



## School of Computing

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

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

<b>Experiment No</b>	13
<b>Title of Experiment</b>	Provide the details of Architecture Design/Framework/Implementation
<b>Name of the candidate</b>	LADE SACHIN
<b>Team Members</b>	PALEPU UDAYALAXMAN, MOHAMMED KHALID
<b>Register Numbers</b>	RA2011003011374, RA201100301390, RA201100301394
<b>Date of Experiment</b>	09-06-22

### Mark Split Up

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

**Staff Signature with date**

## Aim

To provide the details of architectural design/framework/implementation

## Team Members:

S No	Register No	Name	Role
1	LADE SACHIN	RA2011003011374	Rep/Member
2	PALEPU UDAYALAXMAN	RA2011003011390	Member
3	MOHAMMED KHALID	RA2011003011394	Member

## The details of Architecture Design/Framework/Implementation:

One of the critical tools for early detection and subsequent evaluation of the incidence of lung diseases is chest radiography. This study presents a real-world implementation of a convolutional neural network (CNN) based Covid app to detect COVID-19 from chest X-ray (CXR) images. Our proposed model takes the form of a simple and intuitive application. Used CNN can be deployed as a STOW-RS prediction endpoint for direct implementation into DICOM viewers. The results of this study show that the deep learning model based on Dense Net and Res Net architecture can detect SARS-CoV-2 from CXR images with precision of 0.981, recall of 0.962 and AP of 0.993.

## CODE:

The screenshot shows a Jupyter Notebook cell with the following code:

```
File Edit View Language Python
1 import streamlit as st
2 import tensorflow as tf
3 #st.cache(allow_output_mutation=True)
4 def load_model():
5     model=tf.keras.models.load_model('model.h5')
6     return model
7 model=load_model()
8 st.write(""""
9 Covid -19 Prediction
10 """)
11 file=st.file_uploader("UPLOAD THE XRAY YOU HAVE",type=["jpeg","png"])
12 import cv2
13 from PIL import Image,ImageOps
14 import numpy as np
15 st.set_option('deprecation.showfileUploaderEncoding', False)
16 def import_and_predict(image_data,model):
17     size=(64,64)
18     image=ImageOps.fit(image_data,size,Image.ANTIALIAS)
19     img=np.asarray(image)
20     img_reshape=img[np.newaxis,...]
21     prediction=model.predict(img_reshape)
22     return prediction
23 if file is None:
24     st.text("Please upload an image file")
25 else:
26     image=Image.open(file)
27     st.image(image,use_column_width=True)
28     prediction=import_and_predict(image,model)
29     class_names=[' Sorry You Might Have Covid','No-Covid']
30     string="OUTPUT : "+class_names[np.argmax(prediction)]
31     st.success(string)
32
33
```

## **OUTPUT:**

```
(tensorflow) C:\Users\dell\Desktop\MYFILES\COVID-19>streamlit run app.py
2022-06-11 14:43:44.320 INFO    numexpr.utils: NumExpr defaulting to 8 threads.

You can now view your Streamlit app in your browser.

Local URL: http://localhost:8501
Network URL: http://192.168.22.140:8501
```

Result:

Thus, the details of architectural design/framework/implementation along with the screenshots were provided.



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**Course Code: 18CSC206J**

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

<b>Experiment No</b>	12
<b>Title of Experiment</b>	Manual Test Case Reporting
<b>Name of the candidate</b>	LADE SACHIN
<b>Team Members</b>	PALEPU UDAYALAXMAN, MOHHAMED KHALID
<b>Register Number</b>	RA2011003011374, RA2011003011390, RA2011003011394
<b>Date of Experiment</b>	09-06-2022

### Mark Split Up

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

**Staff Signature with date**

## **Aim**

To prepare the manual test case report for the X ray covid detection.

## **Team Members:**

S No	Register No	Name	Role
1	RA2011003011374	LADE SACHIN	Rep/Member
2	RA2011003011390	PALEPU UDAYALAXMAN	Member
3	RA2011003011394	MOHAMMED KHALID	Member

## **User Registration – Test cases:**

1. Verify that all the specified fields are present on the registration page.
2. Verify that the required/mandatory fields are marked with \* against the field.
3. Verify that for better user interface dropdowns, radio buttons and checkboxes etc fields are displayed wherever possible instead of just textboxes
4. Verify the page has both submit and cancel/reset buttons at the end.
5. Verify that clicking submits button after entering all the required fields, submits the data to the server.
6. Verify that clicking cancels/reset button after entering all the required fields, cancels the submit request, and reset all the fields.
7. Verify that whenever possible validation should take place at client side
8. Verify that not filling the mandatory fields and clicking the submit button will lead to validation error.
9. Verify that not filling the optional fields and clicking the submit button will still send data to the server without any validation error.
10. Check the upper limit of the textboxes.
11. Check validation on the date and email fields (only valid dates and valid email Ids should be allowed).

12. Check validation on numeric fields by entering alphabets and special characters.
13. Verify that leading and trailing spaces are trimmed.
14. Verify that entering blank spaces on mandatory fields leads to validation error.
15. Verify that after making a request to the server and then sending the same request again with the same unique key will lead to server-side validation error.

Present obstacles to proceed further: We do not have any obstacles.

Seek help from stakeholders to remove obstacles/constraints: There is no need to seek help from stakeholders as we don't have any obstacles.

Summarize the current status of the Testing:

<b>Category</b>	<b>Progress Against Plan</b>	<b>Status</b>
Functional Testing	Green / Amber / Red	Not-Started / In-Progress / Completed
1)User registration	Green	Completed
2)Check patient side effects	Green	Completed
3)Update patients checkup details.	Amber	In-progress
4)printing patient card	Red	Not-started
Non-Functional Testing		
1)Scalability	Green	Completed
2)Availability	Green	Completed
3)Usability	Green	Completed

<b>Functional</b>	<b>Test Case Coverage (%)</b>	<b>Status</b>
Module ID	30%	Not-Started / In-Progress / Completed
1)User registration	100%	Completed
2)Check patient side effects	100%	Completed
3)Update patients checkup details.	75%	In-progress

4)printing patient card	0%	Not-started
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Result:

Thus, the test case report has been created for the x-ray covid detection.



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**Course Code: 18CSC206J**

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

<b>Experiment No</b>	11
<b>Title of Experiment</b>	Test Cases
<b>Name of the candidate</b>	LADE SACHIN
<b>Team Members</b>	PALEPU UDAYALAXMAN, MOHAMMED KHALID
<b>Register Number</b>	RA2011003011374, RA2011003011390, RA2011003011394
<b>Date of Experiment</b>	09-06-2022

### Mark Split Up

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

**Staff Signature with date**

## Aim

To develop the test cases manual for the x ray covid detection.

## Team Members:

S No	Register No	Name	Role
1	LADE SACHIN	RA2011003011374	Rep
2	PALEP UDAYALAXMAN	RA2011003011390	Member
3	MOHAMMED KHALID	RA2011003011394	Member

## NON-FUNCTIONAL TEST CASE:

### SCALABILITY:

Scalability is the measure of a system's ability to increase or decrease in performance and cost in response to changes in application and system processing demands. Examples would include how well a hardware system performs when the number of users is increased, how well a database withstands growing numbers of queries, or how well an operating system performs on different classes of hardware. Enterprises that are growing rapidly should pay special attention to scalability when evaluating hardware and software.

### AVAILABILITY:

Usability can be described as the capacity of a system to provide a condition for its users to perform the tasks safely, effectively, and efficiently. In software engineering, usability is the degree to which a software can be used by specified consumers to achieve quantified objectives with effectiveness, efficiency, and satisfaction in a quantified context of use. Usability includes methods of measuring usability, such as needs analysis and the study of the principles behind an object's perceived efficiency or elegance. In human-computer interaction and computer science, usability studies the elegance and clarity with which the interaction with a computer program or a web site (web usability) is designed. Usability considers user satisfaction and utility as quality components, and aims to improve user experience through iterative design

## Result:

Thus, the test case manual has been created for the x ray covid detection..

\*/ For example

## Test Case

### Functional Test Cases

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
1	Verify User Registration from India	Accept Valid India Mobile Number on the Page#1	<ol style="list-style-type: none"><li>User clicks on User Registration link</li><li>Enter the mobile Number on the text box</li><li>Click Register button</li></ol>	User should be taken to the next page for entering more user details		Pass / Failure	success
2	Verify whether the patient has other side effects like bp, diabetes.	Accepts all the patients for registration.	<ol style="list-style-type: none"><li>User clicks on the User Registration link.</li><li>Enter the side effects</li><li>Click register button</li></ol>	users should be taken to next page for selecting respective doctor based on the symptoms they have.		Pass/failure	success
3	Verify that after patient checkup based on requirement the details are updated in the patient details database.	Accept all the patients' check up details to get updated.	<ol style="list-style-type: none"><li>User clicks on the User Registration link.</li><li>Enter the checkup details and upload given prescriptions.</li><li>Click register button</li></ol>	user should be taken to next page for payment		Pass/failure	success

4	Verify that after filling the patient details and successful payment the patient card is printed.	Accept the patients who are done with their transaction.	click submit button	the user should be able to take print out of the patient card.		Pass/failure	success
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## Non-Functional Test Cases

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
1	Scalability	Measure the code ability to increase its performance based on the changes in application.	Evaluate the code.	Code should work even if there is changes in application.		Pass/failure	Success
2	Availability	Measure the state					Success

		of being available to improve the quality.	Evaluate the code.	Code should work.		Pass/fail ure	
3	usability	Measure the quality attribute assesses how easy user interfaces are to use	Evaluate the code.	Code should work.		Pass/fail ure	Success



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**Course Code: 18CSC206J**

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

<b>Experiment No</b>	9
<b>Title of Experiment</b>	Design a Sequence and Collaboration Diagram
<b>Name of the candidate</b>	LADE SACHIN
<b>Team Members</b>	PALEPU UDAYALAXMAN, MOHAMMED KHALID
<b>Register Number</b>	RA20110003011374, RA2011003011390, RA2011003011394
<b>Date of Experiment</b>	09-06-2022

### Mark Split Up

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

**Staff Signature with date**

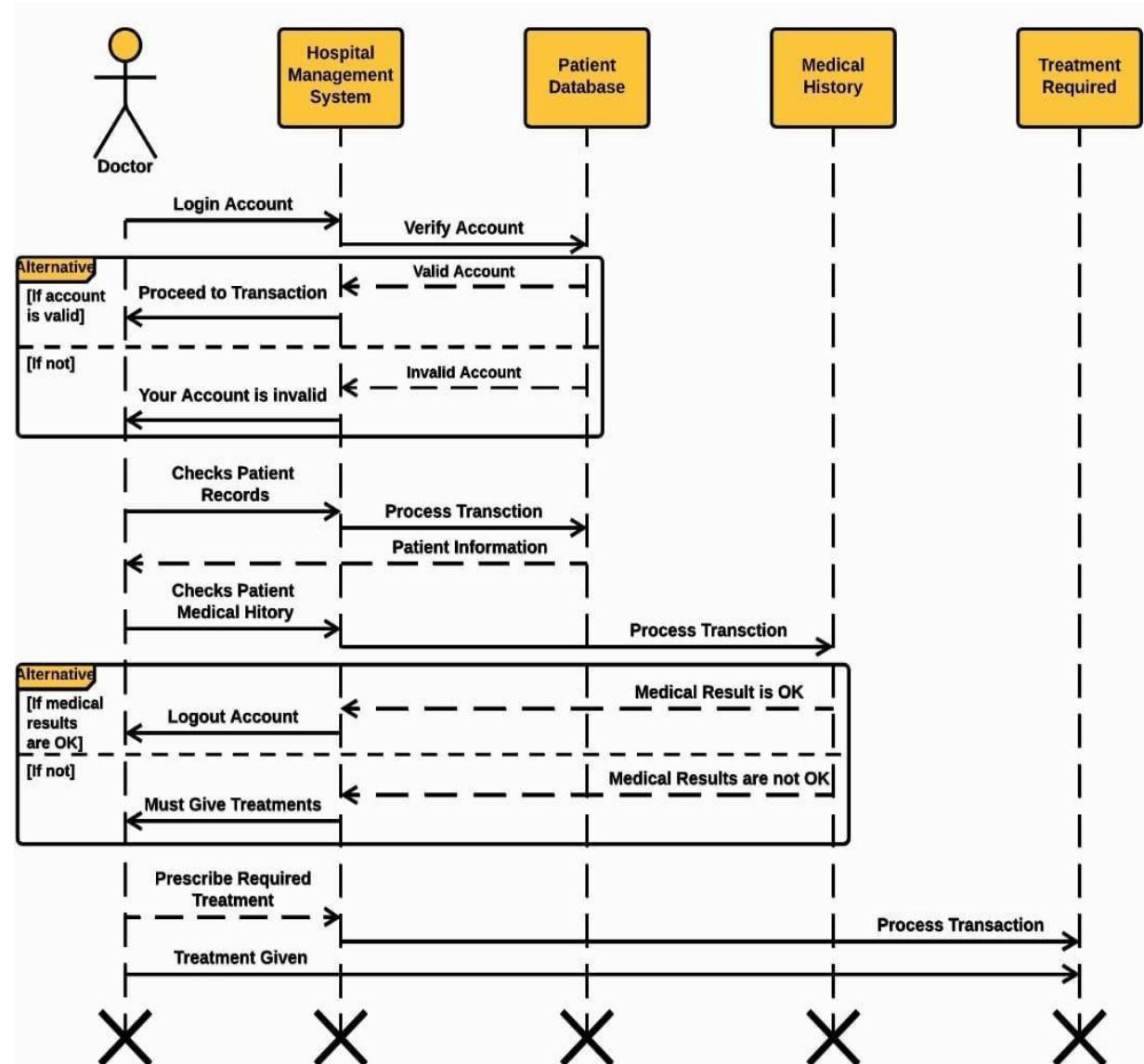
## Aim

To create the sequence and collaboration diagram for the x ray covid detection.

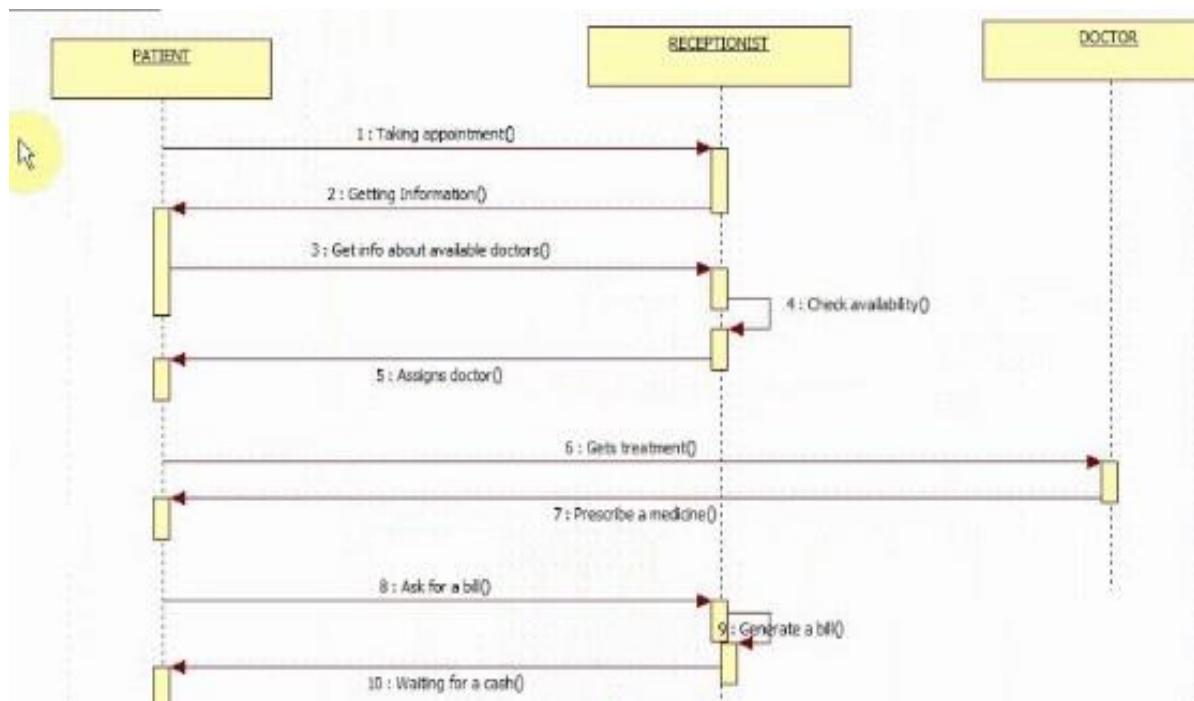
### Team Members:

S No	Register No	Name	Role
1	RA2011003011374	LADE SACHIN	Rep/Member
2	RA2011003011390	PALEPU UDAYALAXMAN	Member
3	RA2011003011394	MOHAMMED KHALID	Member

### SEQUENCE DIAGRAM:



## COLLABORATION DIAGRAM:

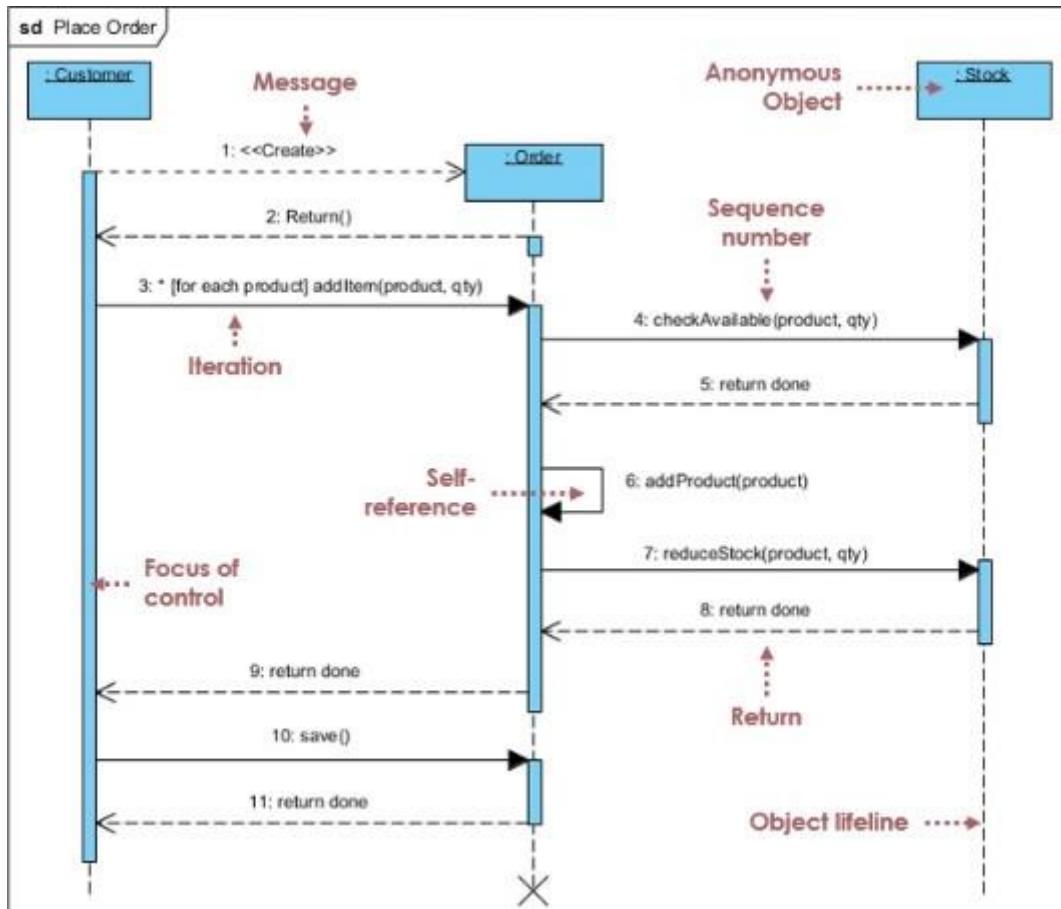


Result:

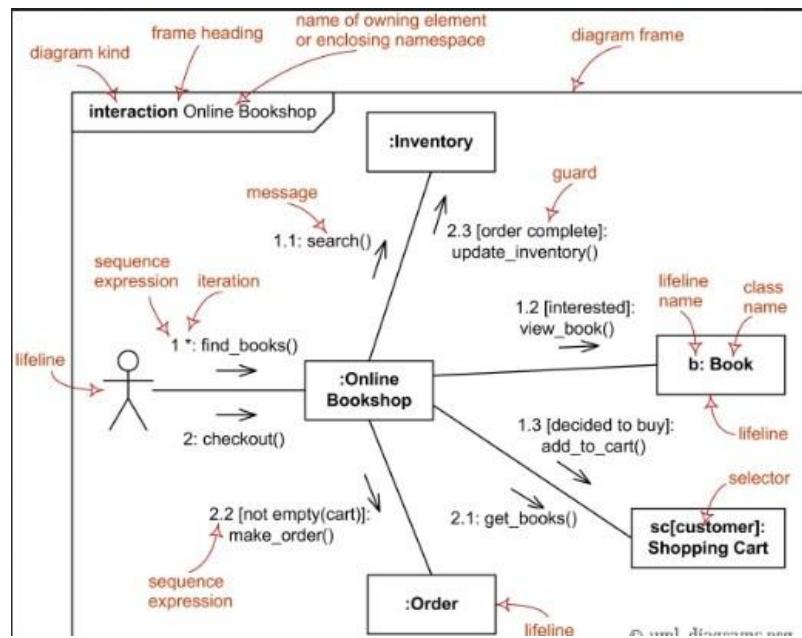
Thus, the sequence and collaboration diagrams were created for the x ray covid detection..

## \*/ For Example

### Sequence Diagram



### Collaboration Diagram





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**Course Code: 18CSC206J**

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

<b>Experiment No</b>	10
<b>Title of Experiment</b>	Develop a Testing Framework/User Interface
<b>Name of the candidate</b>	LADE SACHIN
<b>Team Members</b>	PALEPU UDAYALAXMAN, MOHAMMED KHALID
<b>Register Number</b>	RA2011003011374, RA2011003011390, RA2011003011394
<b>Date of Experiment</b>	09-06-2022

### Mark Split Up

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

**Staff Signature with date**

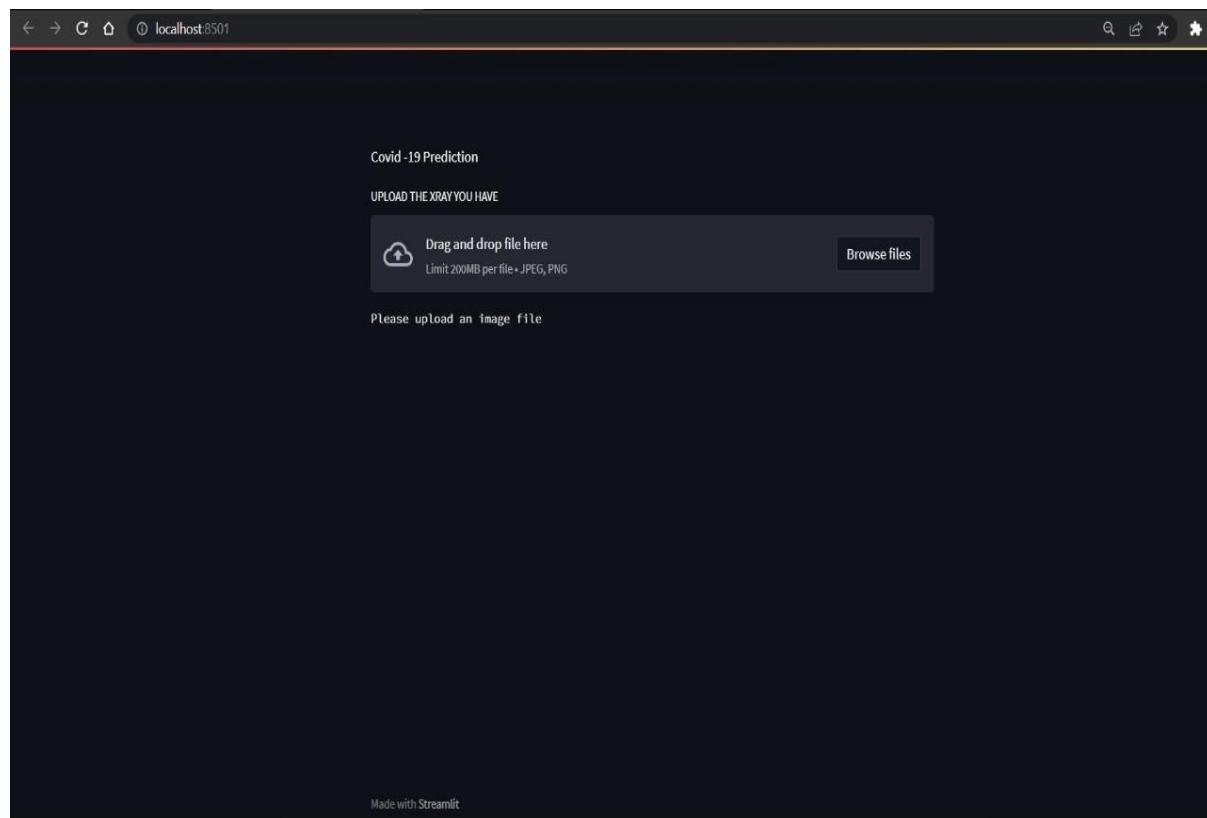
## Aim

To develop the testing framework and/or user interface framework for the X ray covid detection.

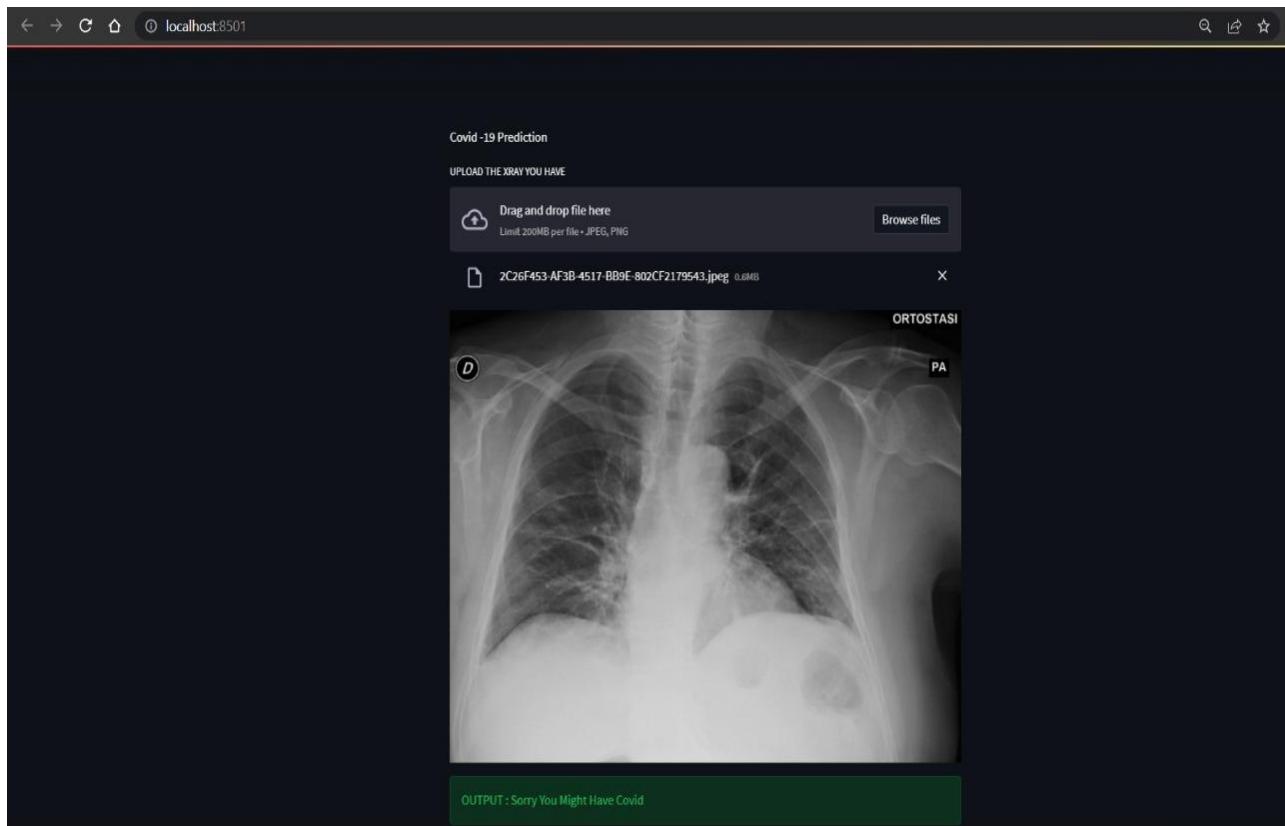
## Team Members:

S No	Register No	Name	Role
1	LADE SACHIN	RA2011003011374	Rep/Member
2	PALEPU UDAYALAXMAN	RA2011003011390	Member
3	MOHAMMED KHALID	RA2011003011394	Member

## BEFORE UPLOADING X RAY:



## AFTER UPLOADING:



Result:

Thus, the testing framework/user interface framework has been created for the x ray covid detection..



## School of Computing

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**Course Code: 18CSC206J**

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

<b>Experiment No</b>	8
<b>Title of Experiment</b>	Develop a Data Flow Diagram (Process-Up to Level 1)
<b>Name of the candidate</b>	LADE SACHIN
<b>Team Members</b>	PALEPU UDAY LAXMAN, MOHAMMED KHALID
<b>Register Number</b>	RA2011003011374,RA2011003011390,RA2011003011394
<b>Date of Experiment</b>	19-05-2022

### Mark Split Up

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

**Staff Signature with date**

## Aim

To develop the data flow diagram up to level 1 for the <project name>

## Team Members:

S No	Register No	Name	Role
1	LACE SACHIN	RA2011003011374	Rep
2	PALEPU UDAYLAXMAN	RA2011003011390	Member
3	MOHAMMED KHALID	RA2011003011394	Member

<DFD >

## Result:

Thus, the data flow diagrams have been created for the <project name>.

## Data Flow Diagram

The DFD takes an input-process-output view of a system. That is, data objects flow into the software, are transformed by processing elements, and resultant data objects flow out of the software. Data objects are represented by labeled arrows, and transformations are represented by circles (also called bubbles). The DFD is presented in a hierarchical fashion. That is, the first data flow model (sometimes called a level 0 DFD or context diagram) represents the system as a whole. Subsequent data flow diagrams refine the context diagram, providing increasing detail with each subsequent level.

The data flow diagram enables you to develop models of the information domain and functional domain. As the DFD is refined into greater levels of detail, you perform an implicit functional decomposition of the system. At the same time, the DFD refinement results in a corresponding refinement of data as it moves through the processes that embody the application.

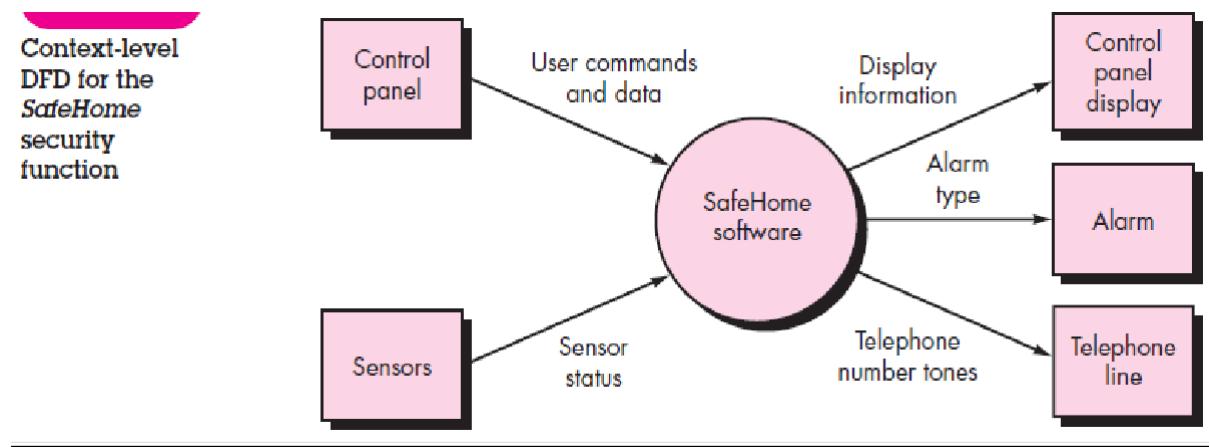
A few simple guidelines can aid immeasurably during the derivation of a data flow diagram:

- (1) Level 0 data flow diagram should depict the software/system as a single bubble;
- (2) Primary input and output should be carefully noted;
- (3) Refinement should begin by isolating candidate processes, data objects, and data stores to be represented at the next level;
- (4) All arrows and bubbles should be labeled with meaningful names;
- (5) Information flow continuity must be maintained from level to level and

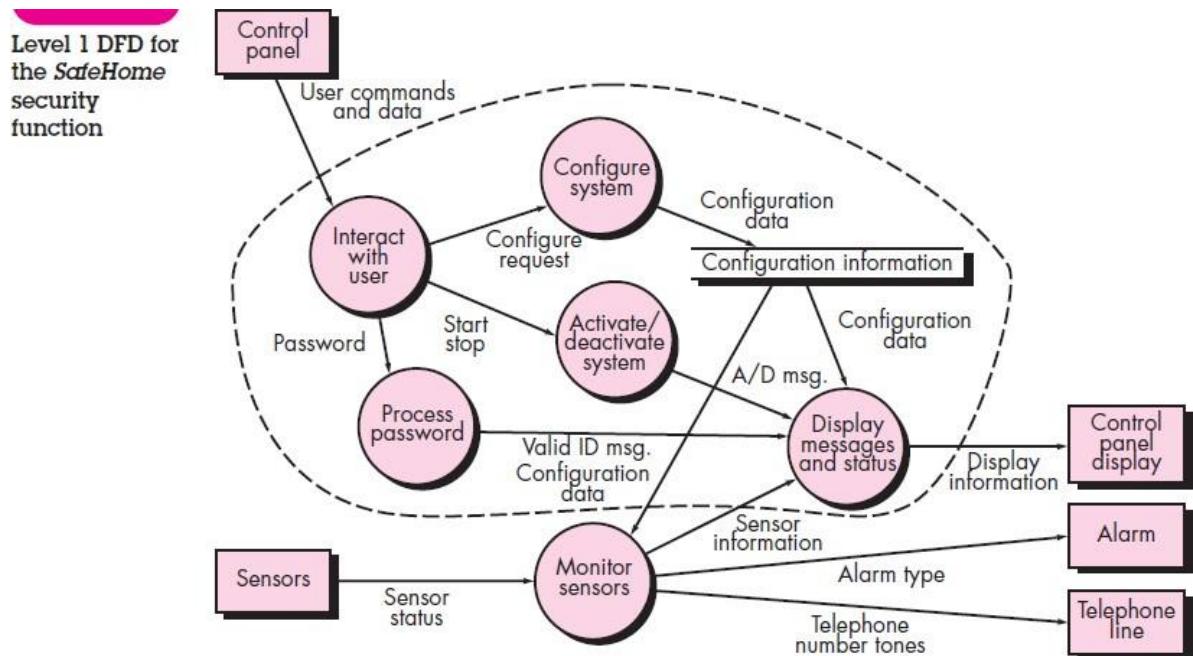
(6) One bubble at a time should be refined. There is a natural tendency to overcomplicate the data flow diagram. This occurs when you attempt to show too much detail too early or represent procedural aspects of the software in lieu of information flow.

### \*/ For Example

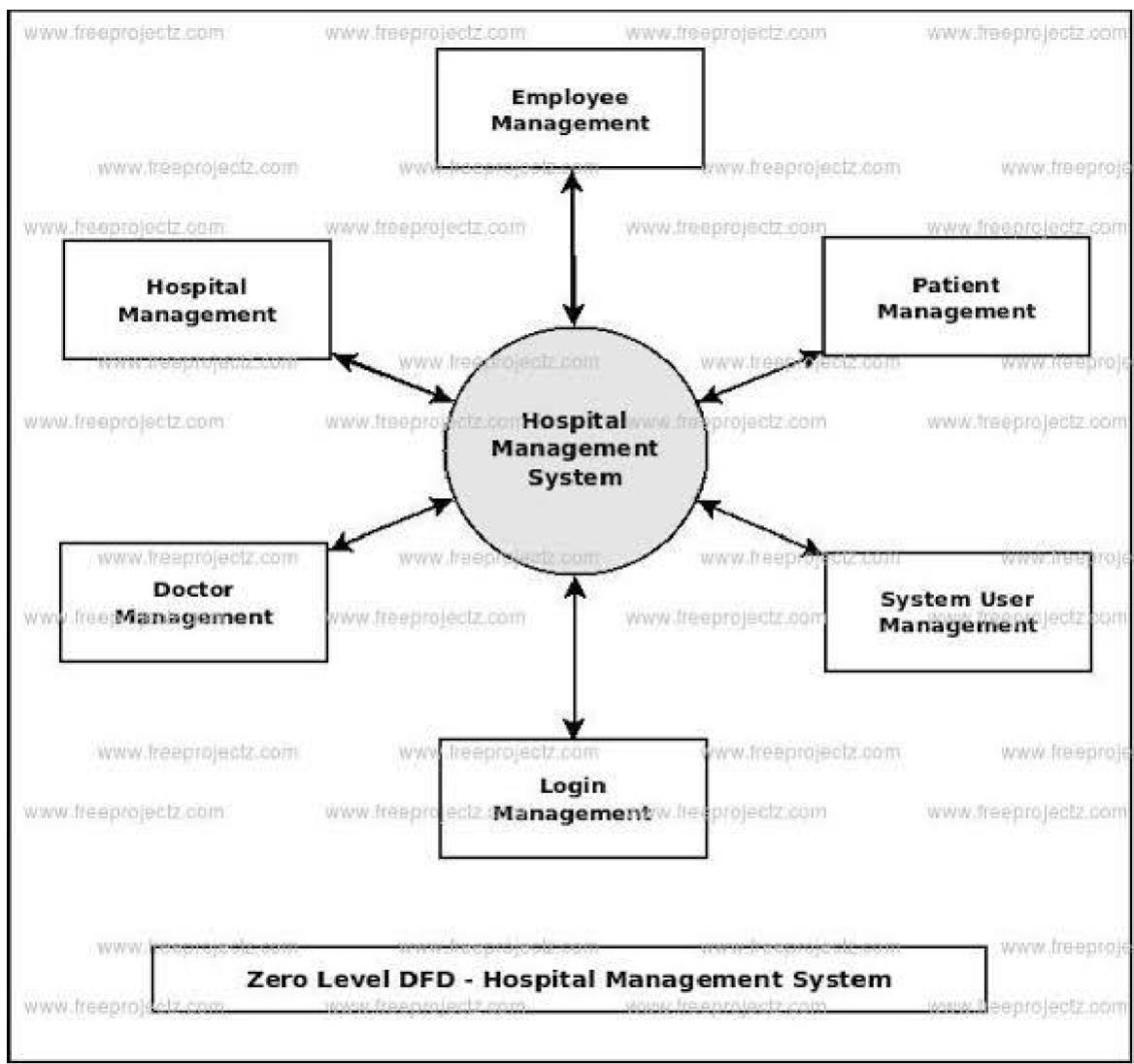
#### DFD Level 0



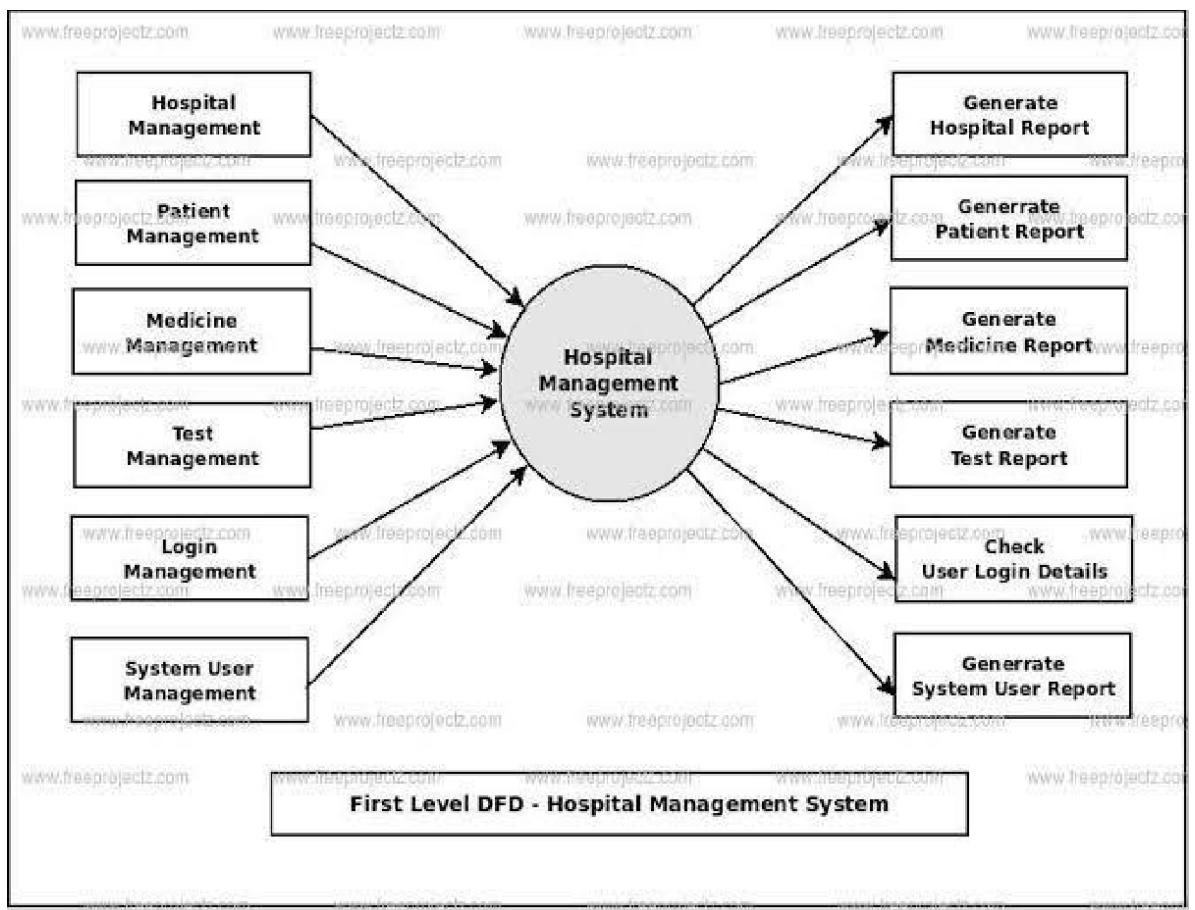
#### DFD Level 1



#### DFD LEVEL 0:



### **DFD LEVEL 1:**





## School of Computing

**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 a Entity relationship diagram
<b>Name of the candidate</b>	LADE SACHIN
<b>Team Members</b>	PALEPU UDAYALAXMAN, MOHHAMAD KHALD
<b>Register Number</b>	RA2011003011374 ,RA201100301130 , RA2011003011394
<b>Date of Experiment</b>	19-05-2022

### Mark Split Up

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

## **Staff Signature with date**

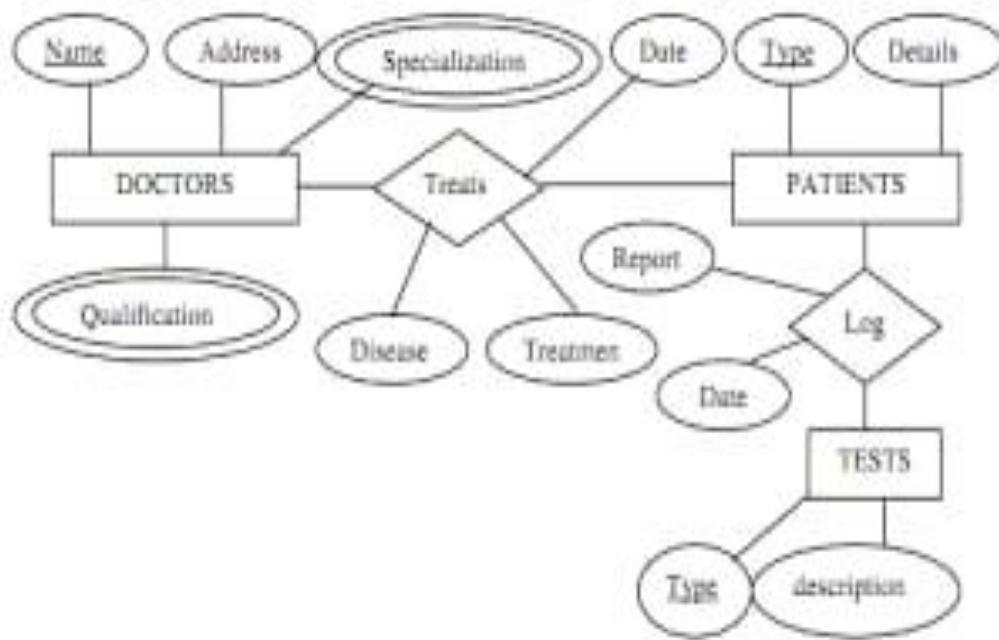
### **Aim**

To create the Entity Relationship Diagram

### **Team Members:**

S No	Register No	Name	Role
1	RA2011003011374	LADE SACHIN	Rep
2	RA2011003011390	PALEPU UDAYALAXMAN	Member
3	RA2011003011394	MOHAMMED KHALID	Member

### **ER DIAGRAM:**



### **Result:**

Thus, the entity relationship diagram was created successfully.

## \*/ ER Diagram, Notation and Example

### **What is ER Diagram?**

- ER Diagram stands for Entity Relationship Diagram, also known as ERD is a diagram that displays the relationship of entity sets stored in a database. In other words, ER diagrams help to explain the logical structure of databases. ER diagrams are created based on three basic concepts: entities, attributes and relationships.
- ER Diagrams contain different symbols that use rectangles to represent entities, ovals to define attributes and diamond shapes to represent relationships.
- At first look, an ER diagram looks very similar to the flowchart. However, ER Diagram includes many specialized symbols, and its meanings make this model unique. The purpose of ER Diagram is to represent the entity framework infrastructure.

### **What is ER Model?**

- ER Model stands for Entity Relationship Model is a high-level conceptual data model diagram. ER model helps to systematically analyze data requirements to produce a well-designed database.
- ER Model represents real-world entities and the relationships between them. Creating an ER Model in DBMS is considered as a best practice before implementing your database.
- ER Modeling helps you to analyze data requirements systematically to produce a well-designed database. So, it is considered a best practice to complete ER modeling before implementing your database.

### **Why use ER Diagrams?**

Here, are prime reasons for using the ER Diagram

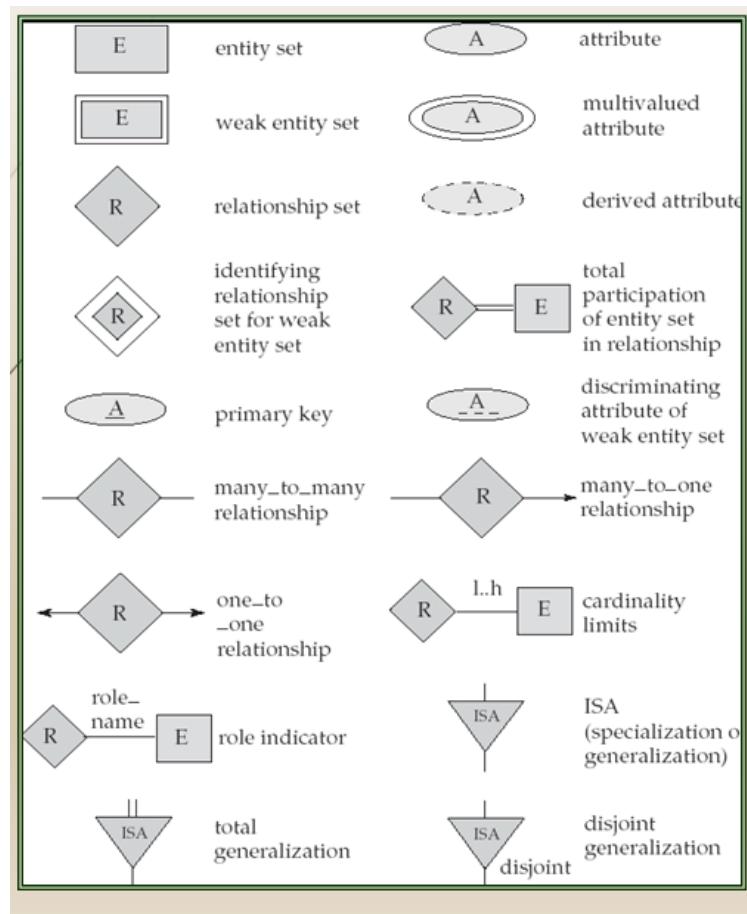
- Helps you to define terms related to entity relationship modeling
- Provide a preview of how all your tables should connect, what fields are going to be on each table
- Helps to describe entities, attributes, relationships
- ER diagrams are translatable into relational tables which allows you to build databases quickly
- ER diagrams can be used by database designers as a blueprint for implementing data in specific software applications
- The database designer gains a better understanding of the information to be contained in the database with the help of ERP diagram
- ERD Diagram allows you to communicate with the logical structure of the database to users

### **Components of the ER Diagram**

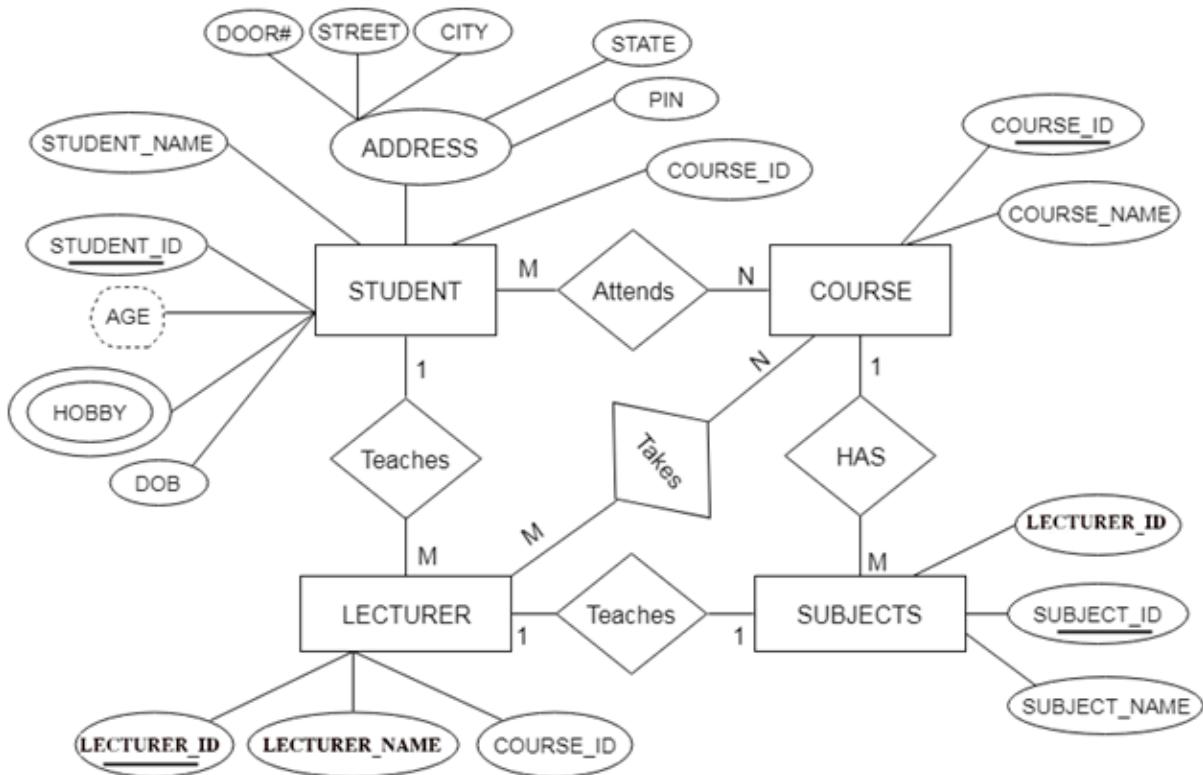
This model is based on three basic concepts: Entities, Attributes, Relationships

### **ER Diagram – Notations**

- Rectangles represent entity sets.
- Diamonds represent relationship sets.
- Lines link attributes to entity sets and entity sets to relationship sets.
- Ellipses represent attributes
- Double ellipses represent multivalued attributes.
- Dashed ellipses denote derived attributes.
- Underline indicates primary key attributes



## ER Diagram of University Database



## ADDITIONAL NOTES

- A database can be modeled as a collection of entities, relationship among entities.
- An entity is an object that exists and is distinguishable from other objects.
- Example: specific person, company, event, plant
- Entities have attributes.
- Example: people have names and addresses
- An entity set is a set of entities of the same type that share the same properties.
- Example: set of all persons, companies, trees, holidays
- Express the number of entities to which another entity can be associated via a relationship set.
- Most useful in describing binary relationship sets.
- We express cardinality constraints by drawing either a directed line (->), signifying “one,” or an undirected line (—), signifying “many,” between the relationship set and the entity set.
- An entity is represented by a set of attributes, that is descriptive properties possessed by all members of an entity set.
- Example: customer = (customer-id, customer-name, customer-street, customer-city)  
loan = (loan-number, amount)
- Domain – the set of permitted values for each attribute
- Attribute types:
  1. Simple and composite attributes.
  2. Single-valued and multi-valued attributes

E.g. multivalued attribute: phone-numbers

  3. Derived attributes-Can be computed from other attributes

E.g. age, given date of birth

### **Cardinality**

- For a binary relationship set the mapping cardinality must be one of the following types:

1. One to one

A customer is associated with at most one loan via the relationship borrower. A loan is associated with at most one customer via borrower

2. One to many

A loan is associated with at most one customer via borrower, a customer is associated with several (including 0) loans via borrower

3. Many to one

A loan is associated with several (including 0) customers via borrower, a customer is associated with at most one loan via borrower

4. Many to many

A loan is associated with several (including 0) customers via borrower, a customer is associated with several loans (including 0) via borrower

### **Weak Entity Set**

- An entity set that does not have a primary key is referred to as a weak entity set and represented by double outlined box in E-R diagram.

Example : Consider the entity set payment which got three attributes : payment\_number, payment\_date and payment\_amount. Payment numbers are sequential starting from 1 generally separately for each loan. Although each payment entity is distinct, payments for different loans may share the same payment number. Thus this entity set does not have a primary key.

### **Discriminator**

- The discriminator (or partial key) of a weak entity set is the set of attributes that distinguishes among all the entities of a weak entity set

Example: discriminator of weak entity set payment is the attribute payment\_number since for each loan a payment number uniquely identifies one single payment for that loan.

### **Specialization-Generalization-ISA**

- E-R model provides means of representing these distinctive entity groupings

- Process of designating subgroupings within an entity set is called specialization depicted by triangle component labelled ISA ("is a")

- Bottom up design process in which multiple entity sets are synthesized into higher level entity set - Generalization

- ISA relationship may also be referred to as superclass-subclass relationship

- Higher and lower level entity sets are designated by the terms superclass and subclass.

- Specialization and generalization are simple inversions of each other; they are represented in an E-R diagram in the same way.

### **Total & Partial Participation**

- Total participation (indicated by double line): every entity in the entity set participates in at least one relationship in the relationship set

E.g. participation of loan in borrower is total, every loan must have a customer associated to it via borrower

- Partial participation: some entities may not participate in any relationship in the relationship set

Example: participation of customer in borrower is partial

### **Cardinality limits**

- Cardinality limits can also express participation constraints
- Minimum and maximum cardinality is expressed as l..h where l is the minimum and h is the maximum cardinality
- Minimum value of 1 indicates total participation of entity set in relationship set
- Maximum value of 1 indicates entity participates in atmost one relationship set.
- Maximum value of \* indicates no limit

### **Role indicator**

- Entity sets of a relationship need not be distinct
- The labels “manager” and “worker” are called roles; they specify how employee entities interact via the works-for relationship set.
- Roles are indicated in E-R diagrams by labeling the lines that connect diamonds to rectangles.
- Role labels are optional, and are used to clarify semantics of the relationship

### **Disjoint Generalization**

- Disjointness constraint requires that an entity belong to more than one lower level entity set. Example: account entity can satisfy only one condition for account\_type attribute ; entity can either be savings or chequing account but not both.



## Department of Networking and Communications

**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 Work breakdown structure, Timeline chart, Risk identification table
<b>Name of the candidate</b>	LADE SACHIN
<b>Team Members</b>	PALEPU UDAYALAXMAN, MOHAMMED KHALID
<b>Register Number</b>	RA2011003011374, RA2011003011390, RA2011003011394
<b>Date of Experiment</b>	8/05/22

### Mark Split Up

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

**Staff Signature with date**

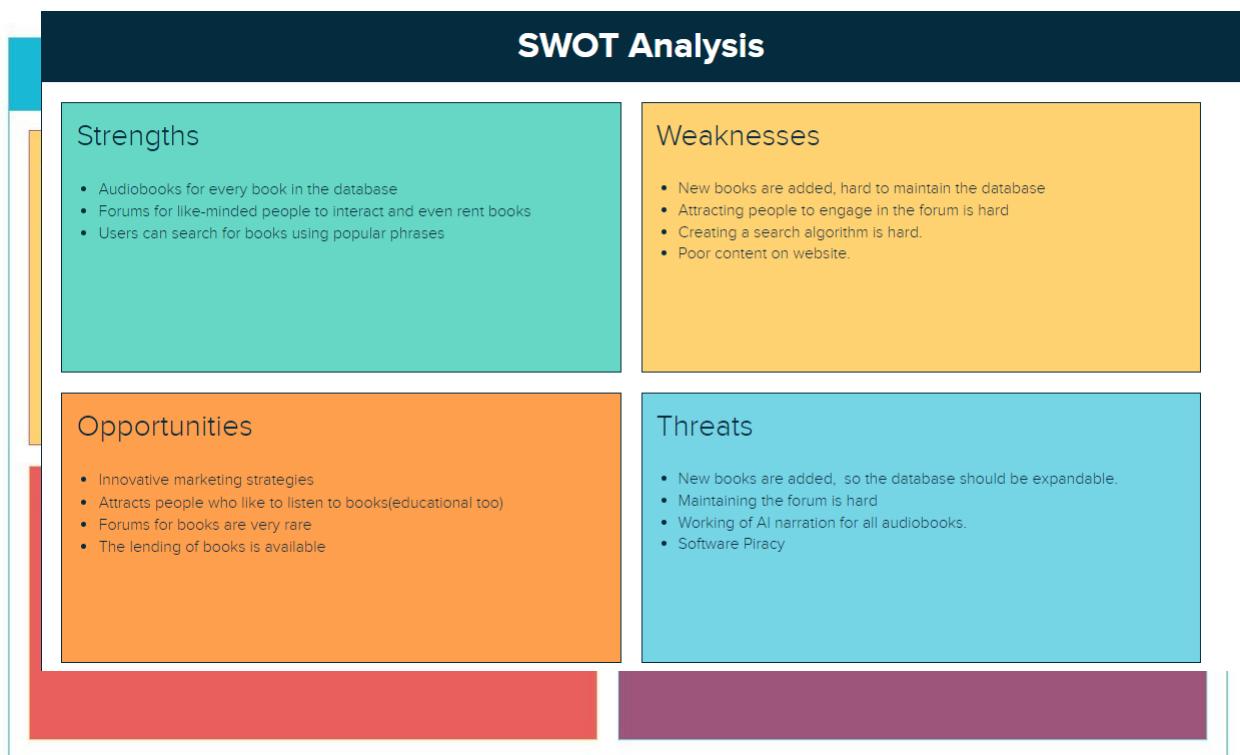
## Aim

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

### Team Members:

Sl No	Register No	Name	Role
1	RA2011003011374	LADE SACHIN	LEAD
2	RA2011003011390	PALEU UDAYALAXMAN	MEMBER
3	RA2011003011394	MOHAMMED KHALID	MEMBER

## RISK ANALYSIS – SWOT & RMMM



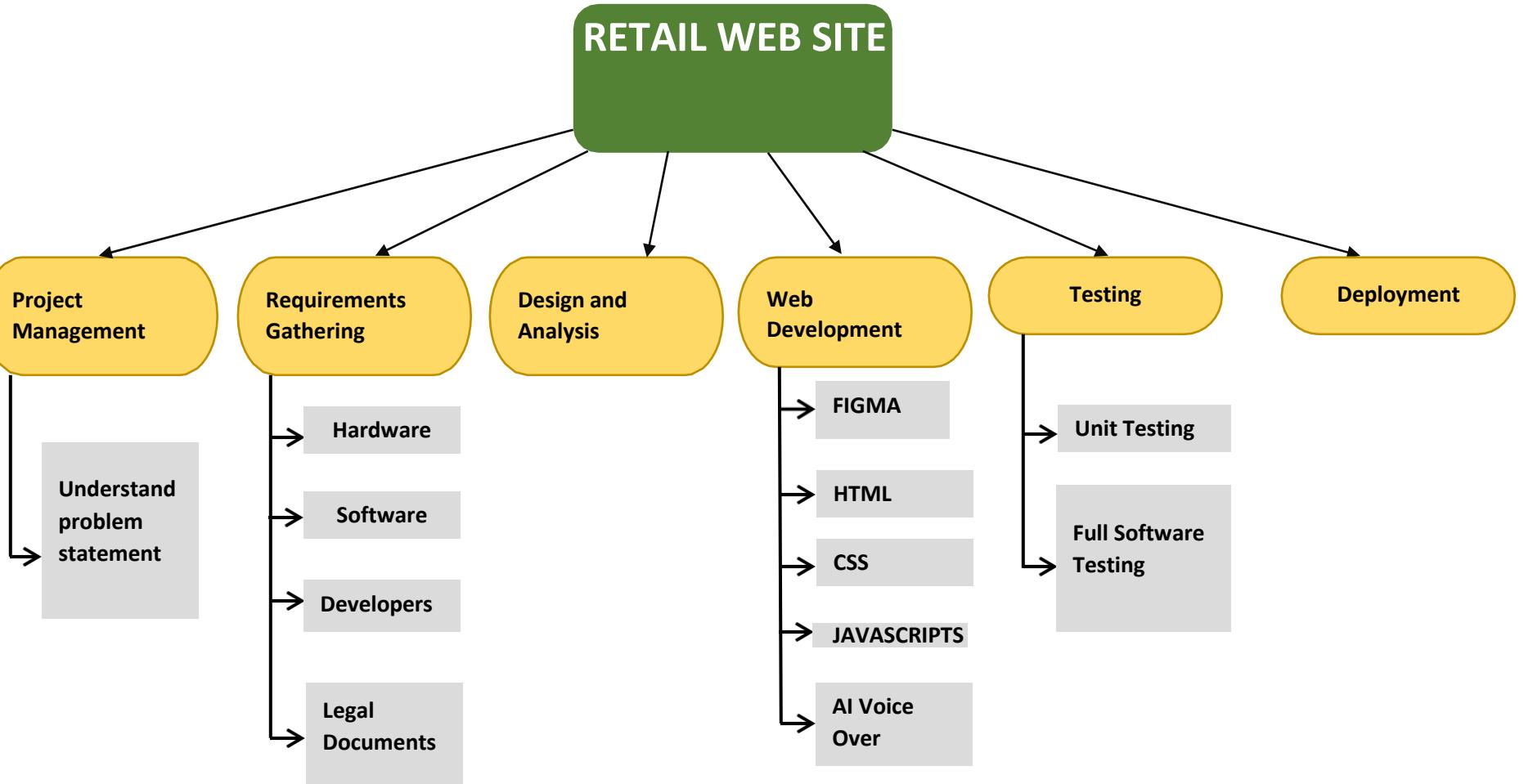
Response	Strategy	Example
Avoid	The team takes necessary actions to remove the risk.	Extending the scheduled delivery time.
Transfer	The team transfers the risk to a third party.	Performance bonds
Mitigate	The team will work on certain aspects to reduce the probability of risk becoming real.	Requirement of expandable storage capacity
Accept	The team accepts the risk and doesn't take any action because its impact on project is extremely low.	Slow user interface and poor graphics.

## WORK BREAKDOWN STRUCTURE

- 0.0 BIBLIOTHECA
- 1.0 Project Management
- 2.0 Requirements Gathering
  - 2.1 Hardware
  - 2.2 Software
  - 2.3 Developers
  - 2.4 Legal Documents
- 3.0 Analysis & Design
- 4.0 Site Software Development
  - 4.1 HTML Design and Creation
  - 4.2 Backend Software
    - 4.2.1 Database Implementation
    - 4.2.2 Middleware Development
    - 4.2.3 Security Subsystems
    - 4.2.4 Transaction Processing
  - 4.3 Graphics and Interface
  - 4.4 CSS and JavaScript's
  - 4.5 Content Creation
  - 4.6 AI Voice Over
- 5.0 Testing and Production

Result:

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



## The Work Breakdown Structure

Task name	Start date	End date	Duration	Estimation	Progress
Project Management Activities	15/03/2022	14/04/2022	64d 5h	337h	100%
Project Charter	16/03/2022	18/03/2022	2d	8h	100%
Project Management Plan	17/03/2022	21/03/2022	2d	8h	100%
Monitoring Activities	18/03/2022	21/03/2022	2d	10h	100%
Initiation/Planning	21/03/2022	25/03/2022	4d	24h	100%
Feasibility Study	21/03/2022	24/03/2022	4d	12h	100%
Business Case	21/03/2022	24/03/2022	4d	6h	100%
Project Planning	21/03/2022	24/03/2022	4d	6h	100%
Planning Activities Completed	25/03/2022	25/03/2022	0d	0h	0%
Requirements Analysis	25/03/2022	27/04/2022	9d	55h	100%
Requirements Gathering	25/03/2022	31/03/2022	5d	50h	100%
Security Planning	01/04/2022	06/04/2022	4d	6h	100%
Requirements Analysis Com.	07/04/2022	07/04/2022	0d	0h	100%
Design	07/04/2022	21/04/2022	11d	64h	100%
High-Level Design	07/04/2022	11/04/2022	2d 2h	18h	100%
Proof of Concept	08/04/2022	13/04/2022	3d 7h	10h	100%
Detailed Design	12/04/2022	18/04/2022	3d 9h	16h	100%
Technical Specification	18/04/2022	21/04/2022	4d 4h 30m	20h	100%
Design Completed	19/04/2022	19/04/2022	0d	0h	100%
Development	23/04/2022	12/05/2022	14d	68h	100%
Build/Develop	22/04/2022	27/04/2022	4d	30h	100%
Web model	25/04/2022	27/04/2022	2d 7h	20h	100%
Documentation	26/04/2022	27/04/2022	1d	7h	100%
Test Planning	22/04/2022	26/04/2022	4d	2h	100%
Deployment Planning	29/04/2022	05/05/2022	5d	3h	100%
Training Planning	02/05/2022	05/05/2022	4d	2h	100%
Transition Planning	06/05/2022	11/05/2022	4d	2h	100%
Development Completed	12/05/2022	12/05/2022	0d	0h	100%
QA	12/05/2022	27/05/2022	15d 9h	34h	100%
Unit Test	14/05/2022	16/05/2022	2d 3h 30m	12h	100%
Function Test	13/05/2022	18/05/2022	3d 3h 30m	4h	100%
Integration Test	16/05/2022	19/05/2022	4d	4h	100%
System Test	18/05/2022	23/05/2022	3d 3h 30m	6h	100%
User Acceptance Test	23/05/2022	26/05/2022	3d 9h 30m	8h	100%
Test Completed	27/05/2022	27/05/2022	0d	0h	100%
Implementation	27/05/2022	06/06/2022	5d 9h 30m	34h	100%
Deployment	27/05/2022	31/05/2022	2d 9h 30m	5h	100%
Training	30/05/2022	03/06/2022	4d	4h	50%
Support	31/05/2022	03/06/2022	3d 8h	24h	100%
Implementation Completed	06/06/2022	06/06/2022	0d	0h	100%
Operations & Maintenance	06/06/2022	14/06/2022	8d	36h	100%
Operations Activities	06/06/2022	10/06/2022	5d	10h	100%
Maintenance Activities	07/06/2022	13/06/2022	4d	24h	100%
Operations & Maintenance C.	14/06/2022	14/06/2022	0d	0h	100%





## Department of Networking and Communications

**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 and Class Diagram
<b>Name of the candidate</b>	Lade Sachin
<b>Team Members</b>	Palepu udayalaxman,Mohammed KHALID
<b>Register Number</b>	RA2011003011374, RA2011003011390,RA2011003011394
<b>Date of Experiment</b>	20-04-2022

### Mark Split Up

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

**Staff Signature with date**

## **Aim**

To Design a System Architecture, Use case and Class Diagram

## **Team Members:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	<b>RA2011003011374</b>	<b>Lade Sachin</b>	<b>Rep</b>
<b>2</b>	<b>RA2011003011390</b>	<b>Palepu Udayalaxman</b>	<b>Member</b>
<b>3</b>	<b>RA2011003011394</b>	<b>Mohammed KHALID</b>	<b>Member</b>

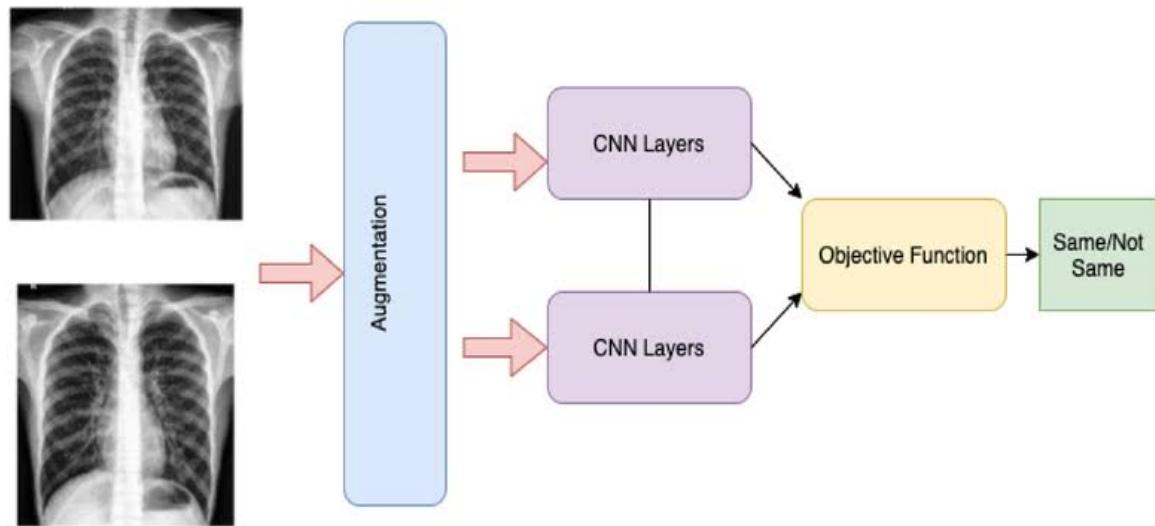
Requirements

<System Architecture, Use Case and Class Diagram>

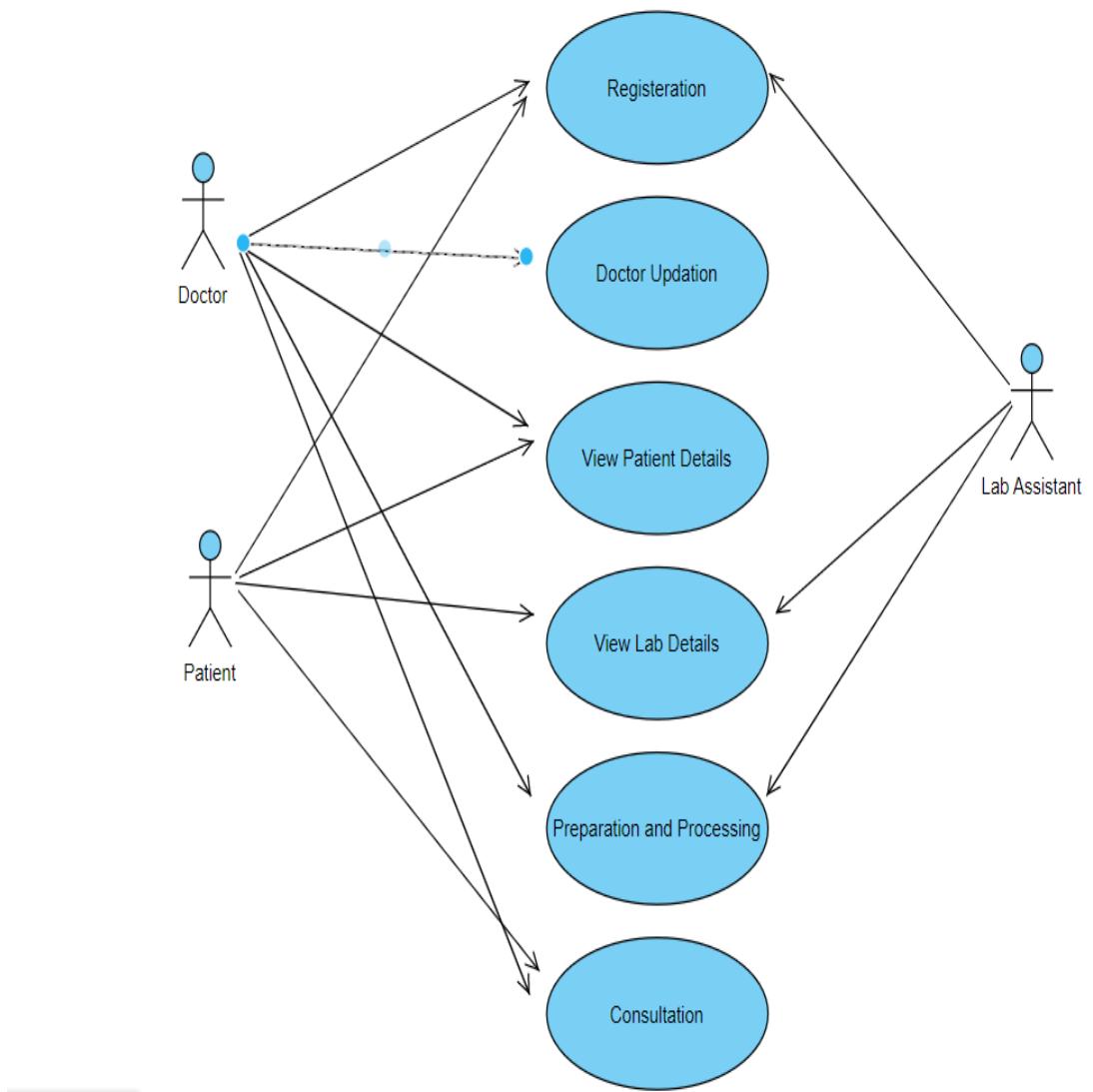
## **Result:**

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

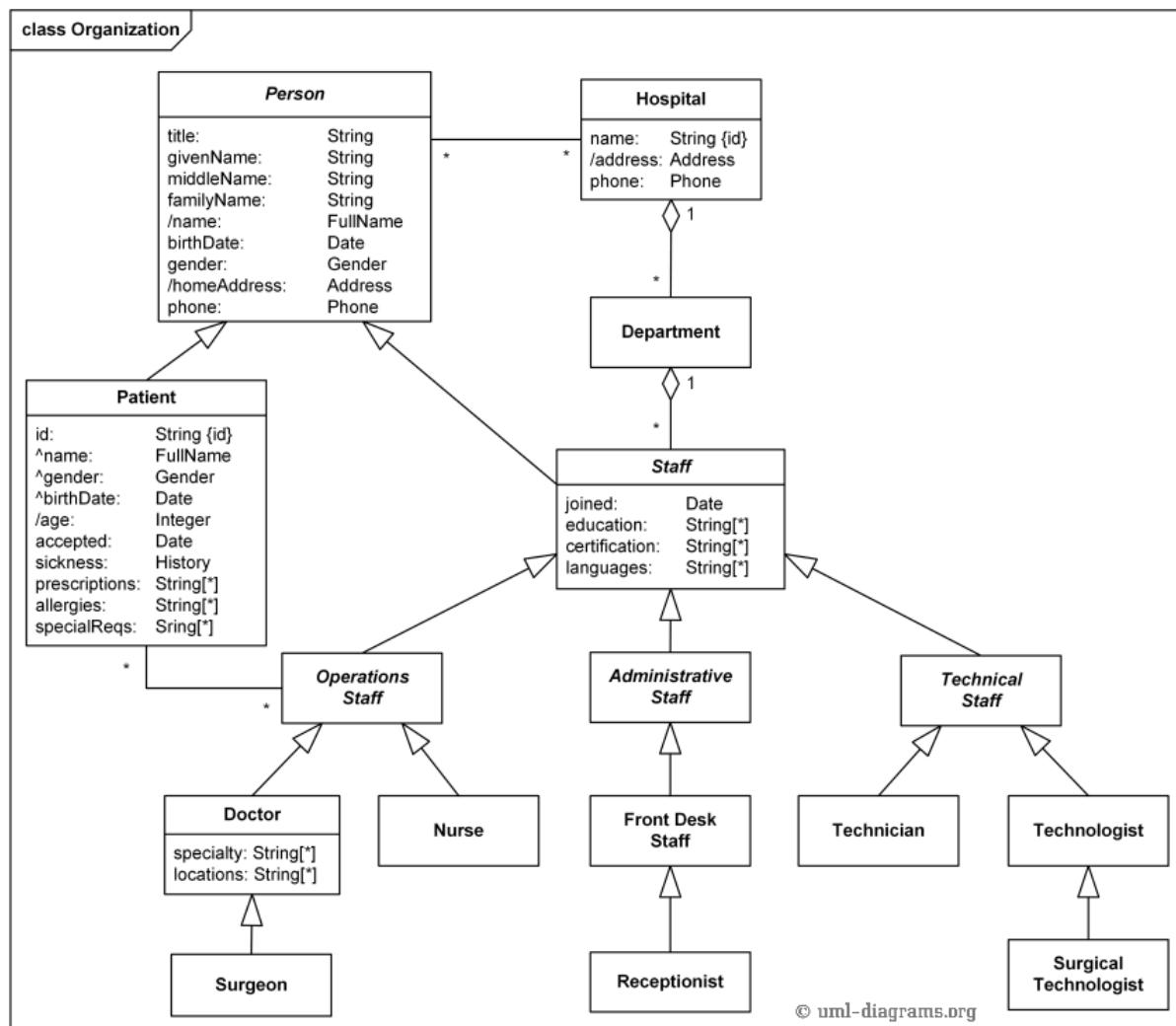
## SYSTEM ARCHITECTURE – Example



## **USE CASE DIAGRAM – Example**



## CLASS DIAGRAM – Example





**Department of Networking and  
Communications 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, Calculate Project effort based on resources and Job roles and responsibilities
<b>Name of the candidate</b>	Lade Sachin
<b>Team Members</b>	Palepu Udayalaxman ,Mohammed Khalid
<b>Register Number</b>	RA2011003011374,RA2011003011390,RA2011003011374
<b>Date of Experiment</b>	11/04/2022

**Mark Split Up**

<b>S.N o</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Exercise	5	
2	Viva	5	
	<b>Total</b>	<b>10</b>	

**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:**

<b>Sl No</b>	<b>Register No</b>	<b>Name</b>	<b>Role</b>
<b>1</b>	<b>RA2011003011374</b>	<b>Lade Sachin</b>	<b>Lead</b>
<b>2</b>	<b>RA2011003011390</b>	<b>Palepu Udayalaxman</b>	<b>Member</b>
<b>3</b>	<b>RA2011003011394</b>	<b>Mohammed Khalid</b>	<b>Member</b>

Requirements

<Incorporate the Project plan template>

## **Result:**

Thus, the Project Plan was documented successfully.

## 1. Project Management Plan

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

Focus Area	Details																										
	<p>Milestones:</p> <ol style="list-style-type: none"><li>1) Understanding project: Identifying goals and approach to the project.</li><li>2) Identification of Requirement: Function, Non-functional and User Requirements</li><li>3) Project Management: Cost estimation, Risk Analysis, Project Timeline</li><li>4) Designing: Designing UI, review and revising</li><li>5) Developing Front-end: Coding the front-end part</li><li>6) Developing Back-end: Coding the functional elements, creating database, debugging and testing</li><li>7) Deployment: Deploying the website and giving it a domain.</li></ol> <p>Schedule Control:</p> <table border="1"><thead><tr><th>Task</th><th>Start</th><th>End</th></tr></thead><tbody><tr><td>Understanding project</td><td>11/03/2022</td><td>17/03/2022</td></tr><tr><td>Identifying requirements</td><td>23/03/2022</td><td>30/03/2022</td></tr><tr><td>Project Management</td><td>28/03/2022</td><td>05/04/2022</td></tr><tr><td>Designing</td><td>11/04/2022</td><td>30/04/2022</td></tr><tr><td>Developing frontend</td><td>01/05/2022</td><td>15/06/2022</td></tr><tr><td>Developing Back-end</td><td>16/06/2022</td><td>31/07/2022</td></tr><tr><td>Deployment</td><td>1/08/2022</td><td>10/08/2022</td></tr></tbody></table>			Task	Start	End	Understanding project	11/03/2022	17/03/2022	Identifying requirements	23/03/2022	30/03/2022	Project Management	28/03/2022	05/04/2022	Designing	11/04/2022	30/04/2022	Developing frontend	01/05/2022	15/06/2022	Developing Back-end	16/06/2022	31/07/2022	Deployment	1/08/2022	10/08/2022
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Developing Back-end	16/06/2022	31/07/2022																									
Deployment	1/08/2022	10/08/2022																									

Stakeholder	Patients Doctors Physicians Employees Insurance Companies Pharmaceutical firms Health care facility representatives Lab Technicians Pathologist
Risk Management	Risks Identified: 1) System crash 2) Corrupt Code 3) Lack of initial interest in the project 4) Budget Management

## 2. Estimation

### 2.1. Effort and Cost Estimation

Activity Description	Sub-Task	Sub-Task Description	Effort (in hours)	Cost in INR
Design the user screen	User Requirement Confirmation	Confirm the user requirements (acceptance criteria)	3	1500
	Designing	Designing the UI	50	25000
	Review	Reviewing the UI for final adjustments	10	5000
Developing front end	Develop basic skeleton	Go through designed UI and code the basic skeleton of the app	70	35000
	Add UI elements	Add more complex UI elements and make app responsive and dynamic	100	200000
Developing back end	Make UI interactive	Make the UI elements interactive	10	5000

	Develop core functionalities	Implement core functionalities of the platform	20	10000
Deployment	Test Run	Deploy it in open betaFor user and developers to test out	10	5000

		the app in the realworld scenarios		
	Deploy Publicly	Make final changes as per the test run and deploy it stably for public	10	5000

Effort (hr)	Cost (INR)
1	500

## 2.2 Infrastructure/Resource Cost [CapEx]

< OneTime Infra requirements >

Infrastructure Requirements	Qty	Cost per qty	Cost per item
X-Ray	100	300	30000
CT- Scan machine	3	100000	300000

## 2.3 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

## 3. Project Team Formation

### 3.1. Identification Team members

Name	Role	Responsibilities
------	------	------------------

sachin	Key Business User (ProductOwner)	Provide clear business and userrequirements
uday	Project Manager	Manage the project
khalid	Business Analyst	Discuss and Document Requirements
sachin	Technical Lead	Design the end-to-end architecture
uday	UX Designer	Design the user experience

khalid	Frontend Developer	Develop user interface
sachin	Backend Developer	Design, Develop and Unit TestServices/API/DB
uday	Cloud Architect	Design the cost effective, highly available and scalable architecture
khalid	Cloud Operations	Provision required Services
sachin	Tester	Define Test Cases and Perform Testing

### 3.2. Responsibility Assignment Matrix

RACI Matrix		Team Members		
Activity		Name (BA)	Name (Developer)	Name (Project Manager)
User Requirement Documentation	A	C/I	I	R
Project Management	R	C/I	A	I
Designing	I	A	R	C/I
Development	I	A	R	I
Deployment	C/I	A	R	I

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/snpg-npms/ti-it/ervcpgrm-dsfvpmptr-eng.html>

# ONE PAGE BUSINESS CASE TEMPLATE



DATE	16-03-2021
SUBMITTED BY	Lade Sachin, Palepu udayalaxman,Mohammed khalid
TITLE / ROLE	COVID X- Ray detection

## THE PROJECT

In bullet points, describe the problem this project aims to solve or the opportunity it aims to develop.

COVID-19 is a global pandemic that impacts health care and lifestyle all over the world and early detection are extremely important for limiting case spread.

This project is based on recent research that relates the presence of COVID-19 to findings in chest X-ray images. It processes these images and classifies them as positive or negative for COVID-19 using Convolutional Neural Network (CNN).

## THE HISTORY

In bullet points, describe the current situation.

The whole world is witnessing a lockdown-like situation because of the COVID-19 pandemic. Persistent efforts are being made by the researchers to obtain the possible solutions to control this pandemic in their respective areas.

One of the most common and effective methods applied by the researchers is the use of CT-Scans and X-rays to analyze the images of lungs for COVID-19. However, it requires several radiology specialists and time to manually inspect each report which is one of the challenging tasks in a pandemic.

## LIMITATIONS

List what could prevent the success of the project, such as the need for expensive equipment, bad weather, lack of special training, etc.

The process we use in this method is not at all expensive, but only thing needed is X-Ray of the patient. But this method is just an alternative for the current available testing methods.

## APPROACH

List what is needed to complete the project.

1. Google Collab
2. Python libraries:
  - Numpy
  - Pandas
  - Matplotlib
  - Keras
3. Algorithm: CNN (Convolution neural Networks), Image processing in CNN.
4. Dataset.

## **BENEFITS**

In bullet points, list the benefits that this project will bring to the organization.

Extent of spread can be detected

Low cost when compared to tests like RT PCR test.

Corona detection can be easily predictable from X-ray images.

Blood tests are costly

And takes time to conduct



**Department of Networking and  
Communications 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>	Identification of Process Methodology and StakeholderDescription
<b>Name of the candidate</b>	LADE SACHIN
<b>Team Members</b>	PALEPU UDAYALAXMAN, MOHAMMED KHALID
<b>Register Number</b>	RA2011003011374 , RA2011003011390,RA2011003011394
<b>Date of Experiment</b>	04-04-22

**Mark Split Up**

<b>S.N o</b>	<b>Description</b>	<b>Maximum Mark</b>	<b>Mark Obtained</b>
1	Exercise	5	
2	Viva	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:**

SI No	Register No	Name	Role
1	RA2011003011374	LADE SACHIN	Rep/Member
2	RA2011003011390	PALEPU UDAYALAXMAN	Member
3	RA2011003011394	KHALID MOHAMMED	Member

## **Project Title:**

### **Selection of Methodology**

- <Summarize their understanding of “Waterfall” or “Agile” Methodology>

Incorporate information to below table regarding stakeholders of the project [Make use of below examples]

StakeholderName	Activity/ Area /Phase	Interest	Influence	Priority (High/ Medium/ Low)
Patients	To give X-Ray of lungs	High	High	High
Doctors	Diagnose the patient's condition	High	High	High
Physicians	Provides continuous care for patients	Medium	Medium	Medium

Employers	Ensures the workplace is not exposed to hazards or harmed by work	Low	Low	Medium
Insurance companies	Provides cashless treatment to the insured	High	Medium	Low
Pharmaceutical firms	A commercial business licensed to research, develop and market drugs that are used as medications by patients	High	High	Low
Healthcare facility representatives	Managing day to day operations and managing construction projects. Maintaining security. Preventive maintenance	High	Medium	Medium
Lab Technicians	Provides analysis of lab observations, producing data, keeping records of scientific works and results	Low	Low	Medium
Pathologists	Provides direction to clinical labs to ensure accurate and timely reporting of lab tests and serve as a resource of result interpretation to clinicians	Medium	Low	Medium

Result: Thus the Project Methodology was identified and the stakeholders were described.



## Department of Networking and Communications

**SRM IST, Kattankulathur – 603 203**

**Course Code: 18CSC206J**

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

<b>Experiment No</b>	1
<b>Title of Experiment</b>	To identify the Software Project, Create Business Case, Arrive at a Problem Statement
<b>Name of the candidate</b>	LADE SACHIN,
<b>Team Members</b>	PALEPU UDAYALAXMAN, KHALID MOHAMMED
<b>Register Number</b>	RA2011003011374
<b>Date of Experiment</b>	16-03-2021

### Mark Split Up

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

**Staff Signature with date**

## **Aim**

To Frame a project team, analyze and identify a Software project. To create a business case and Arrive at a Problem Statement for the <title of the project>

## **Team Members:**

S. No	Register No	Name	Role
1	<b>RA2011003011374</b>	<b>Lade Sachin</b>	<b>Lead/Rep</b>
2	<b>RA2011003011394</b>	<b>Mohammed KHALID</b>	<b>Member</b>
3	<b>RA2011003011390</b>	<b>Palepu udayalaxman</b>	<b>Member</b>

## **Project Title: X-RAY COVID DETECTION**

## **Project Description**

### **Business Case**

<Incorporate the Business Case template>

## **Result**

Thus, the project team formed, the project is described, the business case was prepared and the problem statement was arrived.