Semester Project Documentation

Semester Project Title: Notification Board App

Student Details

	Student Name	Student Reg #	Student Degree
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Main Features

1: Admin:

- **Create users and new Notifications.**
- **Delete notifications and edit them.**
- **Login**

2: Teacher:

- **Create new Notifications.**
- **Edit own Notifications.**
- **Login**

3: Students:

- **Login and view notifications**

Types of Users

1: Admin
2: Teacher/Faculty
3: Student

Requirements Breakdown

(Write requirements of each feature by numbering. For example: Requirements of feature # 1. It will be mentioned as 1.1, 1.2. Similarly for feature # 2 it will be 2.1, 2.2, 2.3 … etc.)

Admin:

1.1 The system must allow the admin to create new user accounts.

1.2 The system must provide the admin with the ability to create new notifications.

1.3 The system must allow the admin to edit and delete notifications.

1.4 The system must allow the admin to login to the system.

Teacher:

2.1 The system must allow the teacher to create new notifications.

2.2 The system must allow the teacher to edit their own notifications.

2.3 The system must allow the teacher to login to the system.

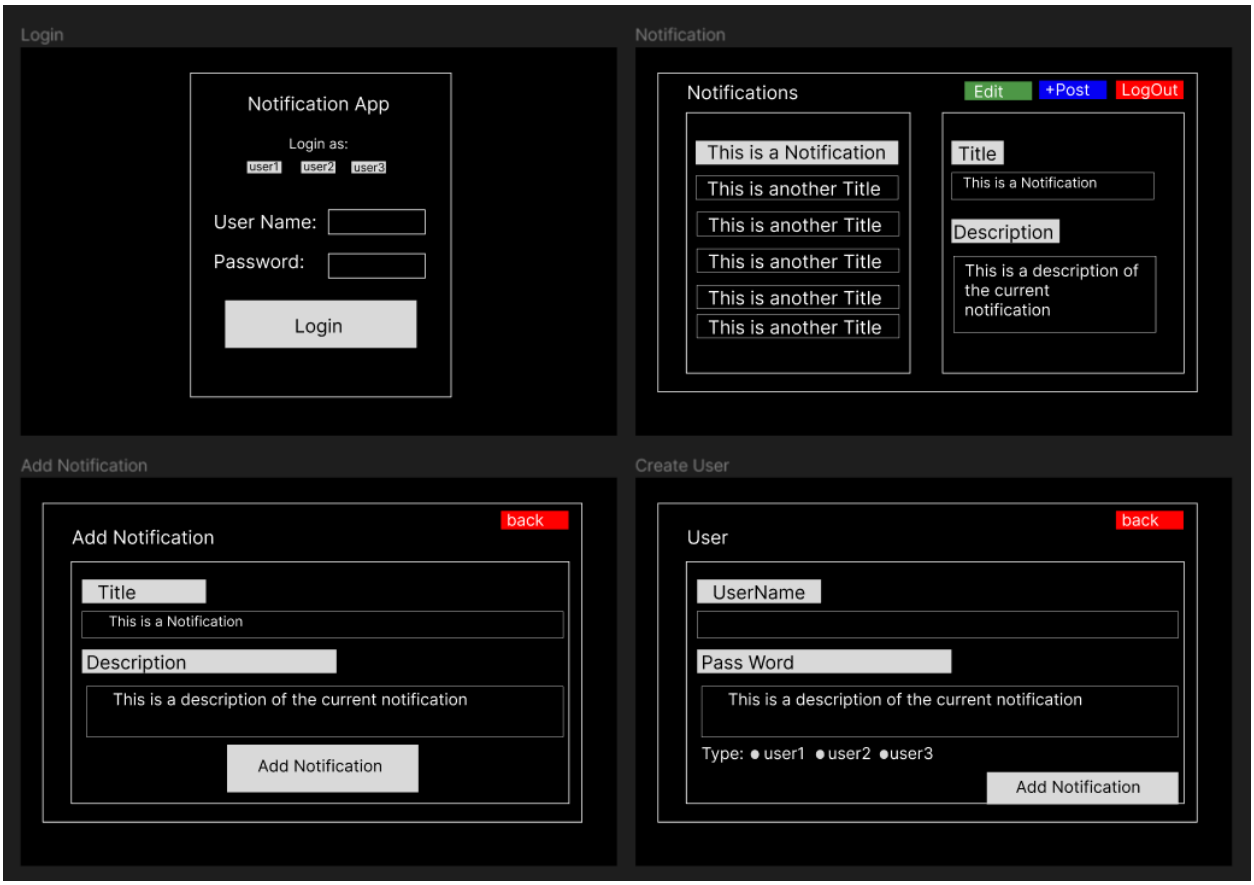
Students:

3.1 The system must allow students to login.

3.2 The system must allow students to view notifications posted by admins or teachers.

GUI Screens / Design / Wireframes

(Think what kind of GUI your application should have. Make a simple and easy one, you do not need to create complex design, copy, and paste screenshot of your design under this heading)



Features to Codding Matrix

(In the following table you will mention the following items for each feature, mention the items in each column for each feature of your application)

Sr no.	Feature Name	OOP Type Used	Functions Created	Variables / Obj Created	Line of Code Written
1	Main Window (Handles UI and Front End Operations / Features)	Class + polymorphism	22	7	82(Base) , 425(Implementation)
2	Backend (Handles the backend ie: user operations , admin operations , post creation/ deletion etc)	Class + Friend Class	9	6	45(Base), 110(class implementation)
3	App Object(represents all objects created)	Parent Class	2	2	14
4	Notification Object (represents all notification objects), provides a template for notification Objects	Inheritance (child of App Object)	3	3	17
5	User Sign In/Out	Class (Backend)	3	5	~15

Detailed Explanation for Backend class:

This class is responsible for handling backend operations such as reading and writing JSON data, managing user sessions, and handling posts.

Private Members:

- `QJsonObject jsonData;`: Stores JSON data read from a file.

- `QJsonArray posts;`: Stores an array of post data from the JSON file.

- `string loggedInUserName;`: Stores the currently logged in user's name.

Public Members:

- `int currSelectedNotificationIndx = 0;`: Current selected notification index.
- `int postsLength  = 0;`: Total length of the posts.
- `string postTitles[100];`: Array storing all post titles.

Public Member Functions:

- `void initJsonData(string);`: Reads JSON data from a file and initializes `jsonData` and `posts`.
- `void setPostsData();`: Reads post data from `jsonData` and sets `postTitles`.
- `void setLoggedInUser(string);`: Sets the username of the currently logged in user.
- `void signOutUser();`: Signs out the current user.
- `void updateJSON();`: Updates the JSON file with current `posts`.
- `void addNewPost(string , string , string);`: Adds a new post to `posts` and updates the JSON file.
- `void addNewUser(string ,string,string);`: Appends a new user's data to a file.
- `QJsonArray* returnPosts();`: Returns a pointer to `posts`.
- `string getLoggedInUserName();`: Returns the currently logged in user's name.

Constructors:

- `Backend()`: Default constructor initializing `loggedInUserName` to an empty string.
- `Backend(QJsonObject obj)`: Overloaded constructor which initializes `jsonData` with `obj` and `loggedInUserName` to an empty string.

Friend Classes:

- `MainWindow`: This class is granted the same access as Backend's member functions.