18CSC206J

Software Engineering and Project Management

Record Work

Register Number :

Name of the Student:

Semester / Year :

Department :

SRMI INSTITUTE OF SCIENCE AND TECHNOLOGY

S.R.M. NAGAR, KATTANKULATHUR -603 203

BONAFIDECERTIFICATE

Register No._____

Certified to be the bonafide record of work done by _____ *of* _____ _____, *B. Tech Degree course in the Practical* **18CSC206J- Software Engineering and Project Management** *in SRM Institute of Science and Technology, Kattankulathur during the academic year 2021-2022.*

Date: **Lab Incharge**

Submitted for University Examination held in_____SRM Institute of Science and Technology, Kattankulathur.

Examiner-1 **Examiner-2**

INDEX SHEET

Exp. No.	Date of Experiment	Name of the Experiment	Page No.	Marks (10)	Staff Signature
1					
2					
3					
4					
5					
6					
7					
8					
9					

10					
11					
12					
13					
14					

Department Of Networking and Communications

SRM IST, Kattankulathur – 603 203

Course Code: 18CSC206J

Course Name: Software Engineering and Project Management

Experiment No	1
Title of Experiment	Problem statement and Business case template
Team Members	SAHIL MOKKAPATI, SHEETAL JATAV, AUM SHAH
Register Number	RA2011003010879, RA2011003010885, RA2011003010872
Date of Experiment	07/04/2022

Mark Split Up

S.No	Description	Maximum Mark	Mark Obtained
1	Exercise	5	
2	Viva	5	
	Total	**10**	

Staff Signature with date

Aim

To identify the system, functional and non-functional requirements for the project.

Team Members:

S No	Register No	Name	Role
1	RA2011003010879	SAHIL MOKKAPATI	Member
2	RA2011003010885	SHEETAL JATAV	Member
3	RA2011003010872	AUM SHAH	Member

REAL ESTATE PRICE PREDICTION

SAHIL [RA2011003010879]
SHEETAL JATAV [RA2011003010885]
AUM SHAH [RA2011003010872]

THE PROJECT

- As a first experience, I wanted to make my project as much didactic as possible by approaching every different steps of the machine learning process and trying to understand them deeply. Known as “toy problem” defining the problems that are not immediate scientific interest but useful to illustrate and practice, I chose to take Real Estate Prediction as approach. The goal was to predict the price of a given apartment according to the market prices taking into account different “features” that will be developed in the following sections.
- Data: The crucial element in machine learning task for which a particular attention should be clearly taken is the data. Indeed the results will be highly influenced by the data based on where did we find them, how are they formatted, are they consistent, is there any outlier and so on. At this step, many questions should be answered in order to guarantee that the learning algorithm will be efficient and accurate.

MOTIVATIONS

- Being extremely interested in everything having a relation with the Machine Learning, the independent project was a great occasion to give me the time to learn and confirm my interest for this field. The fact that we can make estimations, predictions and give the ability for machines to learn by themselves is both powerful and limitless in term of application possibilities. We can use Machine Learning in Finance, Medicine, almost everywhere. That’s why I decided to conduct my project around the Machine Learning.

LIMITATIONS

- The local data will be requested from the attomdata. The request contains a list of features, that matches the public dataset's features, that is desired to be available when the data is sent. There is no guarantee that the data will be available in time nor contains the exact requested list of features. Thus, there might be a risk that the access will be denied or delayed. If so, the study will be accomplished based only on the public dataset. Moreover, this study will not cover all regression algorithms; instead, it is focused on the chosen algorithm, starting from the basic regression techniques to the advanced ones. Likewise, the artificial neural network that has many techniques and a wide area and several training methods that do not fit in this study.

APPROACH

The thesis structure is as follows:

- Section 1 introduces the area of study.
- Section 2 gives an overview of the algorithms.
- Section 3 shows the followed methods in this study, in addition to, the design of the experiment.
- Section 4 presents the literature articles and methods that are being used in the experiment in addition to the theoretical findings.
- Section 5 shows the experimental implementation process and the experiment results followed by a discussion
- Section 6. Finally,
- Section 7 concludes with remarks and hints about future work.

BENEFITS

- House Price prediction, is important to drive Real Estate efficiency. As earlier, House prices were determined by calculating the acquiring and selling price in a locality. Therefore, the House Price prediction model is very essential in filling the information gap and improve Real Estate efficiency. With this model, we would be able to better predict the prices.

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Department Of Networking and Communications

SRM IST, Kattankulathur – 603 203

Course Code: 18CSC206J

Course Name: Software Engineering and Project Management

Experiment No	2
Title of Experiment	Stakeholders
Team Members	SAHIL MOKKAPATI, SHEETAL JATAV, AUM SHAH
Register Number	RA2011003010879, RA2011003010885, RA2011003010872
Date of Experiment	07/04/2022

Mark Split Up

S.No	Description	Maximum Mark	Mark Obtained
1	Exercise	5	
2	Viva	5	
	Total	**10**	

Staff Signature with date

Aim

To identify the system, functional and non-functional requirements for the project.

Team Members:

S No	Register No	Name	Role
1	RA2011003010879	SAHIL MOKKAPATI	Member
2	RA2011003010885	SHEETAL JATAV	Member
3	RA2011003010872	AUM SHAH	Member

LAB SESSION 2

Stakeholders & Process Models

NAME: SAHIL
MOKKAPATI[879]
SHEETAL JATAV [885]
AUM SHAH[872]

HOW TO IDENTIFY STAKEHOLDERS

Whether you do this yourself, or in a group comprising your core project team(which is advised), you can help to kick start stakeholder identification by asking the following questions in a brainstorming session:

- **Who is affected positively and negatively by the project?**

Stakeholders are those who can positively or negatively impact the output of the projects. Itis very important for an efficient project manager to identify the names of stakeholders during the initiationstage of the projects. The stakeholders can be external and internal.

- **Who has the power to make it succeed (orfail)?**

Yet, it's not enough to simply declare that the PM owns the success of the project. There are numerousqualifiers to project success resting on the PM's shoulders. A project manager's ownership for project success or failure makes sense only when others take ownership for their part of the project, as well.

- **Who makes the decisions about money?**

The Investment Decision Maker's main responsibility is to commit funds for the programme or project. The role represents senior management's commitment to the programme or project and the requirements forregularity, propriety and value for money.

- **Who are the end users?**

The end-user is the person who will actually be using the solution on a regular basis as part of their day to day work, once it has been released the project team.The end-user is often at the operational level of the organization, meaning that they understand the details of how the business functions on the ground.

- **Who has influence over other stakeholders?**

Owners have a big say in how the aims of the business are decided, but other groups also have an influence over **decision making**. For example, the **directors** who manage the day-to-day affairs of a company may decide to make higher sales a top priorityrather than profits.

- **Who could solve potential problems with the project?**

Project managers often rely on various collaborative and project managememt system available in the market in order to ensure that everyone stays updated. Project collaboration tools not only make it easier for managers to carry on their duties but also ensure greatertransperancy in prohjets and accountability within the team.

- **Who is in charge of assigning or procuring resources or facilities?**

Project managers spend significant time planning and managing their activities. Both resource and project anager work in tandem to develop resourcing strategies for projects. The project manager estimates the resource requirement and creates open positions that get fulfilled by the resource manager. Once deployed, theproject manager ensures that the assigned resources perform at their maximum potential and complete the delivery.

EXAMPLE OF STAKEHOLDER

Stakeholder Name	Activity / Area / Phase	Interest	Influence	Priority (High / Medium/Low)
CEO	Implementation	High	High	1
Head of sales and marketing	Marketing	Low	High	2
Software Engineers	Creation	High	High	1
Manager	Manage	Low	Low	2
Students	Users			3
Hostels	Users			2

COMPARISON – AGILE AND HEAVY WEIGHT METHODOLOGIES

	Agile Methods	Heavy Methods
Approach	Adaptive	Predictive
Success Measurement	Business Value	Conformation to plan
Project size	Small	Large
Management Style	Decentralized	Autocratic
Perspective to Change	Change Adaptability	Change Sustainability
Culture	Leadership-Collaboration	Command-Control
Documentation	Low	Heavy
Emphasis	People-Oriented	Process-Oriented
Cycles	Numerous	Limited
Domain	Unpredictable/Exploratory	Predictable
Upfront Planning	Minimal	Comprehensive
Return on Investment	Early in Project	End of Project
Team Size	Small/Creative	Large

Department Of Networking and Communications

SRM IST, Kattankulathur – 603 203

Course Code: 18CSC206J

Course Name: Software Engineering and Project Management

Experiment No	3
Title of Experiment	System, Functional and Non-Functional Requirements of the Project
Team Members	SAHIL MOKKAPATI, SHEETAL JATAV, AUM SHAH
Register Number	RA2011003010879, RA2011003010885, RA2011003010872
Date of Experiment	21/04/2022

Mark Split Up

S.No	Description	Maximum Mark	Mark Obtained
1	Exercise	5	
2	Viva	5	
	Total	**10**	

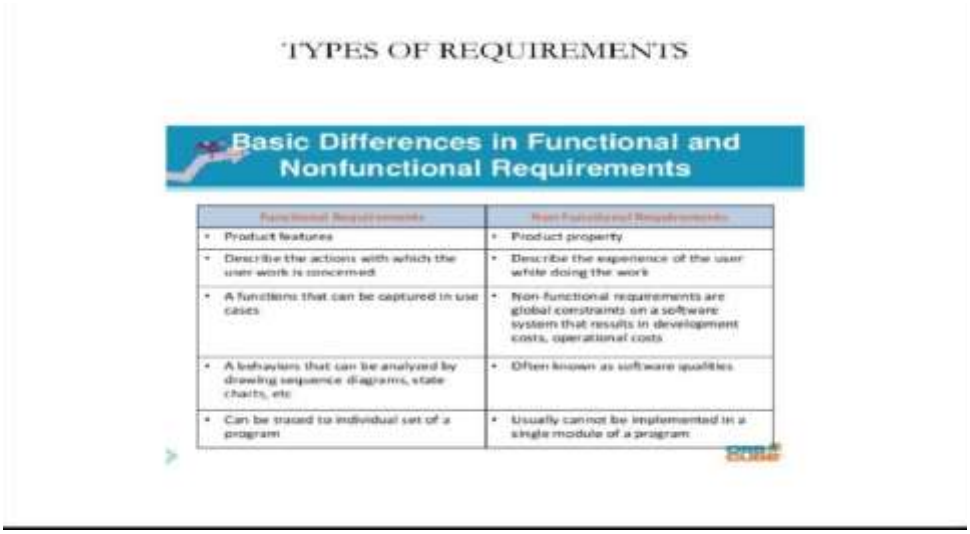
Staff Signature with date

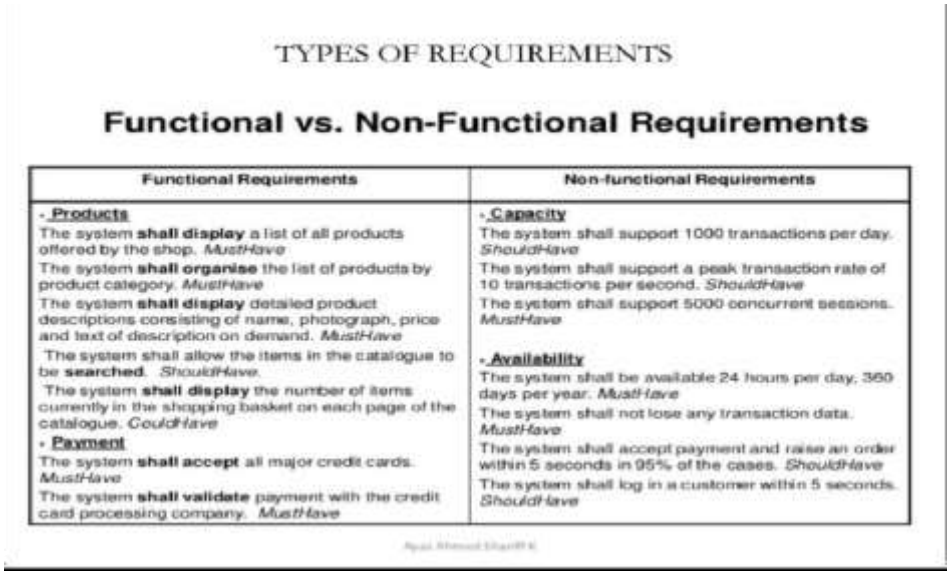
Aim

To identify the system, functional and non-functional requirements for the project.

Team Members:

S No	Register No	Name	Role
1	RA2011003010879	SAHIL MOKKAPATI	Member
2	RA2011003010885	SHEETAL JATAV	Member
3	RA2011003010872	AUM SHAH	Member





Project Title: REAL ESTATE PROJECT MANAGEMENT

System Requirements(Developer System Requirement):

1. **OS: MAC/Linux/Windows**

Functional Requirements

- **Registration:** A sign-in section to register a new user via the email address, phone number, or social media account.
- **Profile Management:** When you create an app like magicbricks, Uber, DoorDash, etc., you get this section to edit, update or delete personal information.
- **Search:** It's useful to search for a House, villas, Apartments etc. You can combine it with GPS to get more location-based search results.
- **Order Placement:** It involves functionality for price prediction, booking, sight visit, choice filtration, cancellation, and tracking.
- **Payment:** It contains different payment gateways to book the site of choice.
- **Receipt:** This section is for sending receipts via email or message.
- **Rating and Reviews:** To provide a rating and a review for the service.
- **Notifications:** Inform users about special offers, account status location updates. Limitation 1.The competitions from the current market regulators, like housing.com, 99acres.com, magicbricks.com etc.

Non-Functional Requirements

1. **Capacity**

- The system shall create a user account on our website without any hassle within 10 seconds.
- The system must be able to handle multiple posts per second.

2. **Scalability**

- The system shall be able to handle multiple users simultaneously.
- The system must be able to handle multiple regions

3. **Security**

- System will prevent unauthorized access to user data.
- The user will have to login to the website to access the functionality of the website.
- The system shall only show the verified profiles to check the authenticity of the person who is in need of help to the people who are ready to help .
- Personal details such as Account Number etc of the person who is willing to help shall be confidential.

4. Availability

- The website will be available 24/7 all around the world.
- The system will undergo maintenance for one hour once every month.

5. Reliability

- The system shall provide a filter for spam posts and malicious users .
- The system won't experience any critical failure for 90% of the time .
- In case of a failure the system will be recovered within a span of 2-3 hours.

Result:

Thus the requirements were identified and accordingly described.

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

SRM IST, Kattankulathur – 603203

Course Code: 18CSC206J

Course Name: Software Engineering and Project Management

Experiment No	4
Title of Experiment	Prepare Project Plan based on scope, Calculate Project effort based on resources and Job roles and responsibilities
Name of the candidate	SHEETAL JATAV
Team Members	SAHIL MOKKAPATI, SHEETAL JATAV, AUM SHAH
Register Number	RA2011003010879, RA2011003010885, RA2011003010872
Date of Experiment	21-04-2022

Mark Split Up

S. No	Description	Maximum Mark	Mark Obtained
1	Exercise	5	
2	Viva	5	
	Total	**10**	

Staff Signature with date

Aim:

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

Team Members:

Sl No	Register No	Name	Role
1	RA2011003010879	SAHIL MOKKAPATI	Leader
2	RA2011003010885	SHEETAL JATAV	Member
3	RA2011003010872	AUM SHAH	Member

1. Project Management Plan

Describe the key issues driving the project. **[Min 3 Focus Areas]**

Focus Area	Details
Integration Management	Governance Framework Project Team Structure Roles & Responsibilities of Team Change Management (Change Control, Issue Management) Project Closure
Scope Management	Scope Statement Requirement Management (Gathering, Control, Assumption, Constraint Stakeholder) Define Deliverable Requirement Change Control Activities and Sub-Tasks
Schedule Management	Define Milestones Schedule Control
Cost Management	Estimate Effort Assign Team Budget Control
Quality Management	Quality Assurance: Quality assurance will be managed including governance, roles and responsibilities, tools and techniques and reporting Quality Control: Specify the mechanisms to be used to measure and control the quality of the work products
Resource Management	Estimate and Manage the need People: People & Skills Required Finance: Budget Required Physical: Facilities, IT Infrastructure
Stakeholder	Identifying, Analyzing, Engaging Stakeholders
Communication Management	Determine communication requirements, roles and responsibilities, tools and techniques. [Type of Communication, Schedule, Mechanism Recipient]
Risk Management	Identifying, analyzing, and prioritizing project risks

2. Estimation

2.1. Effort and Cost Estimation

Activity Description	Sub-Task	Sub-Task Description	Effort (in hours)	Cost in INR
Design the website(front end)	aligning the text and images and applying scroll effects	Designing the website's frontend i.e. designing the UI.	40	20000
Design the website(back end)	design the logic of the website and fixing the loop points	Designing the website's backend i.e. designing and keeping the website updated with the user's data and all the databases.	60	30000
Communication with each the Real estate Organizations.	Communication With each railway stations to get the updates	If any problems or construction in particular site will help customers to take the choose out from other available options	20	10000
Training the AI and ML model	Estimation and Analysis of the project model	Calculation of price, comparison of prices with other available properties updates on locations and customers identification and preferences.	20	50000
TOTAL			140	110000

Effort (Hour)	Cost (INR)
1	786 /-

2.2. Infrastructure/Resource Cost

< One-Time Infra requirements >

Infrastructure Requirement	Qty	Cost per qty	Cost per item
PCs	3	70000	210000
server	10	50000	500000

2.3 Maintenance and Support Cost

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

3. Project Team Formation

3.1. Identification Team members

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

3.2. Responsibility Assignment Matrix

RACI Matrix	Team Members			
Activity	**Name (BA) Animesh**	**Name (Developer) Ashutosh**	**Name (Project Manager) Aryan**	**Key Business User**
User Requirement Documentation	A	C/I	I	R
Railway communications	R	R	I	C
UI/UX design	R	C	I	I
Database management	R	A	I	C
Business Analyst	R	A	I	I
Frontend development	R	R	I	I
Backend development	R	R	I	I
Cloud Operations	R	A	I	C
Technical lead	R	C	A	C
Project management	R	C	R	C

A	Accountable
R	Responsible
C	Consult
I	Inform

Result: Thus, the Project Plan was documented successfully.

Department of Indian Railways

SRM IST, Kattankulathur – 603 203

Course Code: 18CSC206J

Course Name: Software Engineering and Project Management

Experiment No	5
Title of Experiment	Prepare Work breakdown structure, Timeline chart, Risk identification table
Name of the candidate	SHEETAL JATAV
Team Members	SAHIL MOKKAPATI, AUM SHAH, SHEETAL JATAV
Register Number	RA2011003010879, RA2011003010872, RA2011003010885
Date of Experiment	13/05/2022

Mark Split Up

S.No	Description	Maximum Mark	Mark Obtained
1	Exercise	5	
2	Viva	5	
	Total	**10**	

Staff Signature with date

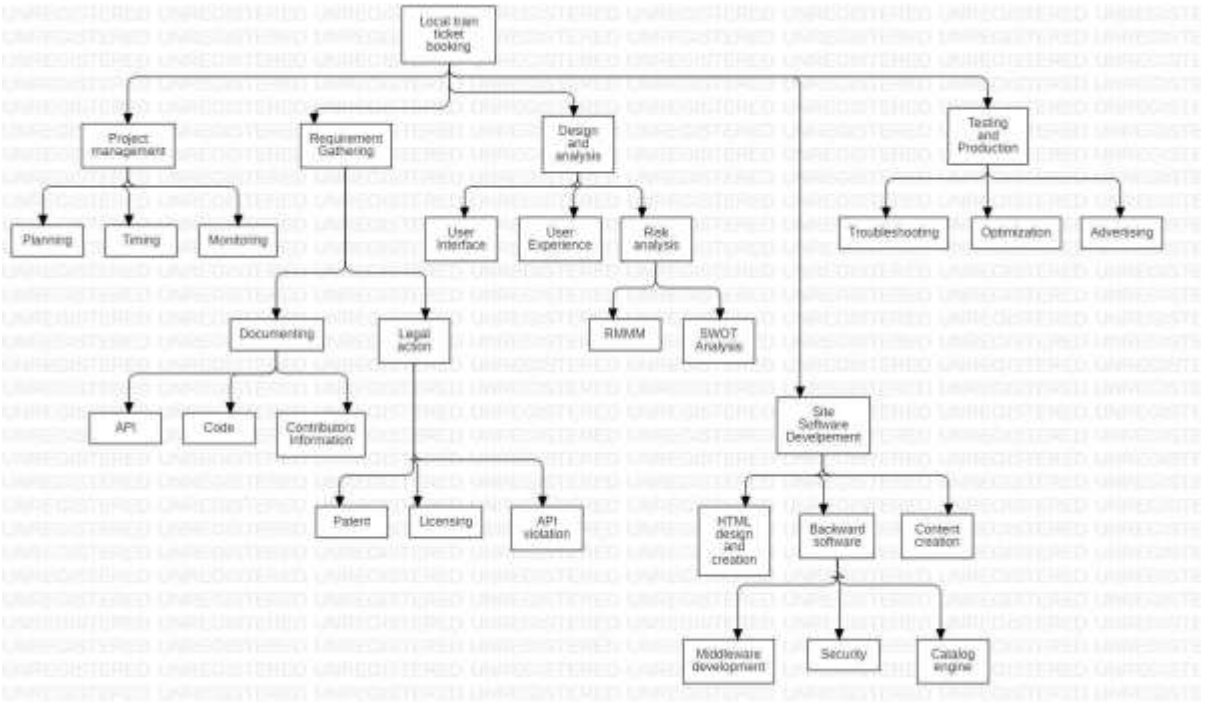
Aim

To Prepare Work breakdown structure, Timeline chart and Risk identification table

Team Members:

Sl No	Register No	Name	Role
1	RA2011003010872	AUM SHAH	**Member**
2	RA2011003010885	SHEETAL JATAV	**Member**
3	RA2011003010879	SAHIL MOKKAPATI	**Leader**

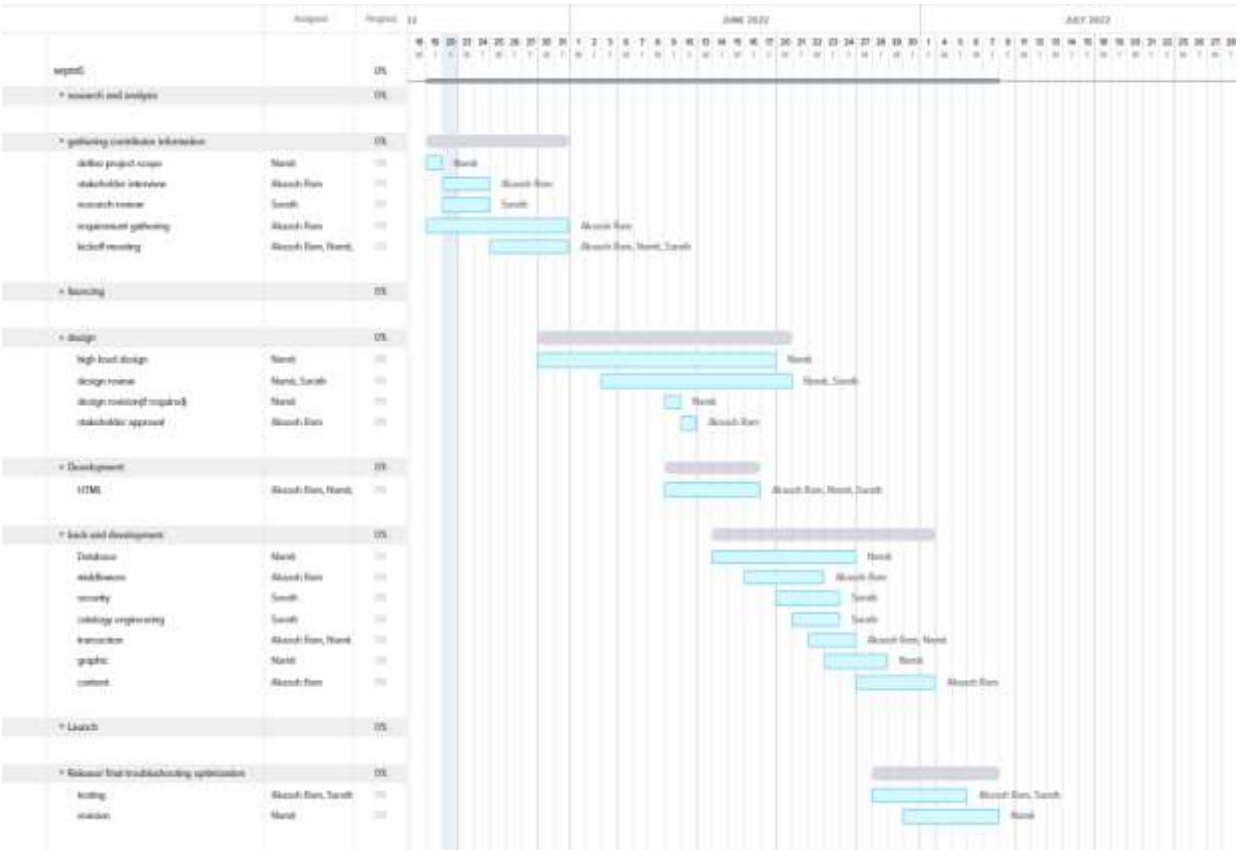
WBS – Examples



- ☐ 0.0 Local train ticket booking
- ☐ 1.0 Project Management
  - 1.1 Planning
  - 1.2 Timing
  - 1.3 Monitoring
- ☐ 2.0 Requirements Gathering
  - 2.1 Documenting
    - 2.1.1 API
    - 2.1.2 Code
    - 2.1.3 Contributors information
  - 2.2 Legal Action
    - 2.2.1 Patent
    - 2.2.2 Licensing
    - 2.2.3 API violation

- ☐ 3.0 Analysis & Design
  - 3.1 User Interface
  - 3.2 User Experience
  - 3.3 Risk Analysis
    - RMMM
    - SWOT analysis
- ☐ 4.0 Site Software Development
  - 4.1 HTML Design and Creation
  - 4.2 Backend Software
    - 4.2.2 Middleware Development
    - 4.2.3 Security
    - 4.2.4 Catalog Engine
  - 4.4 Content Creation
- ☐ 5.0 Testing and Production
  - 5.1 Troubleshooting
  - 5.2 Optimization
  - 5.3 Advertising

TIMELINE – GANTT CHART



RISK ANALYSIS – SWOT & RMMM

SWOT ANALYSIS of Local train ticket booking:

STRENGTHS- **1. user friendly** **2. relevant to users** **3. good service** **4. fast** **5. easy to search**	**WEAKNESSES-** **1. poor connection to the internet** **2. poor content or poor information about stations** **3. poor optimization of the website**
OPPORTUNITIES- **1. a new platform for business** **2. a new market for business** **3. opportunities for users to try new way of booking tickets**	**THREATS-** **1. other competitors** **2. software threats** **3. fraud activities**

RMMM-

RESPONSE	STRATEGY	EXAMPLES
Avoid	with risk avoidance, we will take actions to avoid the threat of the risk or project from the impact of the risk.	• legal notices • businesses not paying on time • execution strategy • redundancy
Transfer	with risk transference, we will give the risks or threats to the third party for example lawyer for taking up the legal actions on the website.	• insurance • warranty of the product • transactions • legal notices
Mitigate	with risk mitigation, we will try to reduce the probability of the risk by increasing the testing of website, taking businesses who are stable etc. Here we don't have an actual risk but it can become real in future.	• increasing testing • businesses who are stable • reducing complexity process
Accept	with risk acceptance, we know the risks involved about how it can impact our website, like the mobile is necessary for this system, scheduled time of train but not showing in website, smooth running of the website, but we cannot do any preemptive actions because it has to occur since we are not in control of it.	• the budgets • scheduling • quality of the product

Result: Thus, the work breakdown structure with timeline chart and risk table were formulated successfully.

School of Computing

SRM IST, Kattankulathur – 603 203

Course Code: 18CSC206J

Course Name: Software Engineering and Project Management

Experiment No	6
Title of Experiment	Design a System Architecture, Use Case and Class Diagram
Name of the candidate	SHEETAL JATAV
Team Members	SAHIL MOKKAPATI, AUM SHAH, SHEETAL JATAV
Register Number	RA2011003010879, RA2011003010872, RA2011003010885
Date of Experiment	20/05/22

Mark Split Up

S.No	Description	Maximum Mark	Mark Obtained
1	Exercise	5	
2	Viva	5	
	Total	**10**	

Staff Signature with date

Aim

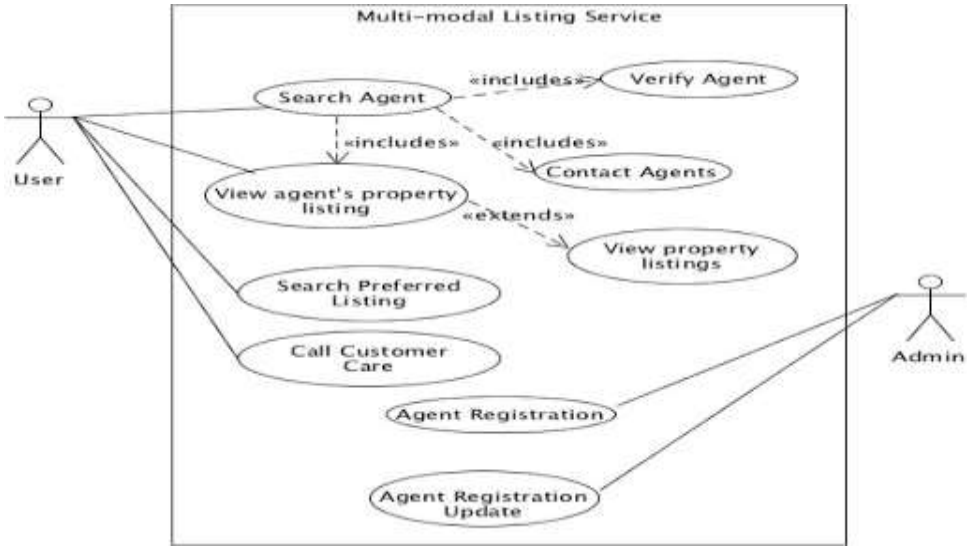
To Design a System Architecture, Use case and Class Diagram

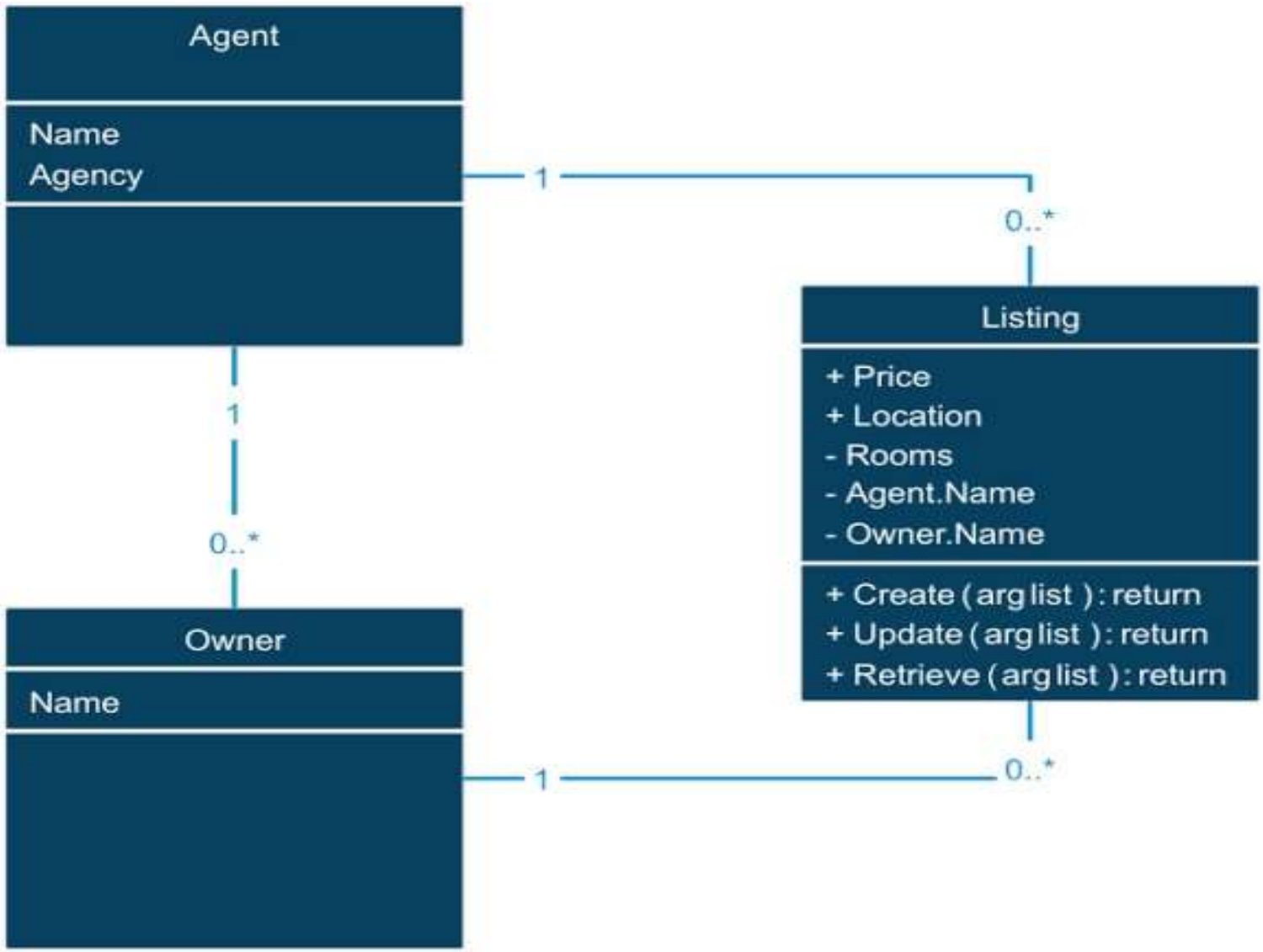
Team Members:

Sl No	Register No	Name	Role
1	RA2011003010885	SHEETAL JATAV	Member
2	RA2011003010872	AUM SHAH	Member
3	RA2011003010879	SAHIL MOKKAPATI	Rep

Requirements:

1. **Use Case Diagram**
2. **Class Diagram**
3. **System Architecture**




Agent
Name
Agency
1
0..*
Listing
+ Price
+ Location
- Rooms
- Agent.Name
- Owner.Name
+ Create (arg list) : return
+ Update (arg list) : return
+ Retrieve (arg list) : return
1
0..*
Owner
Name
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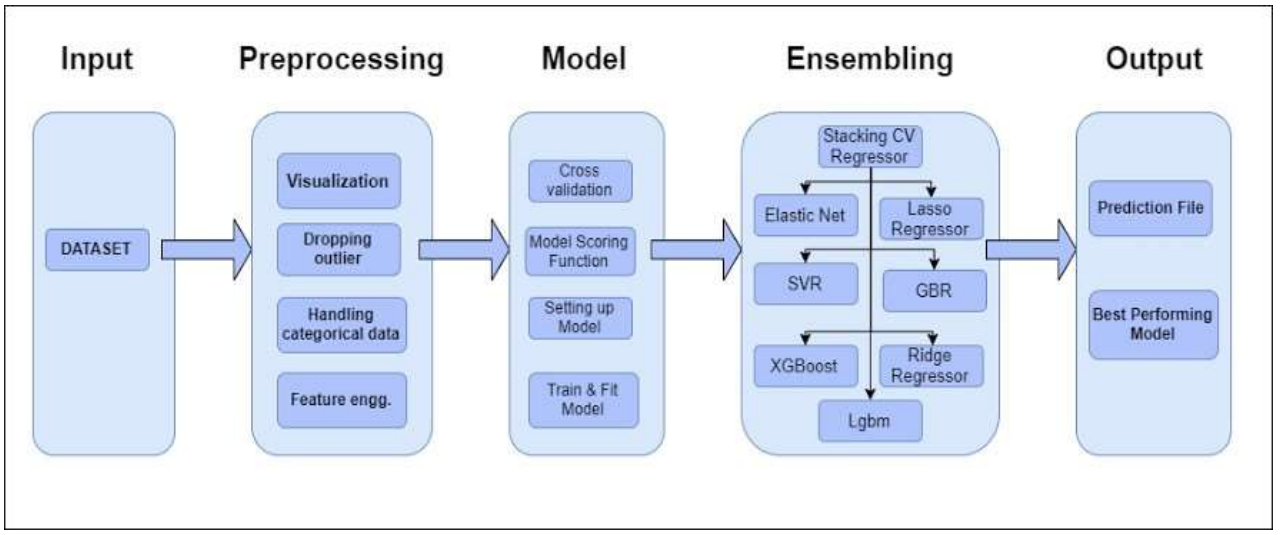
0..*

SYSTEM ARCHITECTURE



Result: Thus, the system architecture, use case and class diagram created successfully