.	Register for Complaints related to maintenance, water & electricity	Software managed by the user
2.	Book extra parking slot	Users accessing other users databases
3.	Register for a new initiatives	Payment of bills
4.	Facilities management	
5.	Display Notices	
6.	Users can creating personal profile and manage it	
7.	Users can request for adding features	
8.	Users can provide suggestions related to any domain and interest	
9.	Personal login for every user	

### 2.1. In Scope

This project aims in building an Apartment Management System which will help in overcoming the barriers as well as help each and every person around in every possible way it can. This software would be having a very simple and basic interface so that the elderly or even the less educated people can use it with ease. Some features of this software includes Facilities Management, Maintenance Committee, Notices Section, Management Committee, Member Management Option,

Complaint Management as well as Parking Manager along with a option to raise queries regarding the upgradation of the software if it lacks some features which are essential for the users. So this software is build for the ease of the user, to benefit them in every possible way it can and also to save their precious time.

## 2.2. Out of Scope

This software will not allow the user to manage it. It can only be managed by the development team for this software. Users will not have access to other users databases, this is to maintain privacy for every user and the data for each user will remain confidential and will be only shared with the concerned authorities. Option for payment of bills like electricity and water bills is not given by this software.

## 3. Epics [Major Functions]

Epic (#)	Epic Description
E1	Personal Login(Member Management) & New Registration Module
E2	Complaints Register Module
E3	Facilities Management Module
E4	Notice Section Module
E5	Management Committee Module
E6	Parking Management Module
E7	New Initiatives Module
E8	Product Improvement Suggestions Module

## 4. Requirements

### 4.1. Functional Requirements

Functional Requirements can also be expressed in the form of “user story” which is the smallest unit of work in an agile framework. It’s an end goal, not a feature, expressed from the software user’s perspective.

Requirement (#)	Requirement Specification	Department	Name of Business User	Status
FR1	A user can login.	Login department	Application Manager	In Progress
FR2	The username and password should be verified and authenticated.	Security department	Application Manager	Verified
FR3	User can change their personal profile.	Login department	Application Manager	Pending

FR4	All the module should be available for user so that he/she can edit their issue in respective section.	Operations department	Software developer	Proposed
FR5	User can give the feedback.	Login department	Application manager	Pending

#### 4.2. Non-Functional Requirements

Requirement (#)	Category of NFR	Requirement Specification	Department	Name of Business User	Status
NFR1	Performance	All pages should load within 30 seconds	Web department	App Manager	Approved
NFR2	Performance	Search should bring the results less than 10 seconds	Web department	App Manager	Approved
NFR3	Availability	Application should be available for 24x7	Web department	App Manager	Approved
NFR4	Scalability	Application should register all problem and store notices in respective sections	IT department	Roles Manager	Drafted
NFR5	Confidentiality	Should protect the personal details of user	Security department	Developer	In Progress
NFR6	Compliance	All application data must be stored in compliance with information security standards	Security department	Developer	In progress
NFR7	Usability	Application should be very simple to use	Web department	Project Manager	Implemented
NFR8	Security	System must authenticate a user login ID and password	Security department	Developer	Verified

NFR9	Traceability	To link each requirement, to test result for successful implementation	App maintenance department	Tester	Drafted
NFR10	Flexibility	User can open all the modules in system	IT department	Project Manger	In progress
NFR11	Extensibility	Application should have basic interface to avoid expensive process of procuring inflexible application	Web department	App Manager	Implemented
NFR12	Interoperability	System should easily share information or issues to user and record it	Network department	Technical lead	In progress
NFR13	Reliability	Bugs should be fixed	App maintenance department	Technical lead	Pending

#### 4.3. Infrastructure Requirements

Requirement (#)	Requirement Specification	Department	Name of Business User / Project Team Member	Status
IR1	PC or Laptop	Resource department	Committee lead and committee member	Done
IR2	Minimum RAM: 4 GB	Resource department	Committee lead and members	Done
IR3	OS: Windows 8/10	Resource department	App Manager	Implemented
IR4	IDE	IT department	Lead and members	Done

#### 4.4. Requirement definition in Agile [Optional ... Use according to methodology chosen by student]

User story is the smallest unit of work in an agile framework. It's an end goal, not a feature, expressed from the software user's perspective.

- Who are we building it for, who the user is? — As a resident or staff of apartment.
- What are we building, what is the intention? — I want to facilitate the apartment management system.
- Why are we building it, what value it brings for the user? — So that all the maintenance issues regarding apartment of user and other activities of apartment can be address from a single online platform.

User Story	Acceptance Criteria	Size of User Story
As a user, I can register all problems like maintenance, parking etc in respective module of system. And also, I can add notice or convey any information regarding apartment.	View all the issues faced by user and provide solution within 7 days.	Medium

## Reference

1. <https://www.pmi.org/>
2. <https://www.atlassian.com/agile/project-management/user-stories>



## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	4
<b>Title of Experiment</b>	Prepare Project Plan based on scope, Find Job roles and responsibilities, Calculate Project effort based on resources
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	25/02/2021

### Mark Split Up

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Presentation	5	
2	Requirements document	5	
<b>Total</b>		<b>10</b>	

**Staff Signature with date**

## **Aim**

To Prepare Project Plan based on scope, Find Job roles and responsibilities, Calculate Project effort based on resources

## **Team Members:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	<b>RA1911031010071</b>	<b>Sakshil Verma</b>	<b>Lead</b>
<b>2</b>	<b>RA1911031010065</b>	<b>Saksham Thareja</b>	<b>Member</b>
<b>3</b>	<b>RA1911031010066</b>	<b>Akarshit Vats</b>	<b>Member</b>

## Requirements

<Incorporate the Project plan template>

## Result:

Thus, the Project Plan was documented successfully.

# *Project Management Plan, Effort and Cost Estimation and Team Formation*

*Lab Session #4*

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## 1. Executive Summary

The project on which our team is working is being done in a planned manner to make it successful. With keeping some assumptions, we are managing the requirements needed for our application. Apartment Management System require laptops, IDE and other functional & non-functional requirements as well. In fulfilling these requirements there will be surely some cost which we have to pay. So, we are trying to control our budget by completing the project in minimum requirements. This application requires both technical and coding skills. So, our team is working hard to create a quality and a user-friendly software.

## 2. Project Management Plan

Focus Area	Details
Integration Management	Sakshil Verma(Project Steering Committee, Executive Sponsor, Project Manager, Technical Lead, Developer) Akarshit Vats(Project Steering Committee, Finance Head, Developer, Tester) Saksham Thareja(Project Steering Committee, Project Sponsor, Business Analyst, Developer)
Scope Management	<p>As there are lots of people living in a single apartment or a single society sometimes its gets very complex and irritating for the people to register complaints for the issues they are facing be it related to maintenance, or water or electricity related problem, or if they want to convey important information for the people living around them, or if they want something to change or improve in their surroundings, or if they want to book an extra parking slot for their guests for few days, or if they want to contribute towards the society and many more things. Also in this case becomes really difficult and hectic job for the people who are concerned for these different activities to happen as there are lots of people who all have different kinds of issues and queries. So this project will not only help the residents of the society but it will also help security guards, secretary, accountants etc.</p> <p>Activities In Scope -</p> <ul style="list-style-type: none"><li>• Register for Complaints related to maintenance, water &amp; electricity</li><li>• Book extra parking slot</li><li>• Register for a new initiatives</li><li>• Facilities management</li><li>• Display Notices</li><li>• Users can creating personal profile and manage it</li><li>• Users can request for adding features</li></ul>

	<ul style="list-style-type: none"> <li>• Users can provide suggestions related to any domain and interest</li> <li>• Personal login for every user</li> </ul> <p>Activities Out of Scope -</p> <ul style="list-style-type: none"> <li>• Software managed by the user</li> <li>• Users accessing other users databases</li> <li>• Payment of bills</li> </ul>
Schedule Management	<ol style="list-style-type: none"> <li>1. Basic structure ready - Base structure will be ready on which the frontend and backend work will take place upon.(Expected Date-MARCH)</li> <li>2. Front end interface ready - Design and Develop UI and frontend layer using various programming languages to give an appealing view to the user.(Expected Date-APRIL)</li> <li>3. Backend connectivity ready - Design Database and Develop Service / API using backend languages to connect all the links and also to make the UI more responsive.(Expected Date-MAY)</li> </ol>
Cost Management	<p>Effort (Cost) - 2000.0      Infrastructure Cost - 3000.0      License Cost - 10000.0      Maintenance Cost - 1000.0      Infrastructure Increment - 500.0  <b>Total Cost in INR - 16500.0</b></p>
Quality Management	<p>Software Quality Management ensures that the required level of quality is achieved by submitting improvements to the product development process. Software Quality Management aims to develop a culture within the team and it is seen as everyone's responsibility.</p> <p>Quality Assurance: Quality assurance will be managed including governance, roles and responsibilities, tools and techniques and reporting</p> <p>Quality Control: Ensure that best practices and standards are followed by the software development team to produce quality products</p>
Resource Management	<p>Project Development - Project Planning, Scheduling, Executing, Monitoring and Controlling</p> <p>UX Designing - Designing experience of user</p> <p>Frontend Development - Design and Develop UI and frontend layer</p> <p>Backend Development - Design Database and Develop Service / API</p> <p>Testing - Develop Test Cases</p>
Stakeholder	<p>Sakshil Verma(Executive Sponsor)      Saksham Thareja(Project Sponsor)      Akarshit Vats(Finance Head)</p>

Communication Management	<p>On regular basis our team of Stakeholders discuss the progress of the project. Daily meetings happen in the evening where all the updates about the project for the day are given by each and every team member, and they are duly noted. Then the suggestions meeting takes place in which the stakeholders discuss and also suggest about improvements that need to be done and plan for the upcoming day. On weekends a special meeting takes place in which all the information and updates regarding the project for the previous week are discussed, and the plan for the next week is too discussed. And on the 1st of every month a monthly meeting takes place in the which progress about the project is discussed among the stakeholders and milestone &amp; budget for the next month is set.</p>
Risk Management	<ul style="list-style-type: none"> <li>• Server issues - Slow Page Load, Viruses and Cyber Hacking, Website Traffic Overload, Failure of Hardware or Software, Server Crash</li> <li>• Bugs fixing - Wrong coding, Missing coding, Extra coding, Defect, Error, Mistake, Failure.</li> </ul>
Procurement Management	<ul style="list-style-type: none"> <li>• Plan Procurement Management - Procurements are first identified during the planning phase of the project.</li> <li>• Conduct Procurements - After finishing the paperwork of the first phase, the conduct procurement phase is when we study the bids that come back and determine which one to accept.</li> <li>• Control Procurements - Once the contracts are signed, the management of those contractors must be folded into the overall management responsibilities.</li> <li>• Close Procurements - Just as there is a process to start the procurement, there needs one in place to finalize it. What constitutes completed work should be detailed in the initial agreement with the contractor, so there is no confusion of either's part as to when the work is done.</li> </ul>

### 3. Estimation

#### 3.1. Effort and Cost Estimation

WBS	Activity	Activity Description	Sub-Task	Sub-Task Description	Effort (in hours)	Cost in INR
E1FR1	E1R1A1	Design the user screen	E1R1A1T1	Confirm the user requirements tabs.	4	2000
			E1R1A1T2	Stylize the responsive buttons for login and logout.	3	1500
			E1R1A1T3	Link the forgot password button to the servers for resetting the password.	5	2500
E1FR2	E1R1A2	Connect the user to the main program after logging in	E1R1A1T1	Server to send back information and details stored in users account after logging in.	7	3500
			E1R1A2T2	The sent data would be pinged to the users device as per the basic HTML layout.	7	3500

Effort (hr)	Cost (INR)
1	500

### 3.2. Infrastructure/Resource Cost [CapEx]

<OneTime Infra requirements >

Infrastructure Requirement	Qty	Cost per qty	Cost per item
IR1-Laptops	3	50000	150000
IR2-Domain and Hosting Service	1	1000	1000
IR3-FTP	5	Free or Paid	-

### 4. Maintenance and Support Cost [OpEx]

Category	Details	Qty	Cost per qty per annum	Cost per item
People	Network, System, Middleware and DB admin  Developer , Support Consultant	3	2,000,000	6,000,000
License	Operating System Database Middleware IDE	10	10000	100,000
Infrastructures	Server, Storage and Network	20	20000	400,000

## 5. Project Team Formation

### 5.1. Identification Team members

Name	Role	Responsibilities
Akarshit Vats Sakshil Verma Saksham Thareja	Key Business Users (Product Owners)	Provide clear business and user requirements
Sakshil Verma	Project Manager	Manage the project
Saksham Thareja	Business Analyst	Discuss and Document Requirements
Sakshil Verma	Technical Lead	Design the end-to-end architecture
Akarshit Vats	UX Designer	Design the user experience
Sakshil Verma	Frontend Developer	Develop user interface
Akarshit Vats Saksham Thareja Sakshil Verma	Backend Developer	Design, Develop and Unit Test Services/API/DB
Saksham Thareja	Cloud Architect	Design the cost effective, highly available and scalable architecture
Saksham Thareja	Cloud Operations	Provision required Services
Akarshit Vats	Tester	Define Test Cases and Perform Testing

### 5.2. Responsibility Assignment Matrix

RACI Matrix		Team Members		
Activity	Name (BA)	Name (Developers)	Name (Project Manager)	Key Business Users
User Requirement Documentation	Saksham Thareja	Sakshil Verma Saksham Thareja Akarshit Vats	Sakshil Verma	Saksham Thareja Akarshit Vats Sakshil Verma
User Interface	Akarshit Vats	Saksham Thareja Sakshil Verma Akarshit Vats	Sakshil Verma	Sakshil Verma Saksham Thareja Akarshit Vats

A	Accountable
R	Responsible
C	Consult
I	Inform

## Reference

1. <https://www.pmi.org/>
2. <https://www.projectmanagement.com/>
3. <https://www.tpsgc-pwgsc.gc.ca/biens-property/sngrp-npms/ti-it/ervcpgrm-dsfvpmpmpt-eng.html>



## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	5
<b>Title of Experiment</b>	Prepare the Work, Breakdown Structure based on timelines, Risk Identification and Plan
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	11/03/2021

### Mark Split Up

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Presentation	5	
2	WBS, Risk Identification and Plan	5	
<b>Total</b>		<b>10</b>	

## **Staff Signature with date**

### **Aim**

To Prepare the Work, Breakdown Structure based on timelines, Risk Identification and Plan

### **Team Members:**

<b>Si. No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	<b>RA1911031010071</b>	<b>Sakshil Verma</b>	<b>Lead</b>
<b>2</b>	<b>RA1911031010065</b>	<b>Saksham Thareja</b>	<b>Member</b>
<b>3</b>	<b>RA1911031010066</b>	<b>Akarshit Vats</b>	<b>Member</b>

### Requirements

<Incorporate WBS and Risk management plan template>

### Result:

Thus, the WBS and Risk Plan was documented successfully.

# *WBS and Risk Management Plan*

***Lab Session #5***

## Table of Contents

<b>1.</b>	<b><i>Executive Summary</i></b>	<b>2</b>
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<b>3.</b>	<b><i>Risk Identification</i></b>	<b>3</b>
3.1.	List (Describe) Register	3
3.2.	Managing Risk	3
	<b><i>Reference</i></b>	<b>4</b>

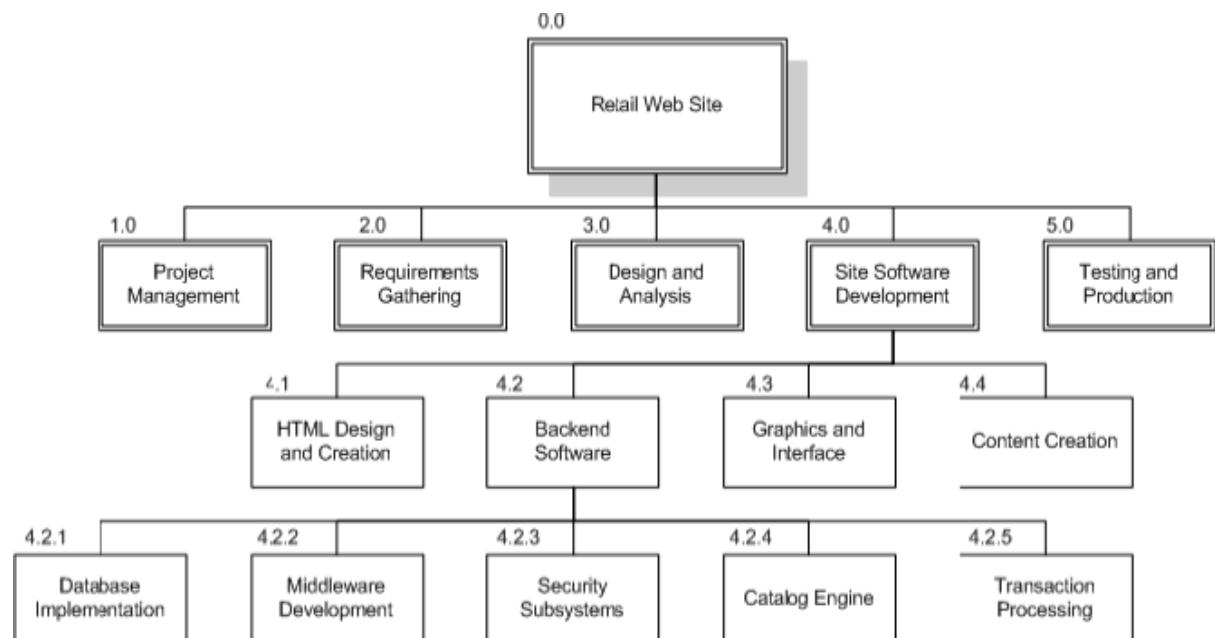
## 1. Executive Summary

The Base structure of our project will be ready by March 2021, on which the frontend and backend work will take place upon. Then we will design and develop the UI and frontend layer using various programming languages to give an appealing view to the user, (Expected Date-APRIL 2021). After that the designing of Database and developing of service / API using backend languages will be done to connect all the links and the UI will also be made more responsive, (Expected Date-MAY 2021). Then we will look into the risk management by solving various issues like Server issues, which includes slow page loading, viruses and cyber hacking, website traffic overloading, failure of hardware or software, server crashes and much more, along with Bugs fixing, which includes wrong coding, missing coding, extra coding, defect, error, mistake, failure, etc. So, by focussing on our deadlines we will try to reach our milestones on time and we will also try to overcome the risks in every way possible.

## 2. WBS With Project Schedule

Module (#)	Activity (#)	Sub-Task(#)	Assignee(s)	Planned Start Date	Planned End Date	Actual Start Date	Actual End Date	Status
1	1.1	1.1.1	Sakshil	1 <sup>st</sup> April	15 <sup>th</sup> April	N.D	N.D	To be started
1	1.2	1.2.1	Saksham, Akarshit	20 <sup>th</sup> April	30 <sup>th</sup> April	N.D	N.D	To be started
2	2.1	2.1.1	Akarshit, Sakshil, Saksham	5 <sup>th</sup> May	12 <sup>th</sup> May	N.D	N.D	To be started
2	2.2	2.2.1	Saksham, Akarshit, Sakshil	14 <sup>th</sup> May	20 <sup>th</sup> May	N.D	N.D	To be started

Reference Chart of a Website using Activities and Subtasks:



### 3. Risk Identification

#### 3.1. List (Describe) Register

Risk ID (#)	Risk Description	Impact Description
R01	Slow Page Load	Can take too much time to load a page.
R02	Viruses	It can perform unwanted and malicious actions that end up affecting software performance and also may damage programs.
R03	Website Traffic Overload	Too much web traffic can dramatically slow down or prevent all access to application.
R04	Server Crash	Application will stop working.
R05	Cyber Hacking	Hackers can steal sensitive information, usernames and passwords.
R06	Bug	Cause application to produce unexpected or incorrect results.
R07	Missing coding	Any respective section or part of application will not take input, and hence program will not run properly.
R08	Error	Source code will not run.

#### 3.2. Managing Risk

Risk ID (#)	Status [Open / Closed]	Risk Appetite [Accept/ Mitigate/ Transfer/Avoid]	Action	Action Owner	Target Date	Remarks
R01	Open	Mitigate	Minify and optimize the code.	Sakshil Verma	18 <sup>th</sup> April, 2021	Pending
R02	Open	Transfer	Update the antivirus.	Saksham Thareja	4 <sup>th</sup> May, 2021	Searching for the anti-virus
R03	Open	Avoid	Backup the data.	Akarshit Vats	1 <sup>st</sup> April, 2021	Not in view at present
R04	Open	Mitigate	Check Server Logs.	Sakshil Verma	20 <sup>th</sup> May, 2021	Pending
R05	Open	Avoid	Use patches.	Saksham Thareja	16 <sup>th</sup> May, 2021	Gathering the information
R06	Open	Accept	Correct the source code.	Akarshit Vats	9 <sup>th</sup> May, 2021	Fixing

R07	Open	Accept	Review the code.	Saksham Thareja	10 <sup>th</sup> May, 2021	In progress
R08	Open	Accept	Debug and recheck the code.	Sakshil Verma	12 <sup>th</sup> May, 2021	Pending

## Reference

1. <https://www.pmi.org/>



## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	6
<b>Title of Experiment</b>	Design a System Architecture, Use Case Diagram, ER Diagram (Database), DFD Diagram (process) (Upto Level 1), Class Diagram (Applied For OOPS based Project), Sequence Diagram (Applied For OOPS based Project) (Software – Rational Rose)
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	18/03/2021

### Mark Split Up

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	System Architecture with Presentation	5	
2	Use Case Diagram ER Diagram (Database), DFD Diagram (process)	5	

	Class Diagram (Applied For OOPS based Project), Sequence Diagram (Applied For OOPS based Project)		
	<b>Total</b>	<b>10</b>	

## **Staff Signature with date**

### **Aim**

To prepare architecture and design of the system

### **Team Members:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	<b>RA1911031010071</b>	<b>Sakshil Verma</b>	<b>Lead</b>
<b>2</b>	<b>RA1911031010065</b>	<b>Saksham Thareja</b>	<b>Member</b>
<b>3</b>	<b>RA1911031010066</b>	<b>Akarshit Vats</b>	<b>Member</b>

### **Software Used**

**Star UML, Rational Rose, Etc...**

### **Architecture Diagram with description**

**Use Case Diagram With Description**

**ER Diagram With Description (optional)**

**DFD Diagram (process) With Description**

**Class Diagram (Applied For OOPS based Project),**

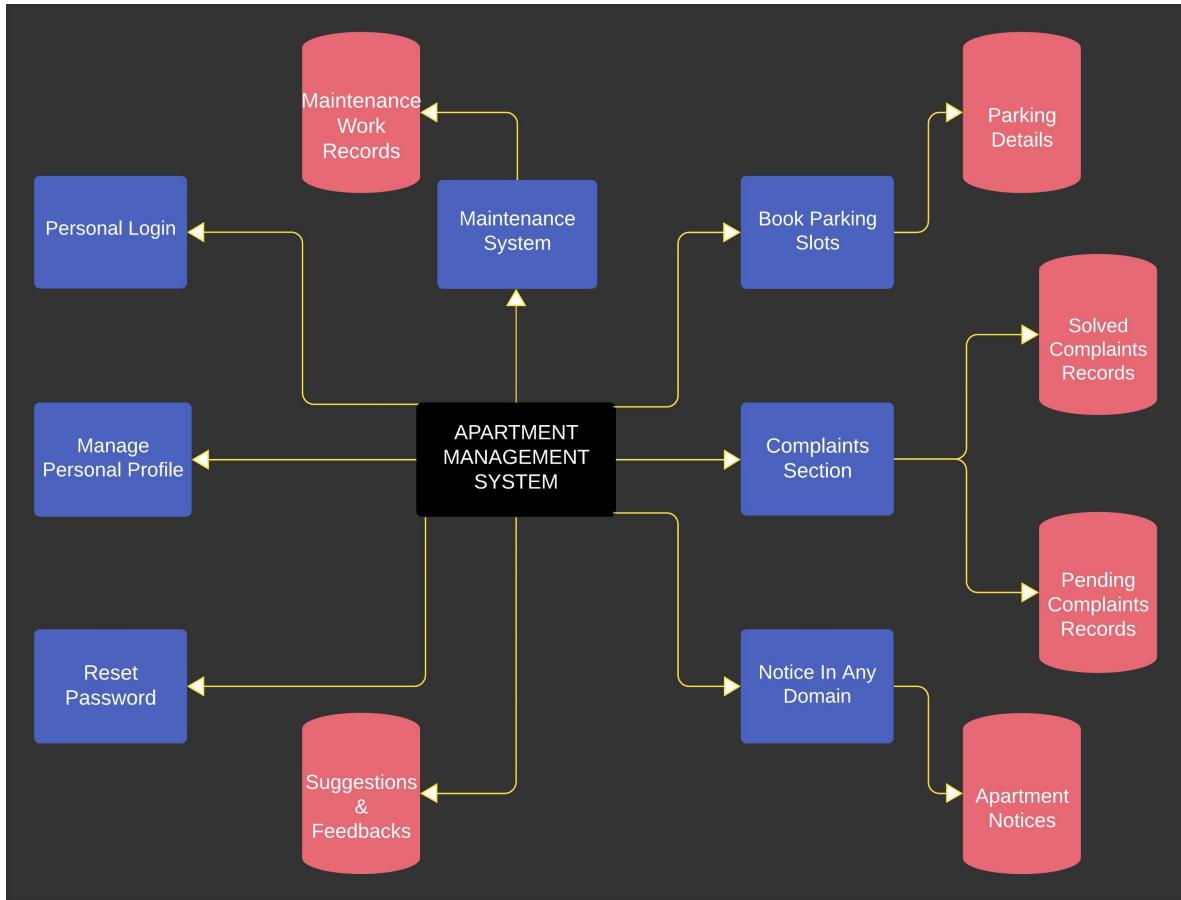
**Collaboration Diagram (Applied For OOPS based Project)**

### **Result:**

Thus, architecture and design of the system was documented successfully.

# UML DIAGRAMS -

## ARCHITECTURE DIAGRAM -



## ARCHITECTURE DIAGRAM DESCRIPTION -

An architectural diagram is a diagram of a system that is used to abstract the overall outline of the software system and the relationships, constraints, and boundaries between components. It is an important tool as it provides an overall view of the physical deployment of the software system and its evolution roadmap.

A diagram much like a picture is worth a thousand words. In other words, an architectural diagram must serve several different functions. To allow relevant users to understand a system architecture and follow it in their decision-making, we need to communicate information about the architecture. Architectural diagrams provide a great way to do this. To put down some major functions, an architectural diagram needs to:

- Break down communication barriers
- Reach a consensus
- Decrease ambiguity

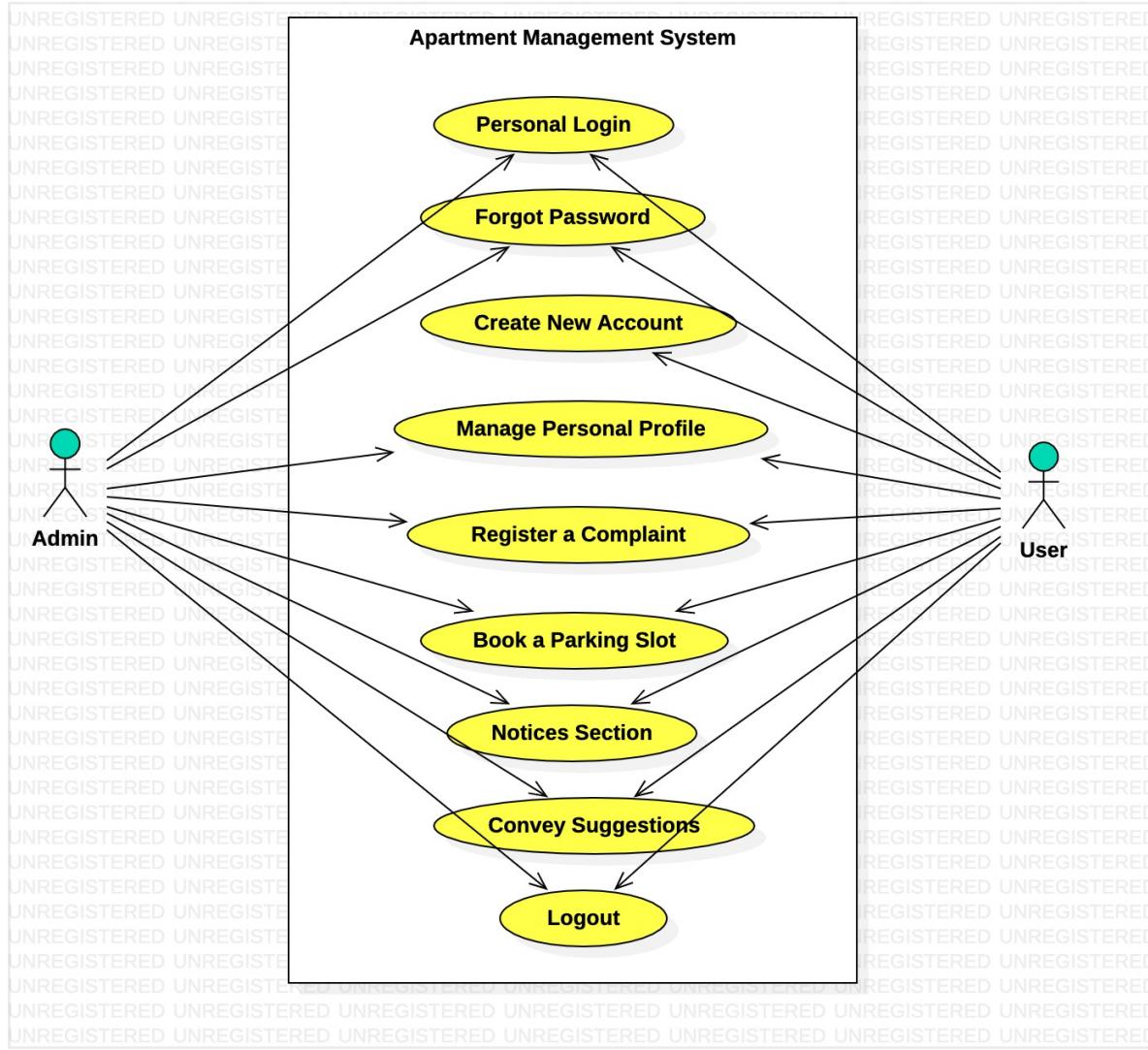
Now most of our Architectural diagram is self-explanatory which is the sole purpose of it but the basic information which is conveys has been listed below:

The main design element where our architectural diagram starts is the the Apartment Management System which constitute of all the other elements, their relationships with each other the boundaries and overall provides a very easy and basic idea of the whole design of the project.

Now as we move ahead we get to see the various features of the software represented in blue boxes in the diagram.These features are basically the backbone of our software which portray a certain design language of consistency in the software.

Also these blue boxes point to the pink ones which are basically the subparts of the main generic features mentioned above and in certain cases they also point to the DBMS which work in backend of the software and store the information of their respective features and attributes.

## USE CASE DIAGRAM -



## USE CASE DIAGRAM DESCRIPTION -

Use Case Name:	Personal Login
Actor(s):	Admin, User
Purpose:	To Login to Personal Account
Overview:	The admin and users can login to their personal account.

Use Case Name:	Forgot Password
Actor(s):	Admin, User
Purpose:	To Reset the password
Overview:	The admin and users can reset their account password if they have forgotten it.

Use Case Name:	Create New Account
Actor(s):	User
Purpose:	To create new account
Overview:	New users can create their new personal account.

Use Case Name:	Manage Personal Profile
Actor(s):	Admin, User
Purpose:	To Manage Personal Profile
Overview:	Admin and users can edit the details stored in their personal profile

Use Case Name:	Register a Complaint
Actor(s):	Admin, User
Purpose:	To Register new Complaints
Overview:	Admin and users can write their complaints which would be reviewed and resolved by concerned authority.

Use Case Name:	Book a Parking Slot
Actor(s):	Admin, User
Purpose:	To Book a extra Parking Slot
Overview:	Admin and users can book the extra parking slots for themselves.

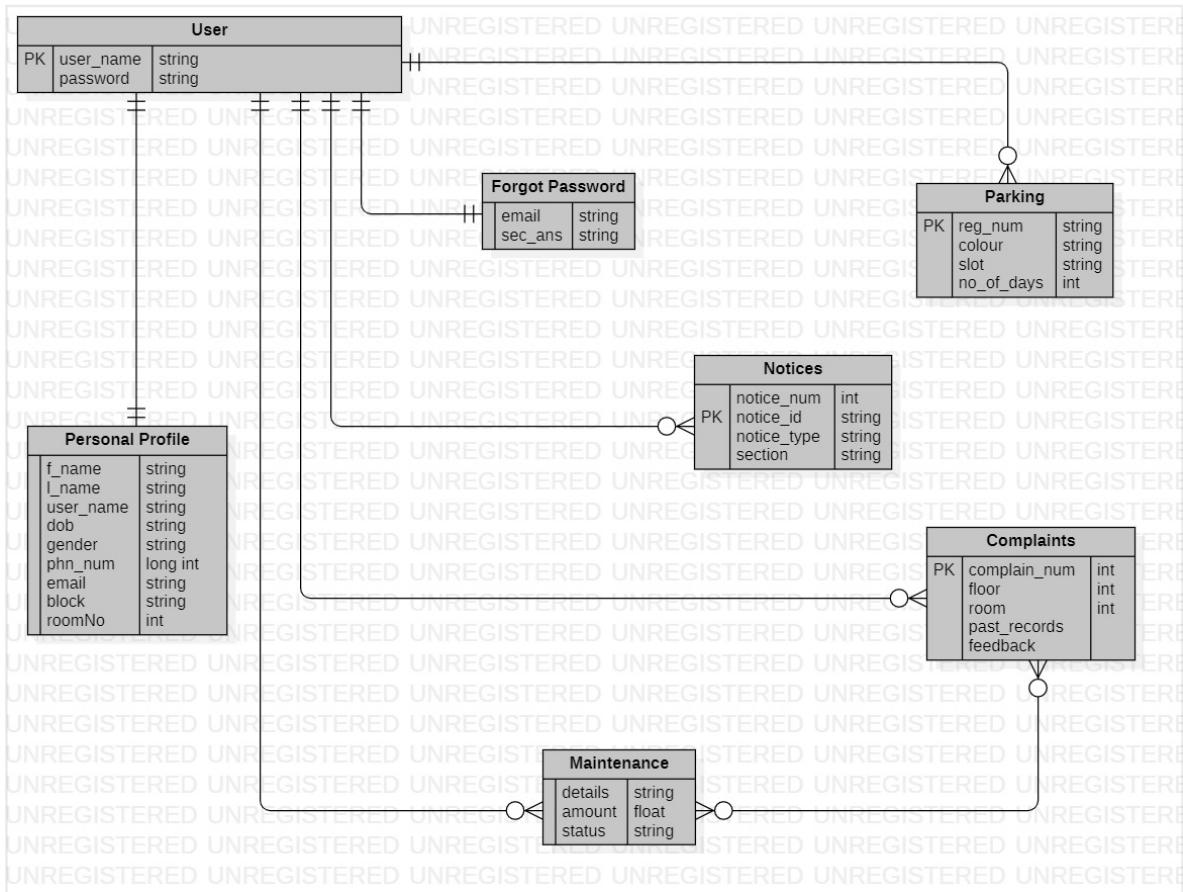
Use Case Name:	Notices Section
Actor(s):	Admin, User
Purpose:	To Display Notices
Overview:	Admin and users can view the notices which would keep them updated.

Use Case Name:	Convey Suggestions
Actor(s):	Admin, User
Purpose:	To Convey Suggestions

Overview:	Admin and users can convey suggestions and ideas which would help the developers to improve the software.
-----------	---

Use Case Name:	Logout
Actor(s):	Admin, User
Purpose:	To Logout from Personal Account
Overview:	Admin and users can logout from their personal account.(Logging Out is essential so that the details of every personal account can remain private to that particular user)

## ER DIAGRAM -



## ER DIAGRAM DESCRIPTION -

An Entity Relationship (ER) Diagram is a type of flowchart that illustrates how "entities" such as people, objects or concepts relate to each other within a system. It uses a defined set of symbols and connecting lines to

depict the interconnectedness of entities, relationships and their attributes. So, ER Diagram helps us to gain a better understanding of the information to be contained in the database.

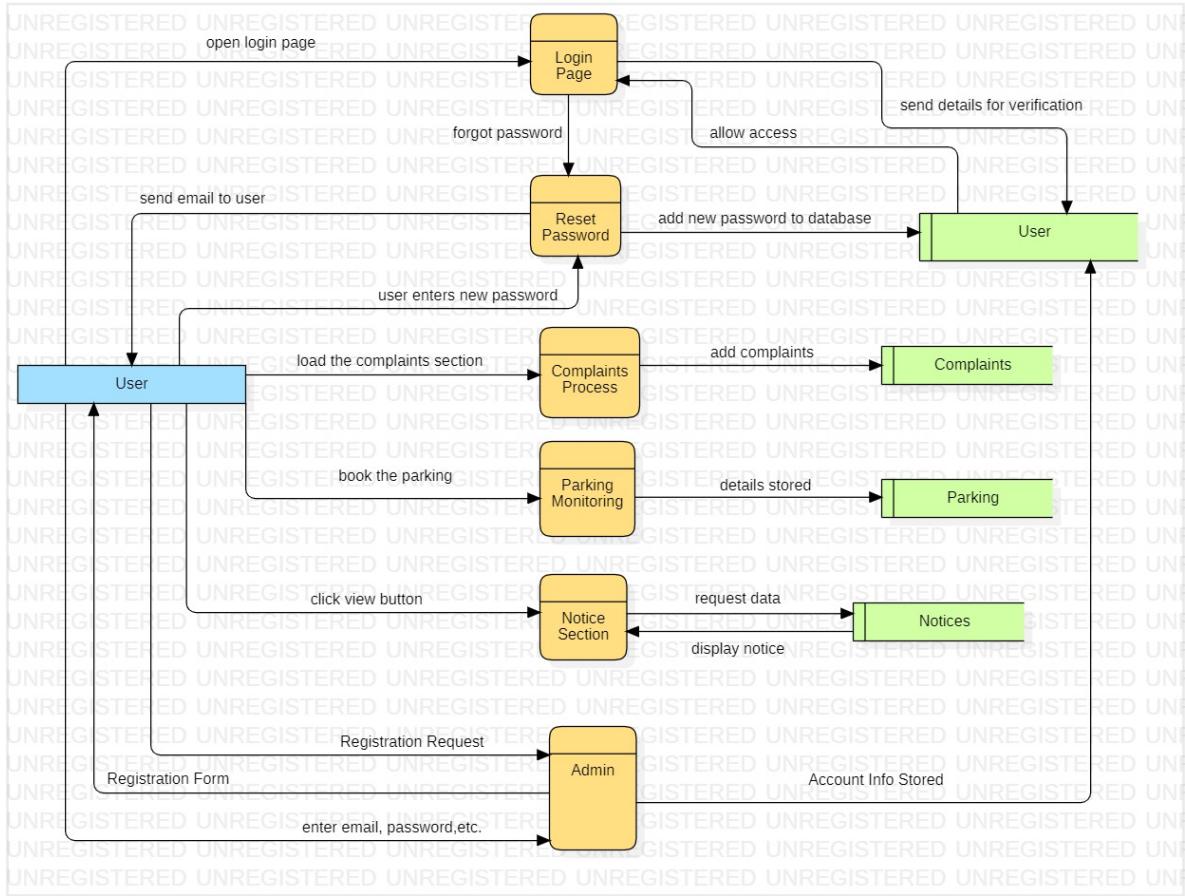
In Apartment Management System, various objects are defined such as maintenance, complaints regarding apartment, parking, notices, personal profile, etc. The entities/objects have their attributes such as reg\_num, colour, email, dob, password, etc. These attributes show the characteristic or behaviour of an entity.

All the objects in system are connected with connecting lines, describing their inter-relationships. These are of 3 types that are shown in diagram:

- One-to-One relationship
- One-to-Many relationship
- Many-to-Many relationship

For examples, between user and complaints, one to one relationship is defined because a one single user can have many numbers of complaints. Also like between user and forgot password one to one relationship is defined, as one user has only one password which he can reset it in forgot password section.

## DFD DIAGRAM -



### DFD DIAGRAM DESCRIPTION-

A Data Flow Diagram (DFD) is a traditional way to visualise the information flows within a system. It shows how information enters and leaves the system, what changes the information and where information is stored. The purpose of a DFD is to show the scope and boundaries of a system as a whole. DFD has four notations- external entity, processes, data store, data flow arrow.

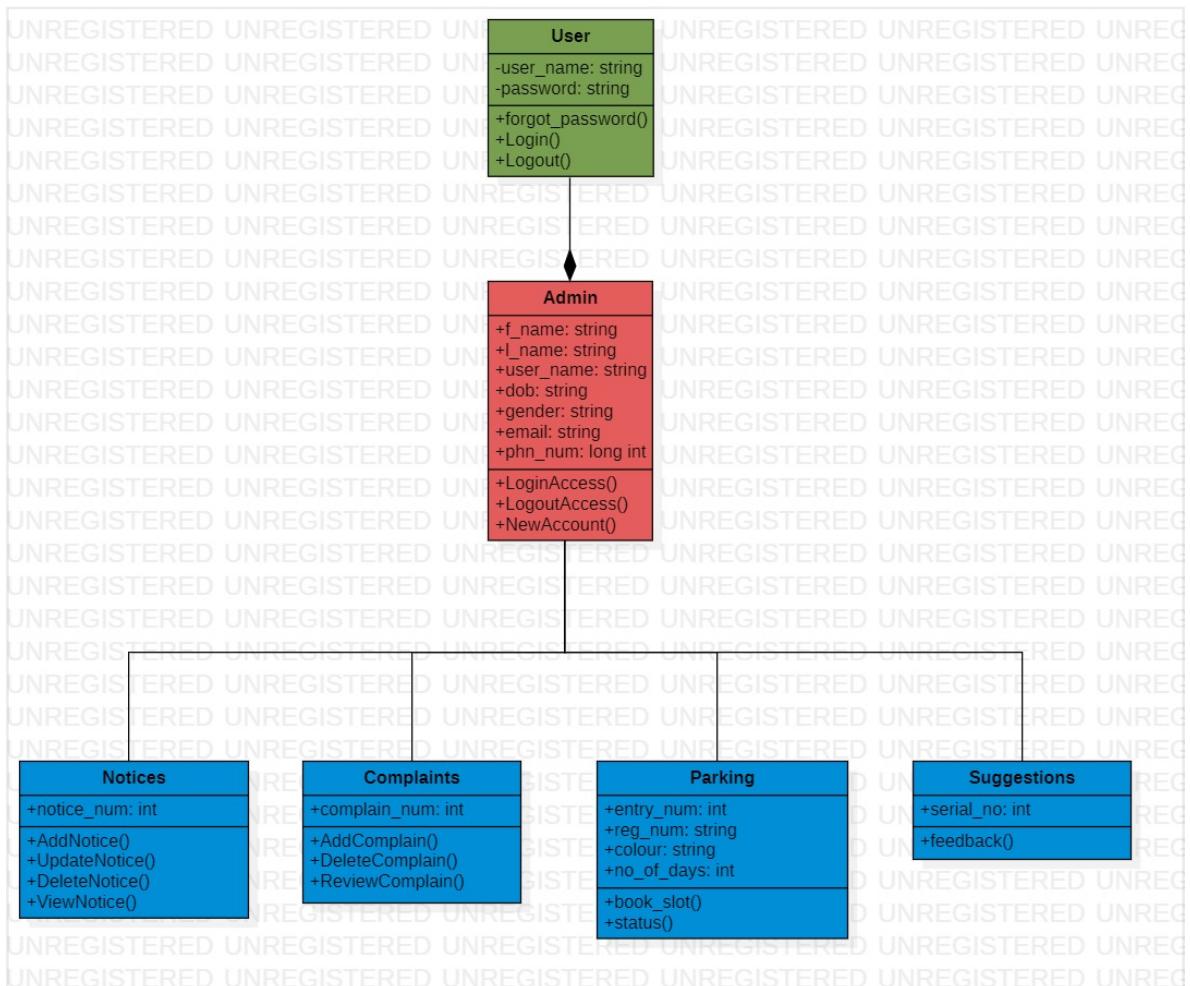
In Apartment Management System the DFD notations are defined as following:

- External Entity: User
- Processes: Login Page, Reset Password, Complaints Process, Parking Monitoring, Notice Section, Admin
- Data Store: User, Complaints, Parking, Notices

1. For login, the process is done through Login Page and input is given to user database for verification and in output access is allowed by user database.

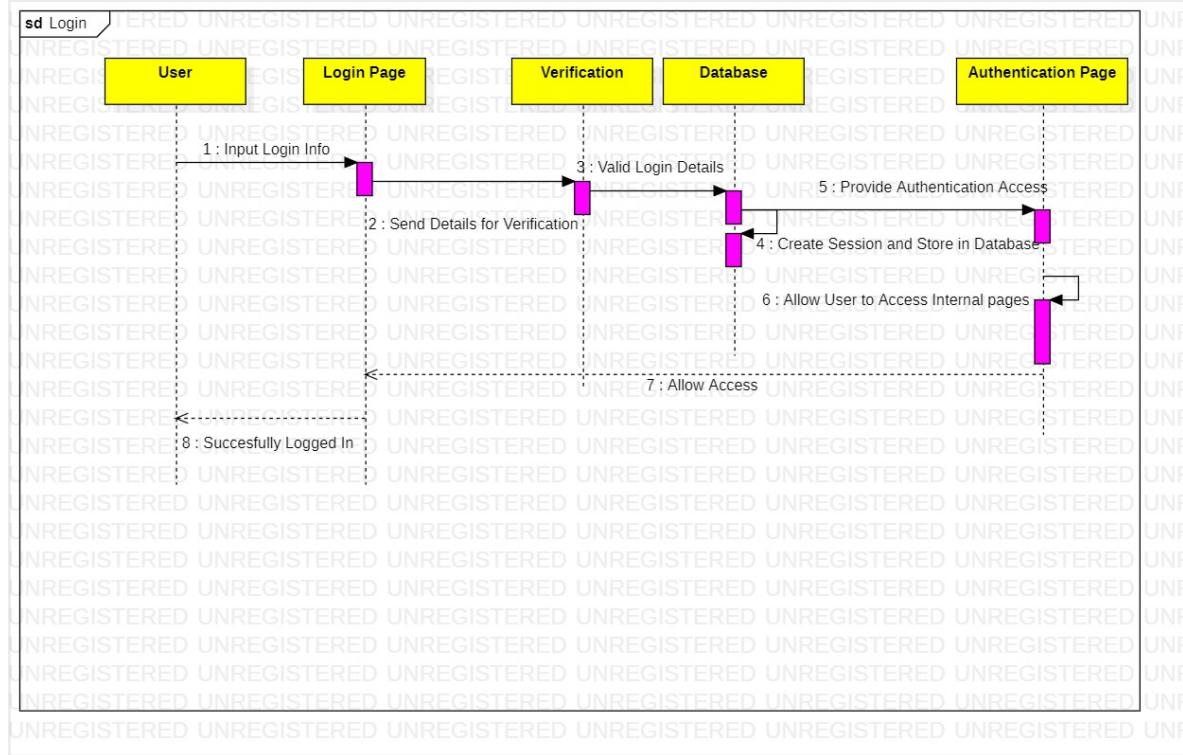
2. In reset password process, user enters new password and new password is added to data store.
3. For new registration, admin as a process accept the request and after entering the personal details by the user, account information is stored in user database.
4. Complaints Database stores the complaints given by the user entity.
5. Parking Monitoring process gets the input from user to book the parking and give output to parking database to store the details.
6. Notices are stored in Notices database.

## CLASS DIAGRAM -

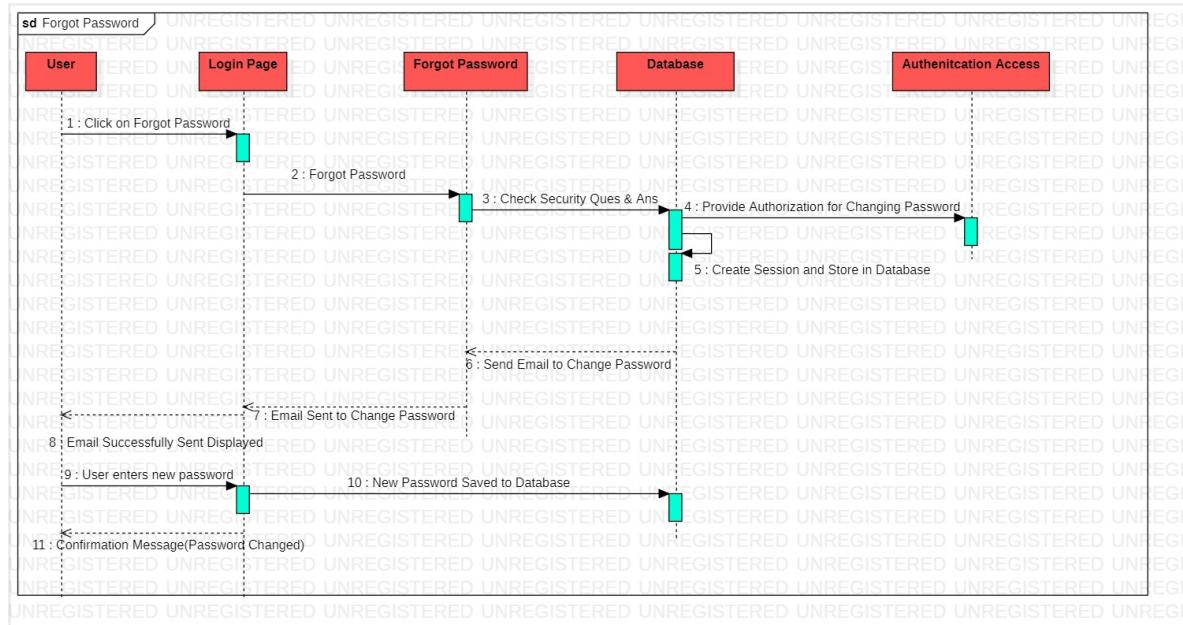


# SEQUENCE DIAGRAMS -

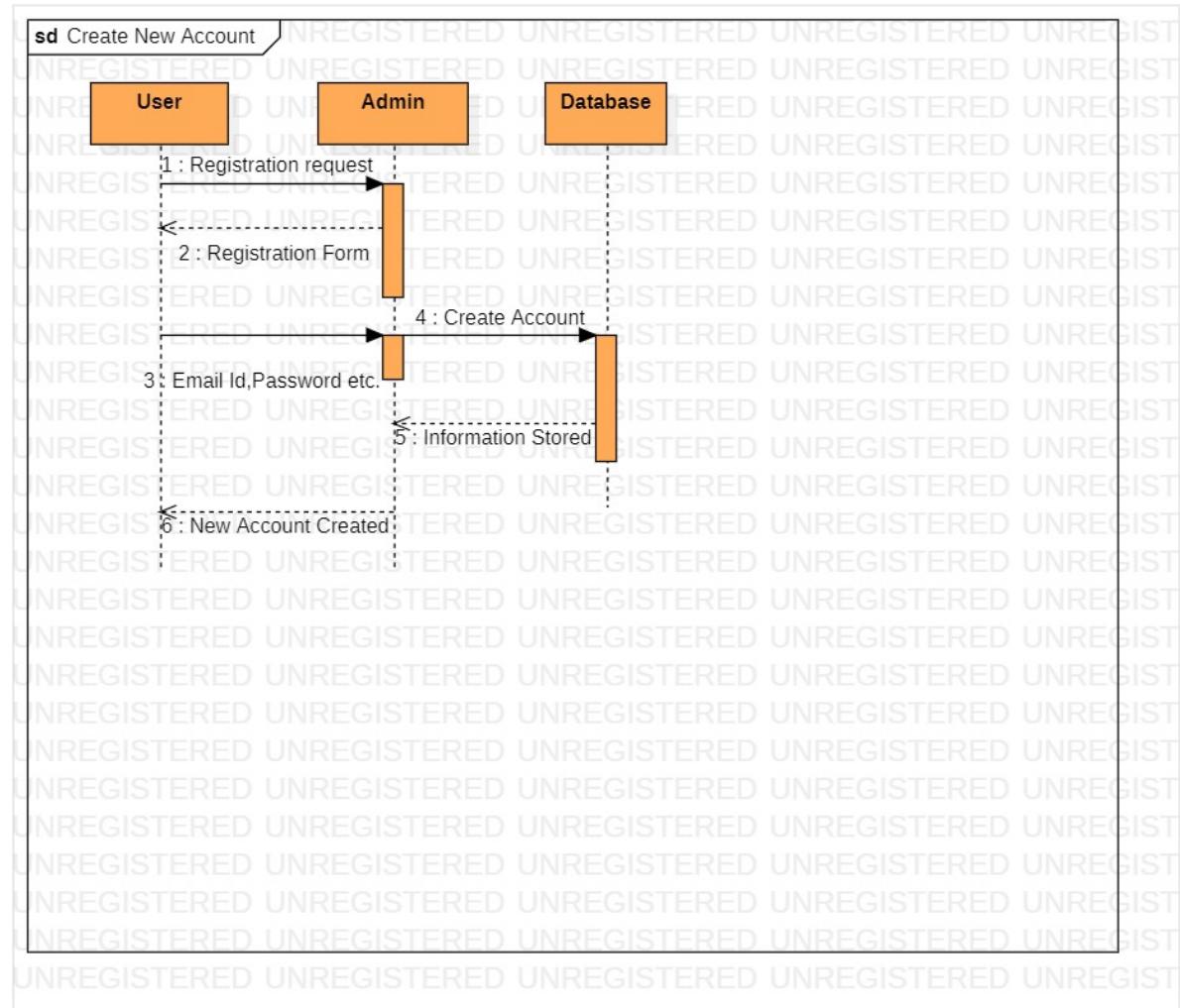
## Personal Login Sequence Diagram -



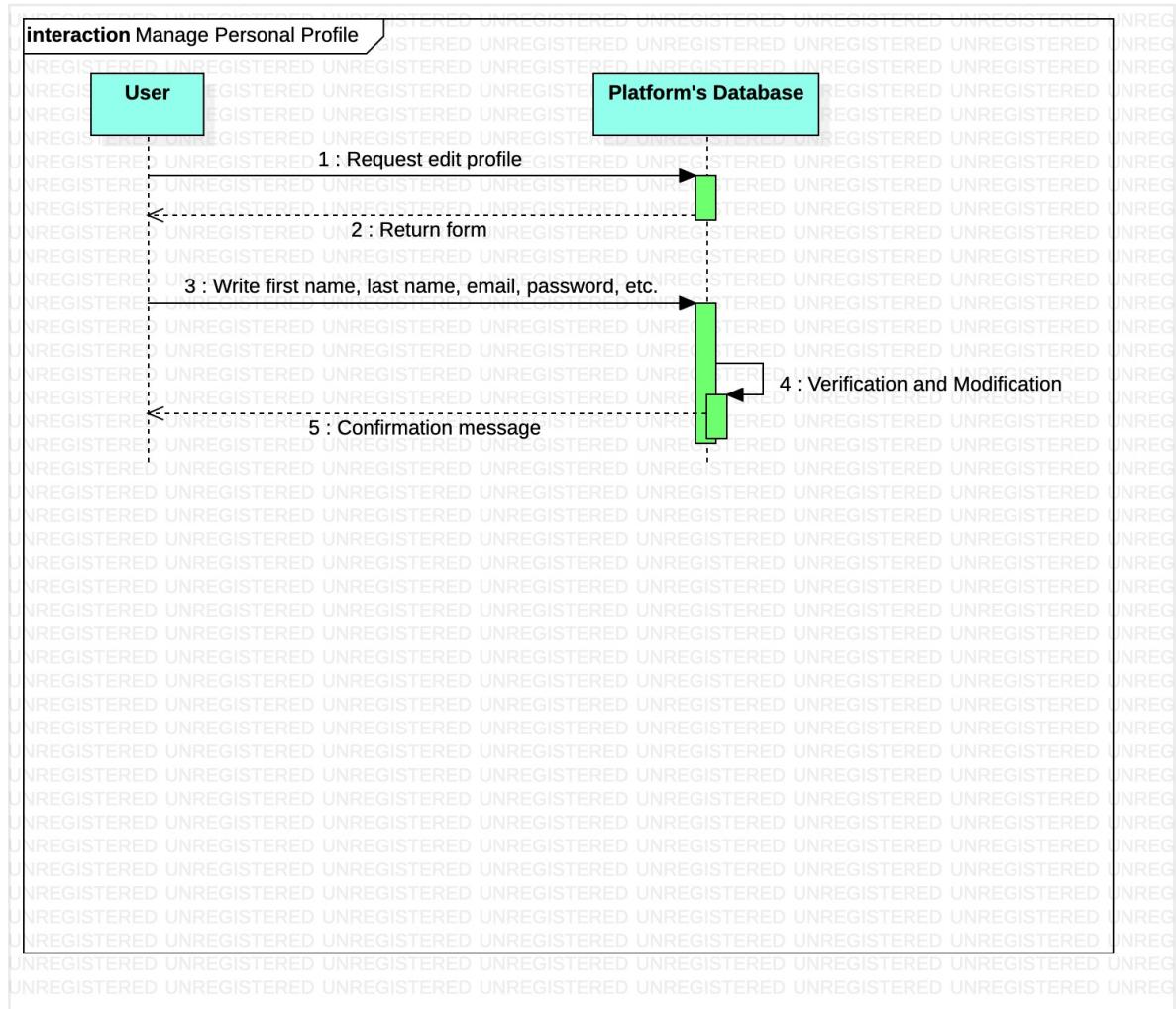
## Forgot Password Sequence Diagram -



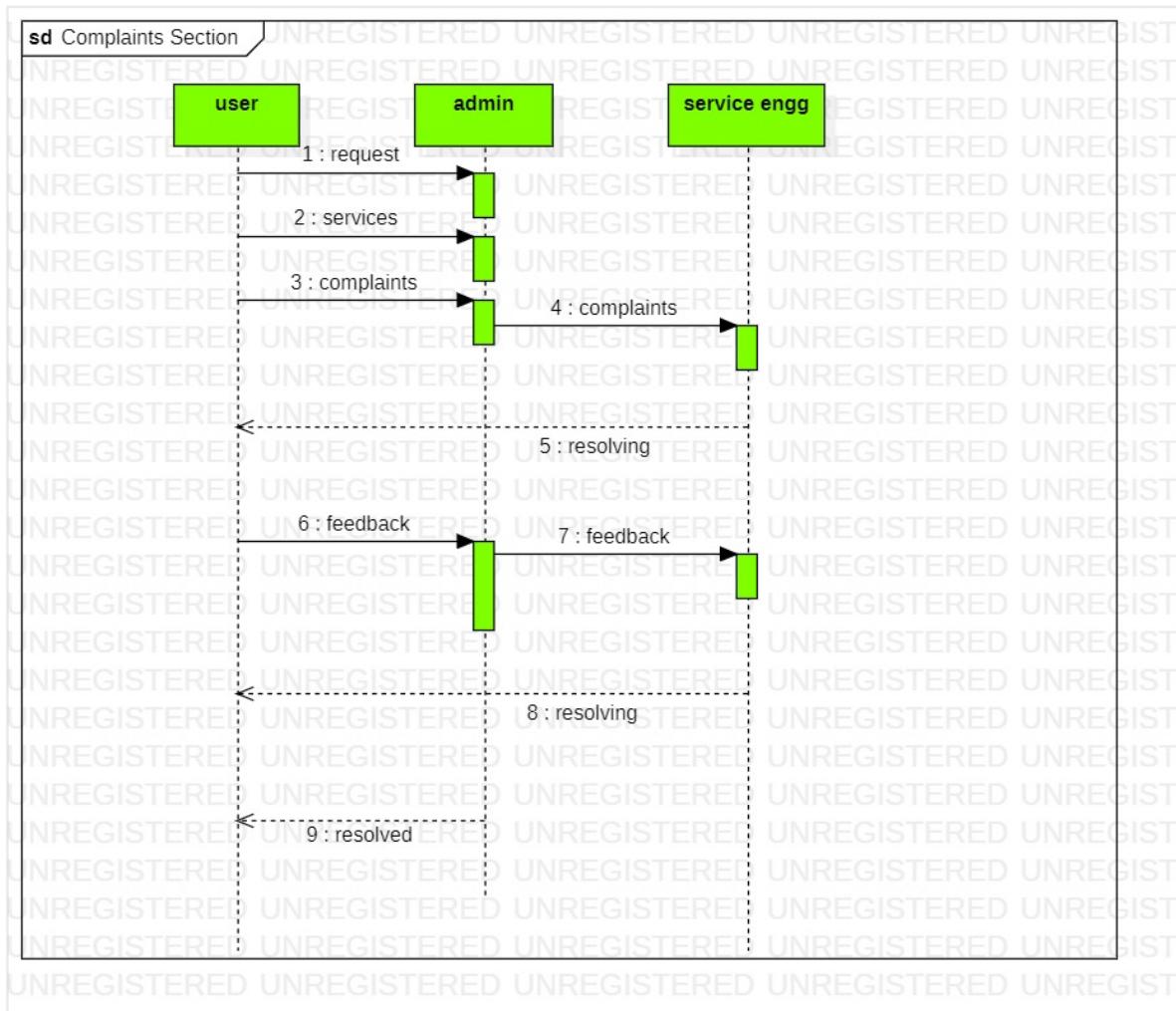
## Create New Account Sequence Diagram -



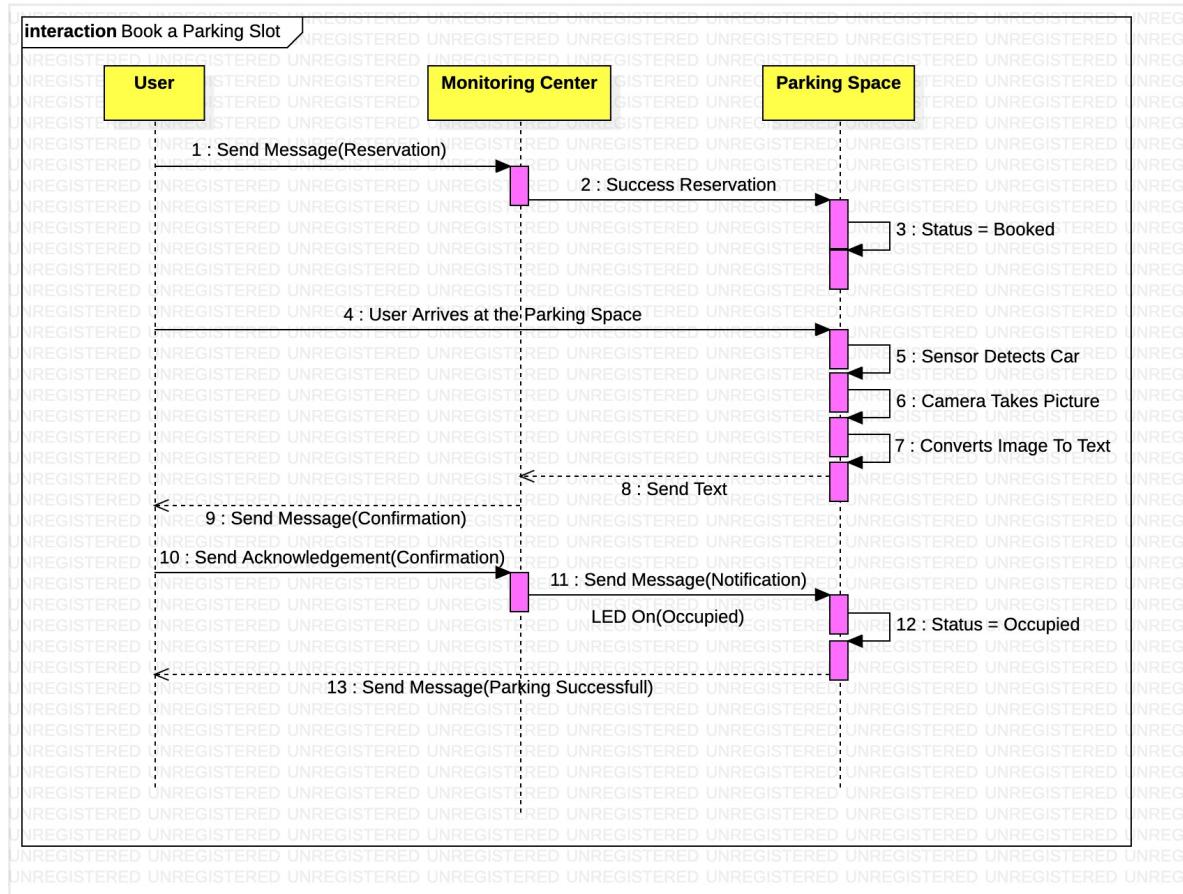
## Manage Personal Profile Sequence Diagram -



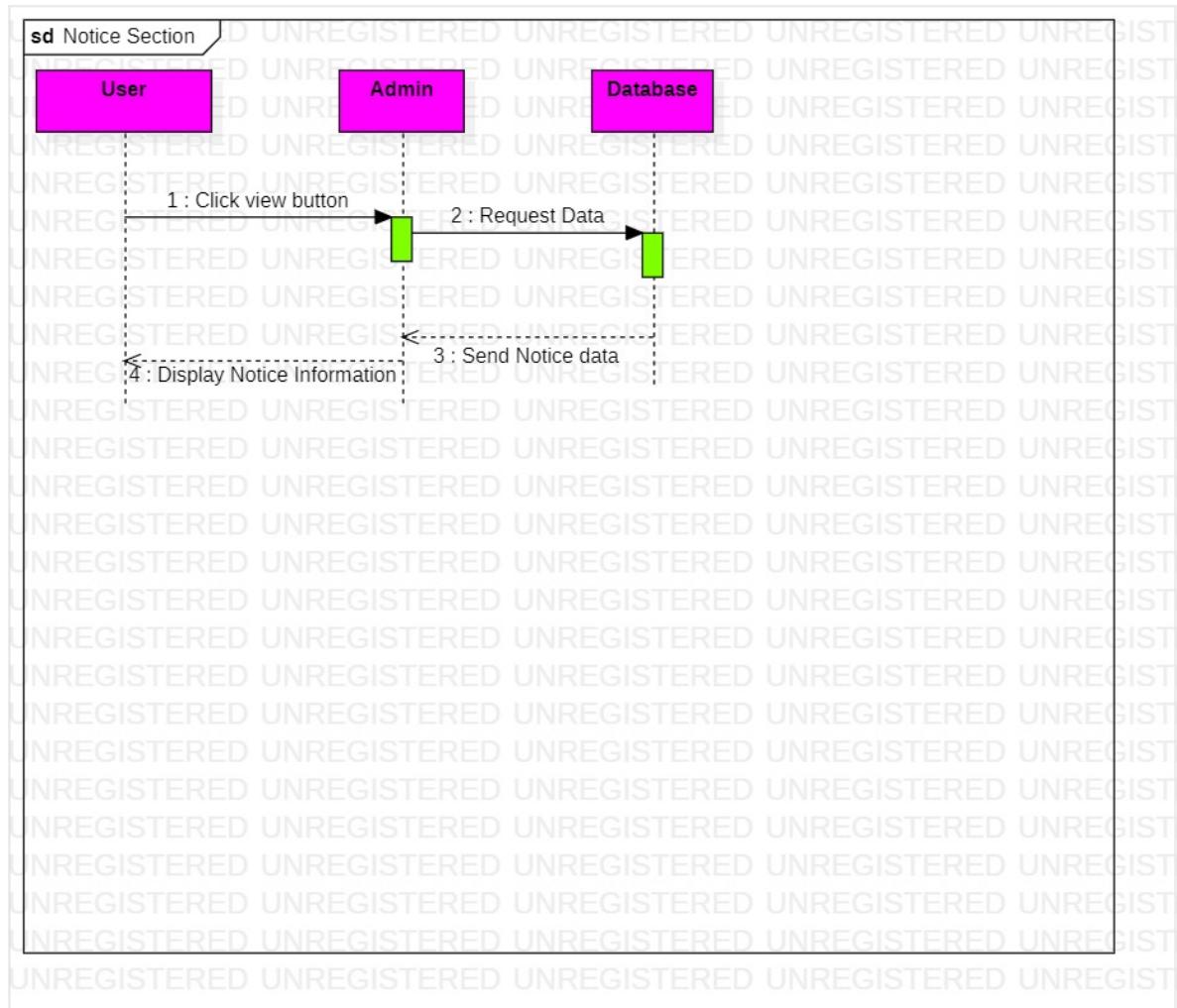
## Register a Complaint Sequence Diagram -



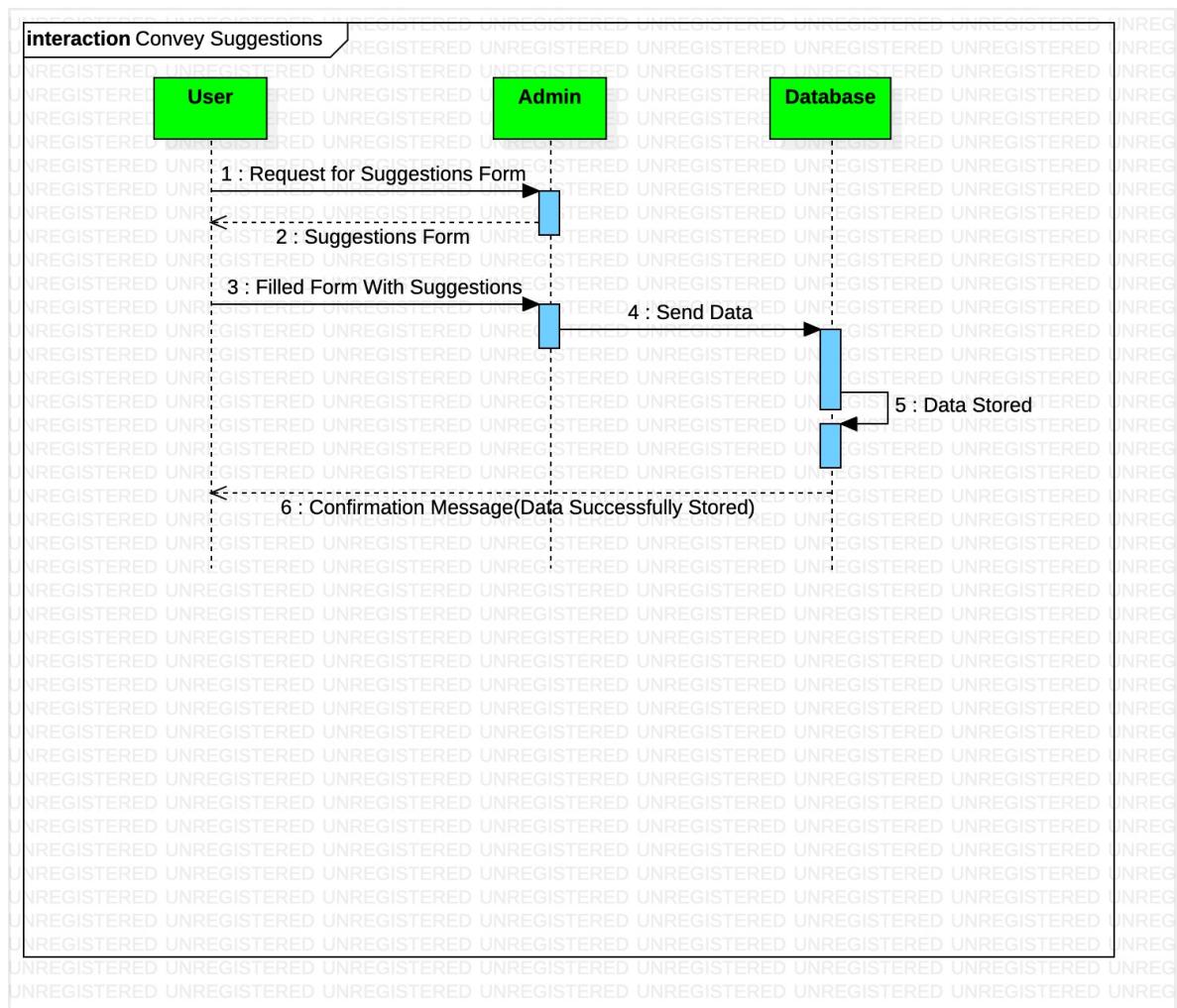
## Book a Parking Slot Sequence Diagram -



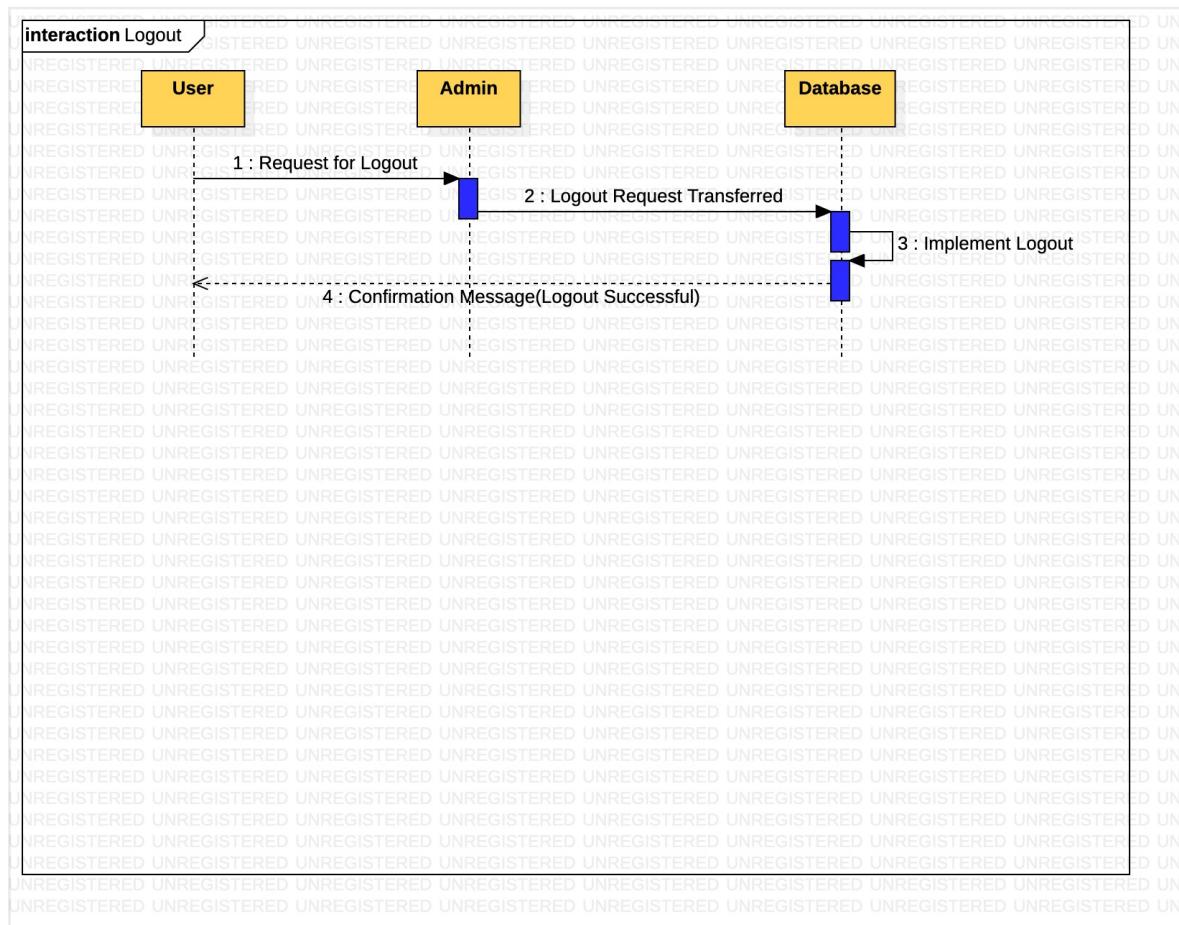
## Notices Section Sequence Diagram -



## Convey Suggestions Sequence Diagram -



## Logout Sequence Diagram -





## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	7
<b>Title of Experiment</b>	Design State , Collaboration, Deployment Diagram, Sample Frontend Design (UI/UX)
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	25/03/2021

### Mark Split Up

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	State , Collaboration diagrams	5	
2	Deployment Diagram, Sample Frontend Design (UI/UX)	5	
<b>Total</b>		<b>10</b>	

## **Staff Signature with date**

### **Aim**

To Design State, Collaboration, Deployment Diagram, Sample Frontend Design (UI/UX) for the project.

### **Team Members:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
1	RA1911031010071	Sakshil Verma	Lead
2	RA1911031010065	Saksham Thareja	Member
3	RA1911031010066	Akarshit Vats	Member

### **Software Used**

Star UML, Rational Rose, Etc...

### **Architecture Diagram with description**

### **State Diagram with Description**

### **Collaboration Diagram with Description**

### **Deployment Diagram with Description**

Sample Frontend design

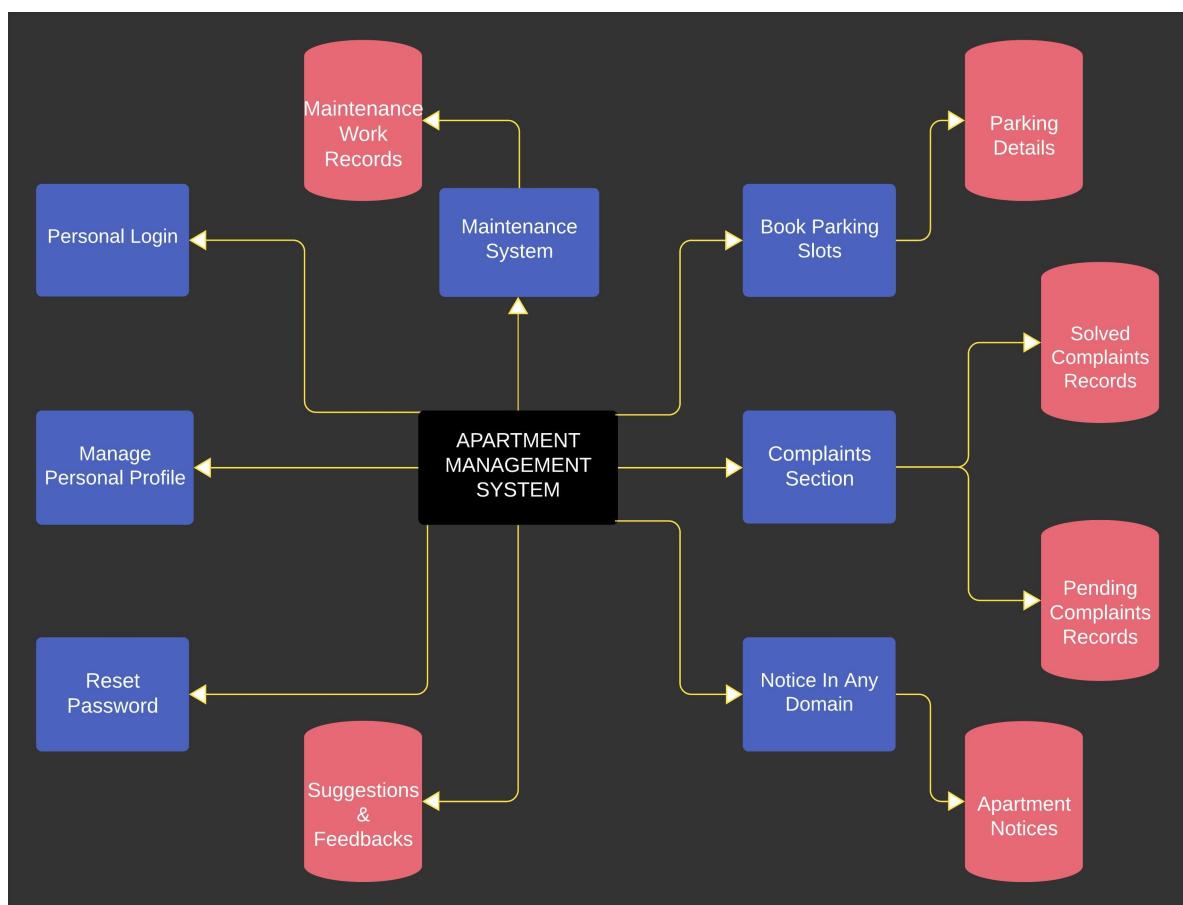
### **Result:**

Thus, above mentioned designs of the system were documented successfully.

# SEPM EXP-7

## UML DIAGRAMS -

### ARCHITECTURE DIAGRAM -



### ARCHITECTURE DIAGRAM DESCRIPTION -

An architectural diagram is a diagram of a system that is used to abstract the overall outline of the software system and the relationships, constraints, and boundaries between components. It is an important tool as it provides an overall view of the physical deployment of the software system and its evolution roadmap.

A diagram much like a picture is worth a thousand words. In other words, an architectural diagram must serve several different functions. To allow relevant users to understand a system architecture and follow it in their decision-making, we need to communicate information about the architecture. Architectural diagrams provide a great way to do this. To put down some major functions, an architectural diagram needs to:

- Break down communication barriers
- Reach a consensus
- Decrease ambiguity

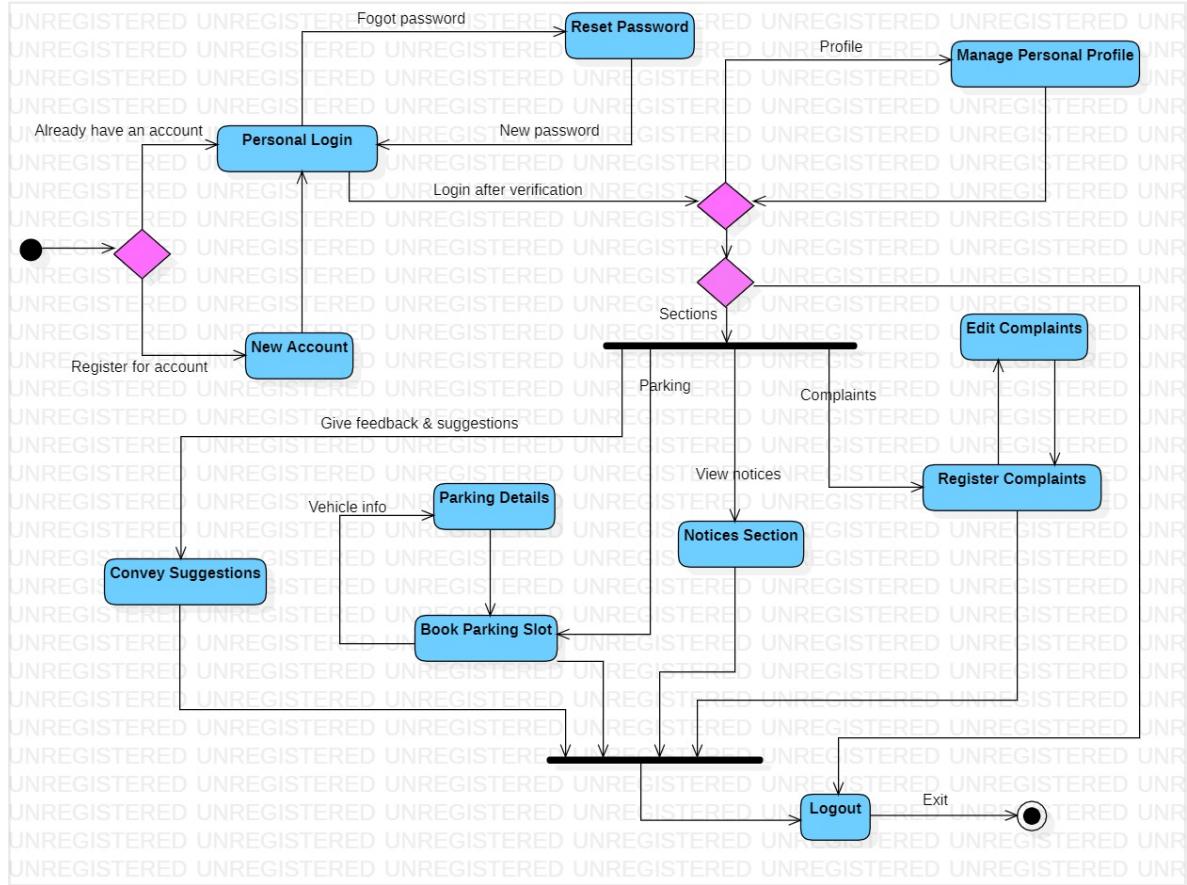
Now most of our Architectural diagram is self-explanatory which is the sole purpose of it but the basic information which is conveys has been listed below:

The main design element where our architectural diagram starts is the the Apartment Management System which constitute of all the other elements, their relationships with each other the boundaries and overall provides a very easy and basic idea of the whole design of the project.

Now as we move ahead we get to see the various features of the software represented in blue boxes in the diagram.These features are basically the backbone of our software which portray a certain design language of consistency in the software.

Also these blue boxes point to the pink ones which are basically the subparts of the main generic features mentioned above and in certain cases they also point to the DBMS which work in backend of the software and store the information of their respective features and attributes.

## STATECHART DIAGRAM -



## STATECHART DIAGRAM DESCRIPTION -

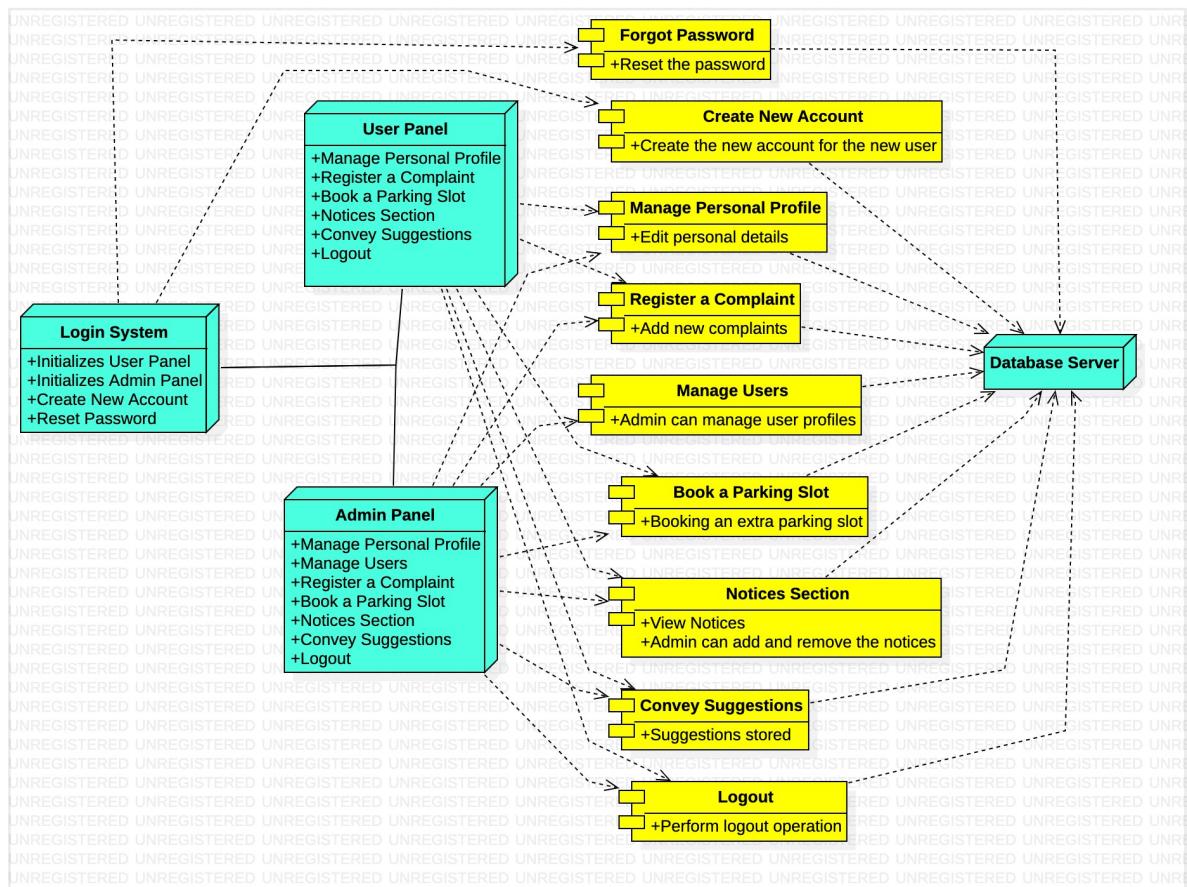
State chart diagram is used to model the dynamic nature of a system. They define different states of an object during its lifetime and these states are changed by events. State chart diagram describes the flow of control from one state to another state. States are defined as a condition in which an object exists and it changes when some event is triggered. The most important purpose of State chart diagram is to model lifetime of an object from creation to termination.

Similarly, state chart diagram of our project "Apartment Management System" describes the behaviour of system, defines the states and describes the flow of control from one state to another state.

- At the Initial State user has two choices. First, if user already have an account, he/she can login into the system. Second, user can create new account and can login into the system.
- At the Personal Login state, if user forgot his/her password, then user can Reset Password and after entering new password user can login.
- After login, at Manage Personal Profile user can edit or view his/her personal profile.
- Now user can perform action in different sections of system or otherwise can directly logout.

- Fork is used in diagram to split sections into concurrent multiple transitions leading to different target states.
- Register Complaints state allows to add and edit complaints regarding apartment.
- Notices Section allows to view notices.
- User can Book Parking Slot and give the parking details.
- Convey Suggestions holds the suggestions & feedbacks.
- Join is used to merge concurrent multiple transitions into a single transition leading to a single target. So, all transitions result into a single Logout state.
- Logout from system at last and hence state diagram ends at the Final State.

## DEPLOYMENT DIAGRAM -



## DEPLOYMENT DIAGRAM DESCRIPTION -

Deployment diagrams are used to visualise the hardware processors, nodes, devices of a system, the links of communication between them and the placement of software files on that hardware.

A deployment diagram is a UML diagram type that shows the execution

architecture of a system, including nodes such as hardware or software execution environments, and the middleware connecting them.

Deployment diagrams are typically used to visualise the physical hardware and software of a system. Using it you can understand how the system will be physically deployed on the hardware.

Deployment diagrams help model the hardware topology of a system compared to other UML diagram types which mostly outline the logical components of a system.

### Purpose of Deployment Diagrams-

- They show the structure of the run-time system
- They capture the hardware that will be used to implement the system and the links between different items of hardware.
- They model physical hardware elements and the communication paths between them
- They can be used to plan the architecture of a system.
- They are also useful for Document the deployment of software components or nodes

## SAMPLE FRONTEND DESIGN -

The screenshot displays the homepage of the Apartment Management System. At the top, there is a navigation bar with 'LOGIN' and 'CREATE ACCOUNT' on the left, and 'Features', 'Prices', 'Testimonials', 'About Us', and 'Contact Us' on the right. Below the navigation bar, the title 'APPARTMENT MANAGEMENT SYSTEM' is centered, followed by the tagline 'The private social network for your society.' To the left, a section titled 'POPULAR FEATURES' lists various management modules. In the center, two smartphones are shown displaying the mobile application's user interface, which includes sections like 'My Unit', 'Members', 'Facilities Management', and 'Maintenance Committee'. To the right, there is a stylized illustration of a city skyline with clouds. Below the city illustration, two sections are listed: 'FOR RESIDENTS' and 'FOR ADMIN'. At the bottom, a call-to-action button says 'Join Today' with a right-pointing arrow, followed by the text 'Experience a new way of life in your Apartment....'. The footer contains links for 'FAQ', 'Terms of Service', and 'Privacy Policy' on the left, and 'Book a Demo?' and 'Feedback Form' on the right. It also features download links for the Google Play and Apple App Store, and social media icons for Facebook, Instagram, and Twitter.

LOGIN CREATE ACCOUNT

Features Prices Testimonials About Us Contact Us

## APPARTMENT MANAGEMENT SYSTEM

The private social network for your society.

POPULAR FEATURES

- A Dashboard
- Facilities Management
- Maintenance Committee
- Notices Section
- Management Committee
- Member Management
- Complain Management
- Parking Manager

FOR RESIDENTS

Official Communication, Community Helpdesk, Maintenance Bill Payment, Notice Board, Documents, Parking Management

FOR ADMIN

Complete Accounting, Facility Management, Automatic Bill Generation and AR entries, Integrated Society Management System

Join Today ➤ Experience a new way of life in your Apartment....

FAQ  
Terms of Service  
Privacy Policy

Book a Demo?  
Feedback Form

Coming soon to  
Google play  
Coming soon to Apple  
App Store

Be Social. Be Connected



**DEPT. Of Computer Science Engineering**  
**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	8
<b>Title of Experiment</b>	Module Description, Module Implementation
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	01/04/2021

**Mark Split Up**

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Implementation of module 1	5	
2	Output	5	
<b>Total</b>		<b>10</b>	

**Staff Signature with date**

**Aim**

To describe modules and implement Module1

**Team Members:**

Sl No	Register No	Name	Role
1	RA1911031010071	Sakshil Verma	Lead
2	RA1911031010065	Saksham Thareja	Member
3	RA1911031010066	Akarshit Vats	Member

**Software Used**

C, C++, Python, HTML, Mysql, Etc...

**Code of Module 1**

**Result of Module 1**

**Result:**

Thus, modules are described, Module 1 was implemented and documented successfully.

## **CODE -**

```
// SEPM_APARTMENT_MANAGEMENT_SYSTEM
// Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats

#include <iostream>
#include <string>
using namespace std;
string i, name, dob, ph, address, gender, complaint={"/"}, suggestion={"/"};
int flag=0;

//function to display personal details of the user
void personal_details(){
    cout<<"Your Personal Details are :"<<endl<<"Name -
"<<name<<endl<<"Date of Birth - "<<dob<<endl<<"Gender -
"<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address -
"<<address<<endl;
}

//function to register a complaint given by the user
void register_complaint(){
    cout<<"Enter Your Complaint - ";
    cin.ignore();
    getline(cin,complaint);
    cout<<"Complaint Registered Successfully."<<endl;
}

//function to display complaint registered by the user
void view_complaint(){
    if(complaint==""){
        cout<<"Currently You Have No Registered Complaint"<<endl;
    }
    else cout<<"Your Registered Complaint - "<<complaint<<endl;
}

//function to book a parking slot for the user
void book_parkingSlot(){
    if(flag==0){
        cout<<"Parking Slot Booked Successfully."<<endl;
        flag=1;
    }
    else cout<<"Parking Slot Already Booked, No More Parking Slots
```

```
Available."<<endl;
}

//function to display all the notices available
void notices_section(){
    cout<<"This is Notices Section."<<endl<<"All notices will be displayed
here."<<endl;
}

//function to register a suggestion for the user
void register_suggestion(){
    cout<<"Enter Your Suggestion - ";
    cin.ignore();
    getline(cin,suggestion);
    cout<<"Suggestion Recieved Successfully."<<endl;
}

//function to display suggestion registered by the user
void view_suggestion(){
    if(suggestion==""){
        cout<<"Currently You Have No Suggestion"<<endl;
    }
    else cout<<"Your Personal Suggestion - "<<suggestion<<endl;
}

//main function for driver code
int main() {
    //Welcome message to the user
    cout<<"Welcome to Apartment Management System"<<endl<<"In this
system you can do various tasks like Register a Complaint, Book a Parking
Slot, View Notices Section, Convey Your Personal Suggestions to the
Concerned Authorities."<<endl;

    //Taking personal details from the user

    cout<<"-----"<<endl;
    cout<<"Enter Your Name - ";
    getline(cin,name);
    cout<<"Enter Your Date of Birth - ";
    getline(cin,dob);
    cout<<"Enter Your Gender - ";
    getline(cin,gender);
    cout<<"Enter Your Phone Number - ";
    getline(cin,ph);
```

```
cout<<"Enter Your Address - ";
getline(cin,address);

cout<<"-----" << endl;

do{
    //Providing various options to user to navigate through the program
    cout<<"To view your Personal Details enter 1 and press
    enter"<<endl<<"Or to Register a Complaint enter 2 and press
    enter"<<endl<<"Or to View the Registered Complaint enter 3 and press
    enter"<<endl<<"Or to Book a Parking Slot enter 4 and press
    enter"<<endl<<"Or to View Notices Section enter 5 and press
    enter"<<endl<<"Or to Convey Your Personal Suggestion enter 6 and press
    enter"<<endl<<"Or to View Your Personal Suggestion enter 7 and press
    enter"<<endl<<"Or to End the program enter 0 and press enter : ";

    cin>>i;

    cout<<"-----" << endl;

    //if user wants to end the program
    if(i=="0"){
        break;
    }

    else if(i=="1"){
        personal_details();
    }

    else if(i=="2"){
        register_complaint();
    }

    else if(i=="3"){
        view_complaint();
    }

    else if(i=="4"){
        book_parkingSlot();
    }

    else if(i=="5"){
        notices_section();
```

```
}

else if(i=="6"){
    register_suggestion();
}

else if(i=="7"){
    view_suggestion();
}

else cout<<"Invalid Choice!!"<<endl;

cout<<"-----" <<endl;

}while(i!="0");

//end line for the program
cout<<endl<<"Thankyou and have a Good Day!!"<<endl<<endl;

cout<<"-----" <<endl;

return 0;
}
```

## IMPLEMENTATION WITH SCREENSHOTS -

```
SEPM_APARTMENT_MANAGEMENT_SYSTEM > My Mac Finished running SEPM_APARTMENT_MANAGEMENT_SYSTEM : SEPM_APARTMENT_MANAGEMENT_SYSTEM
```

```
SEPM_APARTMENT_MANAGEMENT_SYSTEM > SEPM_APARTMENT_MANAGEMENT_SYSTEM > main.cpp > No Selection
```

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth - "
13         <<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();
19 }
```

```
Welcome to Apartment Management System
In this system you can do various tasks like Register a Complaint, Book a Parking Slot, View Notices Section, Convey Your Personal Suggestions to the Concerned Authorities.
```

```
Enter Your Name - Sakshil Saksham Akarshit
Enter Your Date of Birth - march 2001
Enter Your Gender - male
Enter Your Phone Number - 9999999999
Enter Your Address - this is address
```

```
To view your Personal Details enter 1 and press enter
Or to Register a Complaint enter 2 and press enter
Or to View the Registered Complaint enter 3 and press enter
Or to Book a Parking Slot enter 4 and press enter
Or to View Notices Section enter 5 and press enter
Or to Convey Your Personal Suggestion enter 6 and press enter
Or to View Your Personal Suggestion enter 7 and press enter
Or to End the program enter 0 and press enter
```

```
Your Personal Details are :
Name - Sakshil Saksham Akarshit
Date of Birth - march 2001
```

```
+ (Filter) All Output (Filter)
```

```
SEPM_APARTMENT_MANAGEMENT_SYSTEM > My Mac Finished running SEPM_APARTMENT_MANAGEMENT_SYSTEM : SEPM_APARTMENT_MANAGEMENT_SYSTEM
```

```
SEPM_APARTMENT_MANAGEMENT_SYSTEM > SEPM_APARTMENT_MANAGEMENT_SYSTEM > main.cpp > No Selection
```

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth - "
13         <<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();
19 }
```

```
Your Personal Details are :
Name - Saksham Saksham Akarshit
Date of Birth - march 2001
Gender - male
Phone Number - 9999999999
Address - this is address
```

```
To view your Personal Details enter 1 and press enter
Or to Register a Complaint enter 2 and press enter
Or to View the Registered Complaint enter 3 and press enter
Or to Book a Parking Slot enter 4 and press enter
Or to View Notices Section enter 5 and press enter
Or to Convey Your Personal Suggestion enter 6 and press enter
Or to View Your Personal Suggestion enter 7 and press enter
Or to End the program enter 0 and press enter : 3
```

```
Currently You Have No Registered Complaint
```

```
To view your Personal Details enter 1 and press enter
Or to Register a Complaint enter 2 and press enter
Or to View the Registered Complaint enter 3 and press enter
```

```
+ (Filter) All Output (Filter)
```

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
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7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth - "
13     "=<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();

```

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 2

---

Enter Your Complaint - This is complaint  
Complaint Registered Successfully.

---

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 3

---

Your Registered Complaint - This is complaint

All Output :

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth - "
13     "=<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();

```

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 3

---

Your Registered Complaint - This is complaint

---

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 4

---

Parking Slot Booked Successfully.

All Output :

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

```
SEPM_APARTMENT_MANAGEMENT_SYSTEM > SEPM_APARTMENT_MANAGEMENT_SYSTEM > main.cpp > No Selection
```

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akash Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth -
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();

```

Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 4

Parking Slot Booked Successfully.

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 4

Parking Slot Already Booked, No More Parking Slots Available.

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter

All Output

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

```
SEPM_APARTMENT_MANAGEMENT_SYSTEM > SEPM_APARTMENT_MANAGEMENT_SYSTEM > main.cpp > No Selection
```

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akash Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth -
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();

```

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 5

This is Notices Section.  
All notices will be displayed here.

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : djddb

All Output

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > main.cpp No Selection

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are :<<endl<<"Name - "<<name<<endl<<"Date of Birth -
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();
```

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : djdb

---

Invalid Choice!!

---

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 7

---

Currently You Have No Suggestion

All Output :

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > main.cpp No Selection

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are :<<endl<<"Name - "<<name<<endl<<"Date of Birth -
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();
```

Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 7

---

Currently You Have No Suggestion

---

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 6

---

Enter Your Suggestion - This is my suggestion  
Suggestion Recieved Successfully.

---

All Output :

The screenshot shows a macOS terminal window with the following details:

- Title Bar:** SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac
- Status Bar:** Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM
- Left Sidebar:** Shows the project structure:
  - SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM
  - SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM
  - main.cpp
- Code Editor:** The main window displays the `main.cpp` file content, which includes functions for displaying personal details and registering complaints.
- Output Window:** The bottom pane shows the program's output:
  - Personal Details and Complaint Registration prompts.
  - A suggestion message: "Enter Your Suggestion - This is my suggestion".
  - A success message: "Suggestion Received Successfully."
  - A menu of options: "To view your Personal Details enter 1 and press enter", "Or to Register a Complaint enter 2 and press enter", etc.
  - A second suggestion message: "Your Personal Suggestion - This is my suggestion".
  - A second menu of options: "To view your Personal Details enter 1 and press enter", "Or to Register a Complaint enter 2 and press enter", etc.
- Bottom Bar:** Includes icons for Filter, All Output, and a trash bin.

```
// SEPM_APARTMENT_MANAGEMENT_SYSTEM
// Team Members - Sakshil Verma, Saksham Thareja, Akashit Vats

#include <iostream>
#include <string>
using namespace std;
string i, name, dob, ph, address, gender, complaint="", suggestion="";
int flag=0;

//function to display personal details of the user
void personal_details(){
    cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth - "
        "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
}

//function to register a complaint given by the user
void register_complaint(){
    cout<<"Enter Your Complaint - ";
    cin.ignore();
}

Or to Book a Parking Slot enter 4 and press enter
Or to View Notices Section enter 5 and press enter
Or to Convey Your Personal Suggestion enter 6 and press enter
Or to View Your Personal Suggestion enter 7 and press enter
Or to End the program enter 8 and press enter : 7

Your Personal Suggestion - This is my suggestion
_____
To view your Personal Details enter 1 and press enter
Or to Register a Complaint enter 2 and press enter
Or to View the Registered Complaint enter 3 and press enter
Or to Book a Parking Slot enter 4 and press enter
Or to View Notices Section enter 5 and press enter
Or to Convey Your Personal Suggestion enter 6 and press enter
Or to View Your Personal Suggestion enter 7 and press enter
Or to End the program enter 8 and press enter : 6

Thankyou and have a Good Day!!

Program ended with exit code: 0
```



## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	9
<b>Title of Experiment</b>	Module2 Implementation
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	08/04/2021

### Mark Split Up

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Module 2	5	
2	Output	5	
<b>Total</b>		<b>10</b>	

**Staff Signature with date**

## **Aim**

To implement Module 2 of the project and display the output of the module with new requirements may assimilated

## **Team Members:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	<b>RA1911031010071</b>	<b>Sakshil Verma</b>	<b>Lead</b>
<b>2</b>	<b>RA1911031010065</b>	<b>Saksham Thareja</b>	<b>Member</b>
<b>3</b>	<b>RA1911031010066</b>	<b>Akarshit Vats</b>	<b>Member</b>

## **Software Used**

**C, C++, Python, HTML, Mysql, Etc...**

## **Code of Module 2**

## **Result of Module 2**

### **Result:**

Thus, the module2 was implemented and documented successfully.



## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	10
<b>Title of Experiment</b>	Module3 Implementation
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	15/04/2021

### Mark Split Up

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Module 3	5	
2	Output	5	
<b>Total</b>		<b>10</b>	

**Staff Signature with date**

## **Aim**

To implement Module 3 of the project and display the output of the module with solving New Issues.

## **Team Members:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	<b>RA1911031010071</b>	<b>Sakshil Verma</b>	<b>Lead</b>
<b>2</b>	<b>RA1911031010065</b>	<b>Saksham Thareja</b>	<b>Member</b>
<b>3</b>	<b>RA1911031010066</b>	<b>Akarshit Vats</b>	<b>Member</b>

## **Software Used**

**C, C++, Python, HTML, Mysql, Etc...**

## **Code of Module 3**

## **Result of Module 3**

### **Result:**

Thus, the module3 was implemented and documented successfully.

## **CODE -**

```
// SEPM_APARTMENT_MANAGEMENT_SYSTEM
// Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats

#include <iostream>
#include <string>
using namespace std;
string i, name, dob, ph, address, gender, complaint={"/"}, suggestion={"/"};
int flag=0;

//function to display personal details of the user
void personal_details(){
    cout<<"Your Personal Details are :"<<endl<<"Name -
"<<name<<endl<<"Date of Birth - "<<dob<<endl<<"Gender -
"<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address -
"<<address<<endl;
}

//function to register a complaint given by the user
void register_complaint(){
    cout<<"Enter Your Complaint - ";
    cin.ignore();
    getline(cin,complaint);
    cout<<"Complaint Registered Successfully."<<endl;
}

//function to display complaint registered by the user
void view_complaint(){
    if(complaint==""){
        cout<<"Currently You Have No Registered Complaint"<<endl;
    }
    else cout<<"Your Registered Complaint - "<<complaint<<endl;
}

//function to book a parking slot for the user
void book_parkingSlot(){
    if(flag==0){
        cout<<"Parking Slot Booked Successfully."<<endl;
        flag=1;
    }
    else cout<<"Parking Slot Already Booked, No More Parking Slots
```

```
Available."<<endl;
}

//function to display all the notices available
void notices_section(){
    cout<<"This is Notices Section."<<endl<<"All notices will be displayed
here."<<endl;
}

//function to register a suggestion for the user
void register_suggestion(){
    cout<<"Enter Your Suggestion - ";
    cin.ignore();
    getline(cin,suggestion);
    cout<<"Suggestion Recieved Successfully."<<endl;
}

//function to display suggestion registered by the user
void view_suggestion(){
    if(suggestion==""){
        cout<<"Currently You Have No Suggestion"<<endl;
    }
    else cout<<"Your Personal Suggestion - "<<suggestion<<endl;
}

//main function for driver code
int main() {
    //Welcome message to the user
    cout<<"Welcome to Apartment Management System"<<endl<<"In this
system you can do various tasks like Register a Complaint, Book a Parking
Slot, View Notices Section, Convey Your Personal Suggestions to the
Concerned Authorities."<<endl;

    //Taking personal details from the user

    cout<<"-----"<<endl;
    cout<<"Enter Your Name - ";
    getline(cin,name);
    cout<<"Enter Your Date of Birth - ";
    getline(cin,dob);
    cout<<"Enter Your Gender - ";
    getline(cin,gender);
    cout<<"Enter Your Phone Number - ";
    getline(cin,ph);
```

```

cout<<"Enter Your Address - ";
getline(cin,address);

cout<<"-----" << endl;

do{
    //Providing various options to user to navigate through the program
    cout<<"To view your Personal Details enter 1 and press
    enter"<<endl<<"Or to Register a Complaint enter 2 and press
    enter"<<endl<<"Or to View the Registered Complaint enter 3 and press
    enter"<<endl<<"Or to Book a Parking Slot enter 4 and press
    enter"<<endl<<"Or to View Notices Section enter 5 and press
    enter"<<endl<<"Or to Convey Your Personal Suggestion enter 6 and press
    enter"<<endl<<"Or to View Your Personal Suggestion enter 7 and press
    enter"<<endl<<"Or to End the program enter 0 and press enter : ";

    cin>>i;

    cout<<"-----" << endl;

    //if user wants to end the program
    if(i=="0"){
        break;
    }

    else if(i=="1"){
        personal_details();
    }

    else if(i=="2"){
        register_complaint();
    }

    else if(i=="3"){
        view_complaint();
    }

    else if(i=="4"){
        book_parkingSlot();
    }

    else if(i=="5"){
        notices_section();
    }
}

```

```
}

else if(i=="6"){
    register_suggestion();
}

else if(i=="7"){
    view_suggestion();
}

else cout<<"Invalid Choice!!"<<endl;

cout<<"-----"<<endl;

}while(i!="0");

//end line for the program
cout<<endl<<"Thankyou and have a Good Day!!"<<endl<<endl;

cout<<"-----"<<endl;

return 0;
}
```

## IMPLEMENTATION WITH SCREENSHOTS -

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

```

1 //  SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth -
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();

```

Welcome to Apartment Management System  
In this system you can do various tasks like Register a Complaint, Book a Parking Slot, View Notices Section, Convey Your Personal Suggestions to the Concerned Authorities.

Enter Your Name - Sakshil Saksham Akarshit  
Enter Your Date of Birth - march 2001  
Enter Your Gender - male  
Enter Your Phone Number - 9999999999  
Enter Your Address - this is address

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 1

Your Personal Details are :  
Name - Sakshil Saksham Akarshit  
Date of Birth - march 2001

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

```

1 //  SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth -
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();

```

Your Personal Details are :  
Name - Saksham Saksham Akarshit  
Date of Birth - march 2001  
Gender - male  
Phone Number - 9999999999  
Address - this is address

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 3

Currently You Have No Registered Complaint

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth - "
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();

```

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 2

---

Enter Your Complaint - This is complaint  
Complaint Registered Successfully.

---

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 3

---

Your Registered Complaint - This is complaint

All Output :

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth - "
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();

```

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 3

---

Your Registered Complaint - This is complaint

---

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 4

---

Parking Slot Booked Successfully.

All Output :

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

```
SEPM_APARTMENT_MANAGEMENT_SYSTEM > SEPM_APARTMENT_MANAGEMENT_SYSTEM > main.cpp > No Selection
```

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akash Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth -
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();

```

Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 4

Parking Slot Booked Successfully.

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 4

Parking Slot Already Booked, No More Parking Slots Available.

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter

All Output

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

```
SEPM_APARTMENT_MANAGEMENT_SYSTEM > SEPM_APARTMENT_MANAGEMENT_SYSTEM > main.cpp > No Selection
```

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akash Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth -
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();

```

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 5

This is Notices Section.  
All notices will be displayed here.

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : djddb

All Output

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > main.cpp No Selection

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are :<<endl<<"Name - "<<name<<endl<<"Date of Birth -
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();
```

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : djdb

---

Invalid Choice!!

---

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 7

---

Currently You Have No Suggestion

All Output :

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM

SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > main.cpp No Selection

```
1 // SEPM_APARTMENT_MANAGEMENT_SYSTEM
2 // Team Members - Sakshil Verma, Saksham Thareja, Akarshit Vats
3
4 #include <iostream>
5 #include <string>
6 using namespace std;
7 string i, name, dob, ph, address, gender, complaint="", suggestion="";
8 int flag=0;
9
10 //function to display personal details of the user
11 void personal_details(){
12     cout<<"Your Personal Details are :<<endl<<"Name - "<<name<<endl<<"Date of Birth -
13         "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
14 }
15 //function to register a complaint given by the user
16 void register_complaint(){
17     cout<<"Enter Your Complaint - ";
18     cin.ignore();
```

Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 7

---

Currently You Have No Suggestion

---

To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 6

---

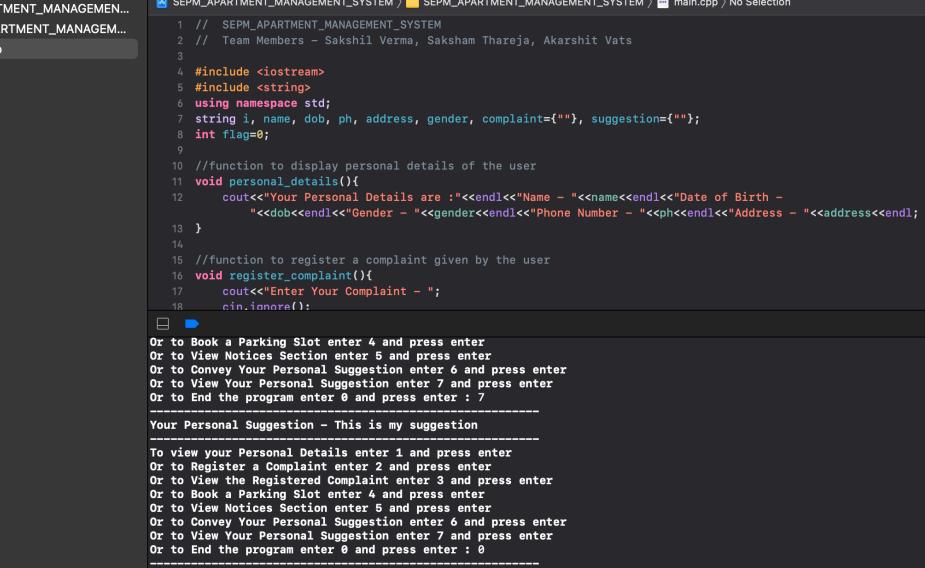
Enter Your Suggestion - This is my suggestion  
Suggestion Recieved Successfully.

---

All Output :

The screenshot shows a macOS terminal window with the following details:

- Title Bar:** SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM > My Mac
- Status Bar:** Finished running SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM : SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM
- Left Sidebar:** Shows the project structure:
  - SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM
  - SEPM\_APARTMENT\_MANAGEMENT\_SYSTEM
  - main.cpp
  - Products
- Code Editor:** The main area displays the `main.cpp` file content, which includes code for displaying personal details, registering complaints, and handling suggestions.
- Output Area:** The bottom section shows the program's output:
  - Personal Details and Complaint Registration prompts.
  - A suggestion message: "Enter Your Suggestion - This is my suggestion".
  - A confirmation message: "Suggestion Received Successfully."
  - A menu of options for viewing personal details, registering complaints, booking parking, viewing notices, conveying suggestions, and exiting.
  - A second suggestion message: "Your Personal Suggestion - This is my suggestion".
  - A second menu of options, identical to the first.
- Bottom Navigation:** Includes standard macOS navigation icons like back, forward, and search.



```
// SEPM_APARTMENT_MANAGEMENT_SYSTEM
// Team Members - Sakshil Verma, Saksham Thareja, Akashit Vats

#include <iostream>
#include <string>
using namespace std;
string i, name, dob, ph, address, gender, complaint="", suggestion="";
int flag=0;

//function to display personal details of the user
void personal_details(){
    cout<<"Your Personal Details are : "<<endl<<"Name - "<<name<<endl<<"Date of Birth - "
        "<<dob<<endl<<"Gender - "<<gender<<endl<<"Phone Number - "<<ph<<endl<<"Address - "<<address<<endl;
}

//function to register a complaint given by the user
void register_complaint(){
    cout<<"Enter Your Complaint - ";
    cin.ignore();
}

Or to Book a Parking Slot enter 4 and press enter
Or to View Notices Section enter 5 and press enter
Or to Convey Your Personal Suggestion enter 6 and press enter
Or to View Your Personal Suggestion enter 7 and press enter
Or to End the program enter 8 and press enter : 7

Your Personal Suggestion - This is my suggestion
_____
To view your Personal Details enter 1 and press enter
Or to Register a Complaint enter 2 and press enter
Or to View the Registered Complaint enter 3 and press enter
Or to Book a Parking Slot enter 4 and press enter
Or to View Notices Section enter 5 and press enter
Or to Convey Your Personal Suggestion enter 6 and press enter
Or to View Your Personal Suggestion enter 7 and press enter
Or to End the program enter 8 and press enter : 6

Thankyou and have a Good Day!!

Program ended with exit code: 0
```



## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	11
<b>Title of Experiment</b>	Master Test Plan, Test Case Design
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	27/04/2021

### Mark Split Up

S.No	Description	Maximum Mark	Mark Obtained
1	Test Plan	5	
2	Test Case	5	
<b>Total</b>		<b>10</b>	

**Staff Signature with date**

## **Aim**

To Prepare master test plan and Test cases for testing the project

### **Team Members:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	<b>RA1911031010071</b>	<b>Sakshil Verma</b>	<b>Lead</b>
<b>2</b>	<b>RA1911031010065</b>	<b>Saksham Thareja</b>	<b>Member</b>
<b>3</b>	<b>RA1911031010066</b>	<b>Akarshit Vats</b>	<b>Member</b>

### **Test plan template will be incorporated**

### **Result:**

Thus, the test plan and test cases are documented successfully

# *Test Plan, Test Case*

***Lab Session #11***

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## 1. Executive Summary

Technically, Software Testing is an investigation conducted to provide stakeholders with information about the quality of a particular product or service under test. In other words, software testing is a process of verification and validation. Similarly, for Apartment Management System the execution phase would be the most important phase as we would get to know how the end result of the components together looks like and we can experience it as a user.

We will be manually testing our software to see that everything is working and that we are getting an expected outcome at the end. We will run all the test cases and will check the success rate of our source code.

## 2. Test Plan

### 2.1. Scope of Testing

We will be manually testing our software to see that everything is working and that we are getting an expected outcome at the end. We will run all the test cases and will check the success rate of our source code.

**Functional:** All modules are covered with no exception. Automation cover all functional test cases and desired outcomes for respective inputs are expected.

**Non-Functional:** All the major NFRs are covered in our software including scalability, maintainability, performance, portability, security, reliability. These have been thoroughly tested multiple times and then finalized user friendly code is presented.

### 2.2. Types of Testing , Methodology , Tools

Category	Methodology	Tools Required
Functional Requirements	Manual	Excel Template

Non-Functional Requirements	Manual	Webserver Tool
-----------------------------	--------	----------------

### 2.3. Test Deliverables

- Testing if the software is taking all the personal details of the user.
- View personal details.
- User register a complaint in the system.
- View the Registered Complaint.
- Testing if parking slot is booked or not.
- View Notice Section.
- Convey personal suggestions regarding software or apartment.
- View personal suggestions.
- Logout from the system.

#### Report-

While compiling the source code, errors occurred like syntax errors, logical errors and other missing codes error. These issues have been resolved and re-testing of source code is done. Thus, all the test cases passed successfully and success rate of system is 100%

## 3. Test Case

### 3.1. Functional Test Cases

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
#T1	Register for new account and accepting the personal details	Accept all the personal details of the user	User enter name, dob, phone number, address, etc	User should login into the system	User successfully login into system	Pass	Success
#T2	User view his/her personal details	Accept his/her request to view personal details	User selected the view personal details	User should view his/her personal details	Personal Details displayed	Pass	Success
#T3	User does not have account but wants to see personal details	Don't accept his/her request and show invalid choice	User selected view personal details	Invalid Choice should be displayed	Invalid Choice!!	Pass	Success
#T4	User register a complaint	Register Complaint	Click on register complaint	User can register complaint	User register complaint	Pass	Success
#T5	User wants to view registered complaint	View Register Complaint	1. User first register complaint in past 2. Click on view complaint	User should able to see complaints	User view complaint	Pass	Success
#T6	Book a parking slot and verify details	Book Parking Slot	User enters for booking of parking slot	Parking slot should be booked	Parking Slot Booked Successfully	Pass	Success

#T7	User wants to view notices displayed	View Notices Section	User click on view notices section	Notice section should be displayed	This is notices section All notices will be displayed here	Pass	Success
#T8	User wants to convey suggestions or feedback	Register Suggestions	1. User login to the system 2. Click on register suggestions	User should allow for entering suggestions	Enter your suggestion-Suggestion Received Successfully	Pass	Success
#T9	User wants to view his/her suggestions	Display suggestion registered by the user	1. User either typed his/her suggestion 2. User clicks on view suggestion	User should able to view suggestion section	Your personal suggestion	Pass	Success
#T10	User does not have registered any suggestion but wants to view suggestion section	Display suggestion section	User clicks on view suggestion	User should get a message that you have no suggestion	Currently You Have No Suggestion	Pass	Success
#T11	Logout the user from the system	End the program	User enters his/her choice for ending the program and get exit	Program should end and get exit and display a thank you message	Thankyou and have a Good Day!!	Pass	Success
#T12	User enters wrong choice in the program	For entering wrong choice, display invalid choice	User enter wrong number	Should display Invalid choice message on the screen	Invalid Choice!!	Pass	Success

## 1.1. Non-Functional Test Cases

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
#NFRT1	Reliability	Compiled 100%	1. Debug the program 2. Run & Compile it	Program should run without an error	Program get compiled and run successfully	Pass	Success
#NFRT2	Performance	Execute the program	Run & Debug the source code	All pages of program should be run successfully	Program executed successfully	Pass	Success
#NFRT3	Scalability	Show all sections of program	User login into the system and get on different sections	Should display all modules of system	Register and store all the suggestions, complaints, etc of the user	Pass	Success
#NFRT4	Security	Personal Details	User enters his/her personal details and clicks on view personal details	Should protect his/her personal details	Personal Details	Pass	Success



## DEPT. Of Computer Science Engineering

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

**Course Name: Software Engineering and Project Management**

<b>Experiment No</b>	12
<b>Title of Experiment</b>	<i>Manual Testing with report</i>
<b>Name of the candidate</b>	Sakshil Verma
<b>Team Members</b>	Saksham Thareja  Akarshit Vats
<b>Register Number</b>	RA1911031010071
<b>Date of Experiment</b>	27/04/2021

### Mark Split Up

<b>S.No</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Manual Testing	5	
2	Report	5	
<b>Total</b>		<b>10</b>	

## **Staff Signature with date**

### **Aim**

To conduct manual test using Test cases and prepare test report for the project

### **Team Members:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	<b>RA1911031010071</b>	<b>Sakshil Verma</b>	<b>Lead</b>
<b>2</b>	<b>RA1911031010065</b>	<b>Saksham Thareja</b>	<b>Member</b>
<b>3</b>	<b>RA1911031010066</b>	<b>Akarshit Vats</b>	<b>Member</b>

### **Manual testing with report will be incorporated**

### **Result:**

Thus, the software test conducted and documented the report successfully

## 1. Testing if the software is taking all the personal details of the user.

```
Welcome to Apartment Management System
In this system you can do various tasks like Register a Complaint, Book a Parking Slot, View Notices Section, Convey Your Personal Suggestions to the Concerned Authorities.

-----
Enter Your Name - Sakshil Akarshit Saksham
Enter Your Date of Birth - December 2000
Enter Your Gender - Male
Enter Your Phone Number - 7894561230
Enter Your Address - This is my address

-----
To view your Personal Details enter 1 and press enter
Or to Register a Complaint enter 2 and press enter
Or to View the Registered Complaint enter 3 and press enter
Or to Book a Parking Slot enter 4 and press enter
Or to View Notices Section enter 5 and press enter
Or to Convey Your Personal Suggestion enter 6 and press enter
Or to View Your Personal Suggestion enter 7 and press enter
Or to End the program enter 0 and press enter : 1
```

## 2. View personal details.

```
-----
To view your Personal Details enter 1 and press enter
Or to Register a Complaint enter 2 and press enter
Or to View the Registered Complaint enter 3 and press enter
Or to Book a Parking Slot enter 4 and press enter
Or to View Notices Section enter 5 and press enter
Or to Convey Your Personal Suggestion enter 6 and press enter
Or to View Your Personal Suggestion enter 7 and press enter
Or to End the program enter 0 and press enter : 1

-----
Your Personal Details are :
Name - Sakshil Akarshit Saksham
Date of Birth - December 2000
Gender - Male
Phone Number - 7894561230
Address - This is my address
```

### **3. User register a complaint in the system.**

```
To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 2
```

```
Enter Your Complaint - Leakage in pipe  
Complaint Registered Successfully.
```

### **4. View the Registered Complaint.**

```
To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 3
```

```
Your Registered Complaint - Leakage in pipe
```

## **5. Testing if parking slot is booked or not.**

```
To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 4
```

```
Parking Slot Booked Successfully.
```

## **6. View Notice Section.**

```
To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 5
```

```
This is Notices Section.  
All notices will be displayed here.
```

## **7. Convey personal suggestions regarding software or apartment.**

```
To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 6
```

```
Enter Your Suggestion - This is my suggestion.  
Suggestion Recieved Successfully.
```

## **8. View personal suggestions.**

```
To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 7
```

```
Your Personal Suggestion - This is my suggestion.
```

## **9. Logout from the system.**

```
To view your Personal Details enter 1 and press enter  
Or to Register a Complaint enter 2 and press enter  
Or to View the Registered Complaint enter 3 and press enter  
Or to Book a Parking Slot enter 4 and press enter  
Or to View Notices Section enter 5 and press enter  
Or to Convey Your Personal Suggestion enter 6 and press enter  
Or to View Your Personal Suggestion enter 7 and press enter  
Or to End the program enter 0 and press enter : 0
```

```
Thankyou and have a Good Day!!
```

## **TEST REPORT-**

The software code was debugged in IDE and tests were performed in two phases:

In the first phase, errors occurred like syntax errors, missing code and logical errors. Some issues like slow page loading and viruses were also looked and testing was conducted. The success rate in the first phase was determined as 70%.

In the second phase, the errors that appeared in the first phase were corrected. A re-test was performed and the source code was compiled again to check whether the errors in the first phase were removed. No problems were encountered in this confirmation test conducted in the second phase, and the success rate of the tests was determined as 100%.

Hence, all the test cases are successfully passed and the software test is conducted successfully.