COEN 275

Object-Oriented Analysis, Design and Programming - Group Project Assignment

40% marks

Expectation from each project team

1. Team to come up with an object oriented design diagram document, clearly highlighting the object oriented concepts used in the project.
2. Each project must have a relevant UML diagram
3. Implementation can be in any one of the high level object oriented programming - C++, Java or C#
4. Project must be designed and implemented the MVC framework, meaning
    a. Application presentation layer - front end menu/GUI based on QT or Java
    b. Implementation of the middleware or main logic of the application layer
    c. Backend database or file system or memory structure which can address the scalability
5. Maximum of Three students each for any project.
6. 15 mins presentation and execution/result display during demo week

Sr No	Project	Definition
1)	Hard Disk stimulator	Write a program to stimulate a hard disk to hold hierarchical file systems. With the program the user should be able to create a virtual disk (partition) of a specific size. The program should support following features ● create/ read/ delete/ recover/ remove a file ● create a directory ● switch between different directories ● list files

		● Disk utilization statistics
2)	Two way chat application	Create a server client chat application using socket programming. The client should be able to send questions in the form of text messages to the server and the server should respond back with answers (can be limited to specific questions eg current time, today's date). Implement an UI for the client to send messages to the server. The client should also be able to see previous text messages from that particular session. Implement any form of encryption on both ends.
3)	Authentication server	Create an application stimulating the behavior of an authentication server that manages details of Permission and Authorization, username and password. The application should support following set of functionalities - ● Log the user in ● Provide the user with some authentication token that allows user to log in into multiple applications Create dummy applications (at least two) that use the auth token provided by the server to authenticate users and log them in.
5)		
6)	Task management application	Create an application to track the tasks of employees in a team. Create a login functionality that logs in the user as an employee or manager. Build an UI with below functionalities for a manager.

		● Assign task to individual members of a team ● Set priorities and deadlines ● Delete/Update tasks The application should also support following functionalities for an employee ● Change the status of a task (assigned / in-progress / completed)
7)	Calendar or Meeting organizer application	Design and develop an application which allows users to track their daily tasks and meetings. Develop an UI which provides following functionality to user - ● Create/Update/Delete/Modify a to-do task in calendar ● Create/Update/Delete/Modify a meeting in calendar A meeting will always have a start-time and an end-time. The application should not allow users to create overlapping meetings. The application should remind the user of the first meeting of the day when the user starts the application. Develop an user interface along with appropriate back-end for the application.
8)	Employee management system	Create an employee management system which facilitates us with following functionality - Create/ Delete/ Modify/ Update a record There should be login functionality at the start of the application which logs the user in as an admin or a normal employee.

		The following privileges are set for a normal employee - 1) Update personal record. 2) Add/Update number of hours worked for a particular day. 3) See expected salary for the current month based on the current number of approved hours. 4) See previous salary slips. The following privileges are set for admin - 1) Update record of any employee. 2) Approve/Reject the submitted hours by the employee. 3) Change the salary per hour for a particular employee. 4) Generate salary slip for a specific time frame. 5) Add/Remove a particular employee. Design and implement a user interface coupled with backend to achieve all the above-mentioned privileges.
9)	Photo sharing and saving application	Develop an application that would allow users to save and share their photos with other users on the network. Create an UI that supports drag and drop photo upload and save functionality for the user. After uploading photos the user should be able to discover and share his photos with other users in a particular user group. The user should

		also be able to see all the photos shared with him by other users.
10)	Game schedule generator	Develop an application that creates a basketball game schedule for a league. The application should take following inputs from the user ● Number of teams playing ● Names of team ● Cool-off period between each match of a particular team ● Start date and End date of league Based on the above input the application should generate and display schedules for the teams participating in the league.
11)	Student barcode attendance system	Develop an application that allows students to record their attendance showing QR code. Develop an UI that allows students to scan a QR code and check attendance history for a quarter.
12)	Food ordering application	Develop a food ordering application which allows users to order food and pay through the e-wallet of the application. The application should have UI to support following functions ● Selecting a restaurant ● Selecting a dish from restaurant ● Have a modification in the dish ● Add/remove/update dish in cart ● Pay for an order from e-wallet ● Add money in the e-wallet
13)	Flip card game	Develop a flip card game for two players. The game will have 16 cards in total (8 pairs) The cards will be initially upside down and will be flipped only when a player selects it. The player

		will have the option to select two cards and he will receive points if the cards match after flipping. The players should take turns flipping the cards and the player with the maximum score wins.
14)	Movie ticket reservation system	Create an application for booking movie tickets. The application support following functionalities - ● Select a movie theatre ● Select a movie ● Select show timings ● Select seats ● Checkout Divide the seats in three different categories, each one costing different than the other (eg A - 20$, B - 15$). The user should not be able to pick the seats which are already reserved. Design and implement a user interface coupled with backend to achieve all the above-mentioned functionalities.
15)	Mail server	Create a mail server that receives incoming email from users and senders and forwards outgoing messages for delivery. Implement an UI for users to login into the application. The application should provide following functionalities to the user- ● Login/SignUp ● Draft and send an email ● Check all the received emails ● Read an email Design and implement a user interface coupled with backend to achieve all the above-mentioned functionalities.