VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JnanaSangama", Belgaum -590014, Karnataka.

LAB REPORT
on

OBJECT ORIENTED MODELING AND DESIGN

Submitted by

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in partial fulfillment for the award of the degree of
BACHELOR OF ENGINEERING
in
COMPUTER SCIENCE AND ENGINEERING

B.M.S. COLLEGE OF ENGINEERING
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B. M. S. College of Engineering,

Bull Temple Road, Bangalore 560019

(Affiliated To Visvesvaraya Technological University, Belgaum)

Department of Computer Science and Engineering

CERTIFICATE

This is to certify that the Lab work entitled "**OBJECT ORIENTED MODELING AND DESIGN** " carried out by **Hritik Singh(1BM19CS063),** who is bona-fide student of **B. M. S. College of Engineering.** It is in partial fulfillment for the award of **Bachelor of Engineering in Computer Science and Engineering** of the Visvesvaraya Technological University, Belgaum during the academic year 2021-2022. The Lab report has been approved as it satisfies the academic requirements in respect of an **OBJECT ORIENTED MODELING AND DESIGN - (20CS6PCOMD)** work prescribed for the said degree.

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Index Sheet

Sl. No.	Experiment Title	Page No.
1.	College information system	4-9
2.	Hostel management system	10-15
3.	Stock management system	16-21
4.	Coffee vending machine	22-27
5.	Online shopping system	28-33
6.	Railway reservation system	34-39
7.	Graphics editor system	40-45

Course Outcome

CO4	Ability to conduct practical experiments to solve a given problem using Unified Modeling language.

Exercise 1: College Information System

1. Write SRS

Date :- 8 April 2022

SRS for College Information System :-

A centralized approach and system for managing, storing, accessing and updating all the information and details present in relevance to students, and teaching as well as non-teaching faculty, increasing efficiency and convinience of information management in educational institutions.

- Educational institutions should be able to add, edit and view student personal details, like name, age, gender, email, phone number, address and so-on.
- Educational institutions should be able to add, edit and view student academic details like USN, department, semester and registered courses.
- Faculty should be able to view all student personal details and able to view and edit internal evaluation marks and attendance of students.
- The COE office should be able to view all student details, and view and edit internal and examination marks and publish results.
- Placement section should be able to view all student details, and add companies.
- Management section should view, add, edit teaching and non-teaching staff details.

2. Draw the advanced class diagram

The below shown class diagram contains the following classes: Admin, Department, Staff, Course, Teaching, Non-Teaching, Placement, COE, Student, Hostel, Facility, Library with multiplicities as shown. Association: Admin handles Department, Placement and COE, Student gets Facility, Coursesare chosen by student. Generalization: Hostel, library are generalized to Facility class. Aggregation: Staff consists (aggregate of) Teaching and Non Teaching. Composition: Department has (or is composed of) Course and Saff.

Date:- 22 April 202

Class Diagram for College Information System:-

3. Draw the advanced state diagram

Give a description of the scenario considered for developing the model. The advanced state diagram depicted below contains one nested state and one submachine, which on successful login shows the course details and profileView procedure of student. It contains initial state and termination state with Courses as a nested state including the required simple states. It also has a submachine state named ProfileView with initial, termination state along with simple states; Display profile, Edit, Save.

Advanced State Diagram for College Information System:- Date:- 18 June 2022

4. Draw the advanced use case diagram

Give a description of the scenario considered for developing the model The advanced use case diagram has extra functionalities which includes extends, includes and generalization. The show available books use case extends view books use case, view events use case includes add events and remove events, issue books use case includes verify student and check availability of book.

Advanced Use Case Diagram for College Information System
System
admin
Login
manage courses
manage department
manage staff
manage student
<< include >>
<< extend >>
select subject
Student

College Management System
Admin
Teacher
Student
Add Teacher
Add Subject
Add Student
Add Class
Modify or Delete Classes
«include»
Login
Mark Attendance
Prepare Test Papers
Check Papers
Declare Results
Fill Registration Form
Get Enrolled
Write Exam

5. Draw the advanced sequence diagram

Give a description of the scenario considered for developing the model The lifeline is the dotted line and the rectangles represent the period of time the object isexecuting and is hence called activation. The recursive function of verify is shown by double activation rectangle of verify payment and successful message.

sd CollegeManagementSystem
Student
Interface
Database
Payment
1 : Select menu to pay fees
2 : Search data related to student
3 : Display the details
4 : Select option and click submit
5 : Display payment modes available
6 : Select payment mode
7 : Request Payment
8 : Do Payment
9 : Validate Payment
10 : Successful message
11 : Payment successful-no dues

Advanced Sequence Diagram for College Information System
User
Login form
server
admin
database
1: click on login link()
2: request login page()
3: return login page
4: display login section()
5: enter id()
6: click on submit()
7: send new user info()
8: verify information()
9: request data()
10: invalid info()
11: send data()
12: send error()
13: invalid new user()
14: send acceptance mail()
15: save()

6. Draw the advanced activity diagram

Give a description of the scenario considered for developing the model
The advanced activity diagram starts from initiation and then user login activity where a signal issent to the network for request validation and upon confirmation the control flows to profile and then fee payment activity. There are three swimlanes for Payment gateway, Database manager and accountant where validate payment, update database and generate receipt respectively. Thenthe control flows to the home page and then termination activities

Advanced Activity Diagram for: College Information System:

Date: 24 June 2022

Exercise 2: Hostel Management System

1. Write SRS

Date:- 8 April 2024

SRS for Hostel Management System:-

The purpose of Hostel management system is to carry out different operations of a hostel. This system will provid ease, comfort of use to the staff of the hostel by performing all work on computer. It helps to manage student and staff records.

- Admin - should be able to login using credentials, can allot room to Students, can appoint staff.

- Student — • can login using the credential provided
  - • give feedback about staff
  - • can provide mess feedback

- Admin — • can assign work to staff members

- Mess Manager — • can review the mess feedback
  - • can update the menu list.

2. Draw the advanced class diagram

Date: 22 April 2022

Class Diagram for Hostel Management System:

3. Draw the advanced state diagram

Activate Windows
Go to Settings to acti

Advanced State Diagram for Hostel Management System :-

Date :- 18 June 2022

4. Draw the advanced use case diagram

Advanced Use Case Diagram for Hostel Management System:- Date: 24 June 2022

5. Draw the advanced sequence diagram

Hostel Payment Diagram for Hostel Management System:- Date: 1 July 2022

6. Draw the advanced activity diagram

Advanced Activity Diagram for Hotel Management System:-

Date:- 24 June 20

Exercise 3: Stock Management System

1. Write SRS

Date:- 8 April 2022

SRS for Stock Maintenance System:-

- Employees —
  - able to record information of the items in stock
  - generate reports based on sales.
  - Enter information of sales
  - Allow to purchase orders
  - change employee preferance
  - Create reports.
  - Maintains the information of sale of the items
  - Add items and update database
  - able to view the required items
  - update the price of items.
- Customer —
  - can view the system
  - cannot make any changes.
- System record —
  - retains Information on all the items
  - retains record of the cost
  - record of expiry date, vendor details, discount, quality and quantity

2. Draw the advanced class diagram

Class Diagram for Stock Maintainance System:-

Date:- 29 April

3. Draw the advanced state diagram

Advanced State Diagram for Stock Maintaining System:- Date:- 18 June 2022

4. Draw the advanced use case diagram

Advanced Use Case Diagram for Stock Maintainence System:- Date:- 24 June 2

5. Draw the advanced sequence diagram

Stock Sequence Diagram for Stock Maintenance System:

6. Draw the advanced activity diagram

Advanced Activity Diagram for Stock Maintainence System:- Date:- 24 June 2022

Exercise 4: Coffee Vending Machine

1. Write SRS

Date:- 22 April 20

SRS for coffee vending machine:-

Problem Statement:-

The objective of the system is to prepare a coffee vending machine for commercial purpose. The system will be able to prepare coffee by pouring all its required ~~progress~~ ingredients.

- Users — • will be provided with sophisticated and easy to use interface

There are many different types of coffee makers using a number of different brewing principles, in the most common devices, coffee grounds are placed in a paper or metal filter inside a funnel, which is set over a glass or ceramic coffee pot, a cooking pot in the kettle family. Cold water is poured into a seperate chamber, which is then heated upto the boiling point, and directed into the funnel.

- Cash Box : Knows amount of money put in; give change; knows price of coffee; turns front panel on and off.
- Front panel : Captures selection; knows what to mixc in each; Instructs mixer when to mix.
- Mixer : Knows how to talk to dispensors.
- Dispensor [cup - coffee powder; sugar -, creamer -, water -] : Knows how to dispense a fixed amount, knows when it is empty.

2. Draw the advanced class diagram

Class Diagram for Coffee Vending Machine:

Date: 29 April 2022

Controller
+id
+dispennsecoin()
+dispenseProduct()
+comparePrice()
+checkAvailabilty()
+UpdateProductQuality()
CoinCollector
+coinPrice
+count
+countCoin()
+givetocompany()
SelectionPanel
+productName
+status
+sendStatus()
CoinDispenser
+coinCount
+dispense()
Product
+price
+quality
+updateQuality()
+retrieveProduct()
+choose()
ProductDispender
+product
+quality
+dispense()
+coins
+productname
+has
+has
+givesout
+dispense
1
1
1
1
1
1
1
1
1..*
1..*

3. Draw the advanced state diagram

Activate Windows
Go to Settings to activat

4. Draw the advanced use case diagram

Advanced Use Case Diagram for Coffee Vending machine:

Date: 24 June 2022

5. Draw the advanced sequence diagram

6. Draw the advanced activity diagram

Date:- 24 June 20

Advanced Activity Diagram for Coffee Vending Machine

Exercise 5: Online Shopping System

1. **Write SRS**

Date :- 22 April

SRS for Online Shopping System :-

Problem statement:

An end to end merchant, customer, online shopping system that support to both of them and connecting them with system as a mediation / medium.

Requirements:

→ The system should address two types of users - merchant and customer.

→ A user profile common to all users - include name, email

→ A support form to request for any issue whether technical or non - technical.

→ A home section for merchant UI categorized to product and user reviews, related analytics.

→ Each product / service is editable by merchant after some fix amount of time.

→ The quantity is auto - moderated and the merchant can set them too.

→ A product section includes product name, name of buyer, price

→ For customer, an organized home section with a search bar with various filters applicable.

2. Draw the advanced class diagram

Date: 29 April 20

Class Diagram for Online Shopping System

3. Draw the advanced state diagram

Activate Win
Go to Settings to

Advanced State Diagram for Online Shopping System:- Date :- 18 June 2022

4. Draw the advanced use case diagram

Advanced Use Case Diagram for Online Shopping System:

Date :- 24 June

5. Draw the advanced sequence diagram

sd OnlineShoppingSystem
Customer
Website
Product
Cart
Payment
1 : Validate login
2 : Login successful
3 : Search product
4 : Product found
5 : Add product to cart
6 : Product added
7 : Order
8 : Request payment
9 : Do payment
10 : Validate payment
11 : Successful
12 : Order placed

6. Draw the advanced activity diagram

Advanced Activity Diagram for Online Shopping System:- Date:- 24 June 2022

Exercise 6: Railway Reservation System

1. Write SRS

Date:- 22 April

SRS for Railway Reservation System:-

Problem statement:

A dynamic railway reservation system providing realtime data of avoid-providing and accepting the booking of tickets online with feasible payment options.

Requirements:

→ The home section should include the current on-platform train details.

→ A user profile of name, phone no., email, photo, etc.

→ A search bar to search for available trains or where would be they available with integrated user location or providing option for user to apply the filters.

→ Each train is associated with scheduled details and user can put them to watch/alert list to keep an eye on them for availability.

→ The user can buy tickets by stating no. of passengers and seat type.

→ In case of e-ticket, it includes all the necessary details and should be accessible from e-ticket menu.

→ In case of hard copy of tickets, user is alerted to go to railway station and get the ticket by authorizing the ticket generation.

2. Draw the advanced class diagram

Date: 29 April 2022

Class Diagram for Railway Reservation System:

3. Draw the advanced state diagram

Date :- 18 June

: Advanced State Diagram for Railway Reservation System:-

4. Draw the advanced use case diagram

Advanced Use Case Diagram for Railway Reservation System:- Date:- 24 June 2022

5. Draw the advanced sequence diagram

Advanced Sequence Diagram for Railway Reservation System:- Date:- 1 July 2022

6. Draw the advanced activity diagram

Advanced Activity Diagram for Railway Reservation System:- Date:- 24.6.20

Exercise 7: Graphics Editor System

1. Write SRS

Date:- 22 April 2022.

SRS for Graphics Editor

Problem statement:

A sleak, user friendly drag drop graphical editor to create canvas, edit the same and import it in the provided formats.

Requirements:

→ The system should be have basic tab bar with default config.

→ The opening window lists the recent works with an open as well as new option.

→ Either case, an opening canvas, a toolbar of various available features is to be visible on left side of section.

→ On drag and drop, the feature is added to canvas and the further design menu should pop up on having on the feature.

→ The design menu is one to one, and can design specific feature. color, border, fill, resize etc.

→ The canvas should support redo and undo operations, also copy, paste, cut, delete of feature or features.

→ The import button should lead user to import the current canvas in available formats of .png, .JPG, .jpeg.

→ Each feature is associated with its position and design details.

2. Draw the advanced class diagram

Date:- 29 April

Class Diagram for Graphics Editor:-

3. Draw the advanced state diagram

Advanced State Diagram for Graphics Editor :- Date :- 18 June 2022

4. Draw the advanced use case diagram

Advanced Use Case Diagram for Graphics Editor:-

Date:- 24 June

5. Draw the advanced sequence diagram

sd GraphicsEditorSystem
User
UI
Toolbox
Palette
1 : Create document
2 : New document
3 : Create tools
4 : Tools selected
5 : Choose font
6 : Font selected
7 : Save document
8 : Doc saved

6. Draw the advanced activity diagram

Advanced Activity Diagram for Graphics Editor:- Date:- 24 .6 .2022