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Department of Computer Science and Engineering



19Z311 – Object-Oriented Programming

Project

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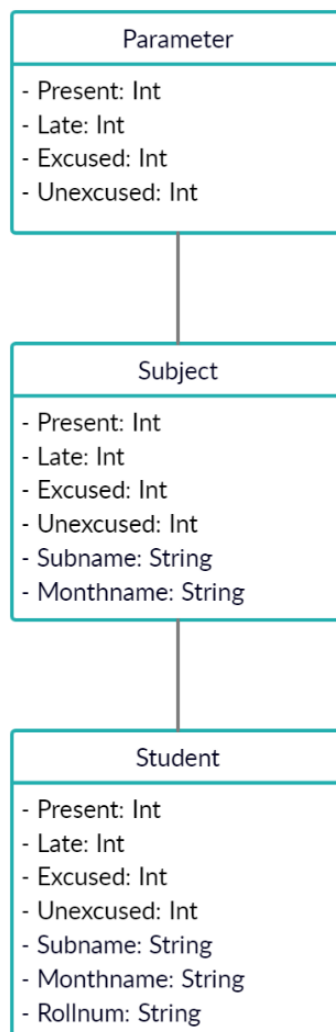
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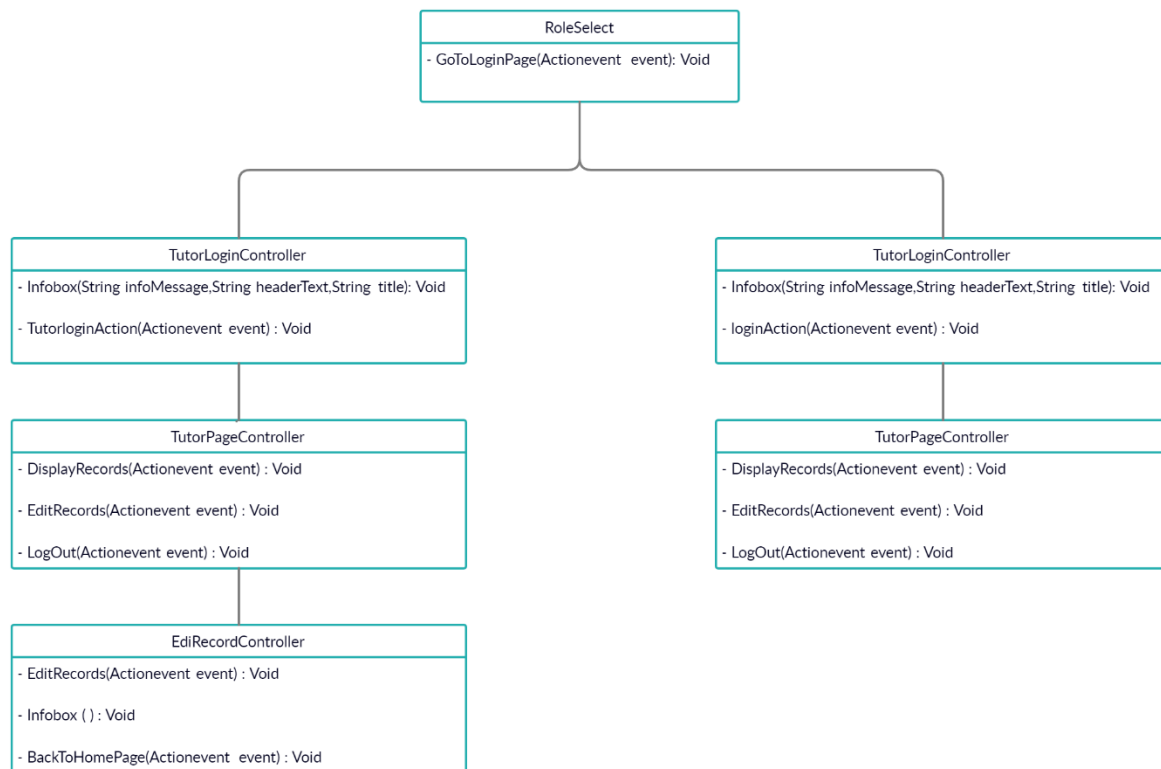
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Problem Statement

This project is developed for tracking student attendance for a class in college. There are two roles, student and the tutor, each having their own login data and profile pages. The student can only view the attendance record on a monthly basis but the tutor can view and update the record. Our project includes present, late, excused and unexcused columns for each subject and student in the class. The main aim is to reduce manual work and the human error that comes along with it.

Class Diagram





Users and the Features available to them in the Application

User Profiles

The user profiles available in the application we have designed are:

- Tutor
- Student

Tutor Profile

- Once the 'Tutor' role is selected from the RoleSelect page, the screen displayed prompts the user to enter their credentials for it to be authenticated.
- Once login is successful, the page will be redirected to a new frame where the tutor has two options: Either view the students' record or Edit the details of the students.
- The tutor has to select a particular course and month and click 'Get Records' button to display the records of all students.
- To edit a particular student's record, 'edit records' button has to be clicked.
- Once the Edit record page opens, the tutor has to give the roll number of the student whose record they require to be updated and the appropriate month and course code of the subject should be selected.
- Then, the tutor has four parameters(present, absent, excused, unexcused) available for them to select and update.
- After selecting at least one of the four fields, one can enter the new value of that particular parameter in a textbox displayed to the right.
- Once changes are made, 'Edit record' button updates the changes and clicking the 'Back' button redirects the user back to the Tutor's profile page, where they can view the students' records.
- The 'Log Out' button in the Profile Page leads the user back to the RoleSelect page.

Student Profile

- Once the 'Student' role is selected, the screen displayed prompts the user to enter their credentials for it to be authenticated.
- Once login is successful, the page will be redirected to a new frame where the Student can view their attendance details of a particular subject for a specific month by choosing these options from the Choice boxes give.
- Once the student has selected the course code and month, their attendance records for that month and subject is displayed upon clicking the Get Records button
- Student login has two restrictions:
 - A student can view only their details and cannot access other students records.
 - A student cannot edit their record but only view them.
- After viewing their details, clicking 'Log out' button redirects to the previous menu frame where they have the option to select roles.

Challenges Faced

One of the main challenges we faced was in trying to define an efficient data model to store the attendance records of the students. Finally, we decided on a simple MySQL table structure that not only allowed us to have flexibility in the access commands but also in the update commands.

Another challenge that we came upon was that we were restricted by the nature of the localhost server to share the access to the tables where the data was stored. We overcame this by a strategic distribution of work and using comments and skeleton code to indicate necessary actions to the group member with access to the database.

Contributions

Student Profile Page:

Front end:

Priyadharshini – Creating the gui using fxml files for Student login, i.e, StudentLogin.fxml and StudentProfile.fxml
Along with creating the FXML files, providing the necessary code to manipulate the GUI

Backend:

Swetha – Creating and defining ActionEvents for components in the file and describing skeleton code instructing actions to be done on the MySQL table

Tutor Profile Page:

Front end:

Suchitha – Creating the gui using fxml files for Tutor login, i.e, TutorLogin.fxml and TutorProfile.fxml
Along with creating the FXML files, providing the necessary code to manipulate the GUI

Backend:

Rishika – Creating and defining ActionEvents for components in the file and describing skeleton code instructing actions to be done on the MySQL table

RoleSelect and Edit Records Pages:

Mridula – The main function that loads the RoleSelect Page
Setting up a database and creating appropriate MySQL table from .csv files
Creating and defining functions for the Edit Records page, along with
designing the layout of components on the page

Annexure I: Code

The commented code, along with the .fxml layout files, for our application can be found at the following repository on Github :

[Student Attendance Tracker](#)

Annexure II: Snapshots of the Output

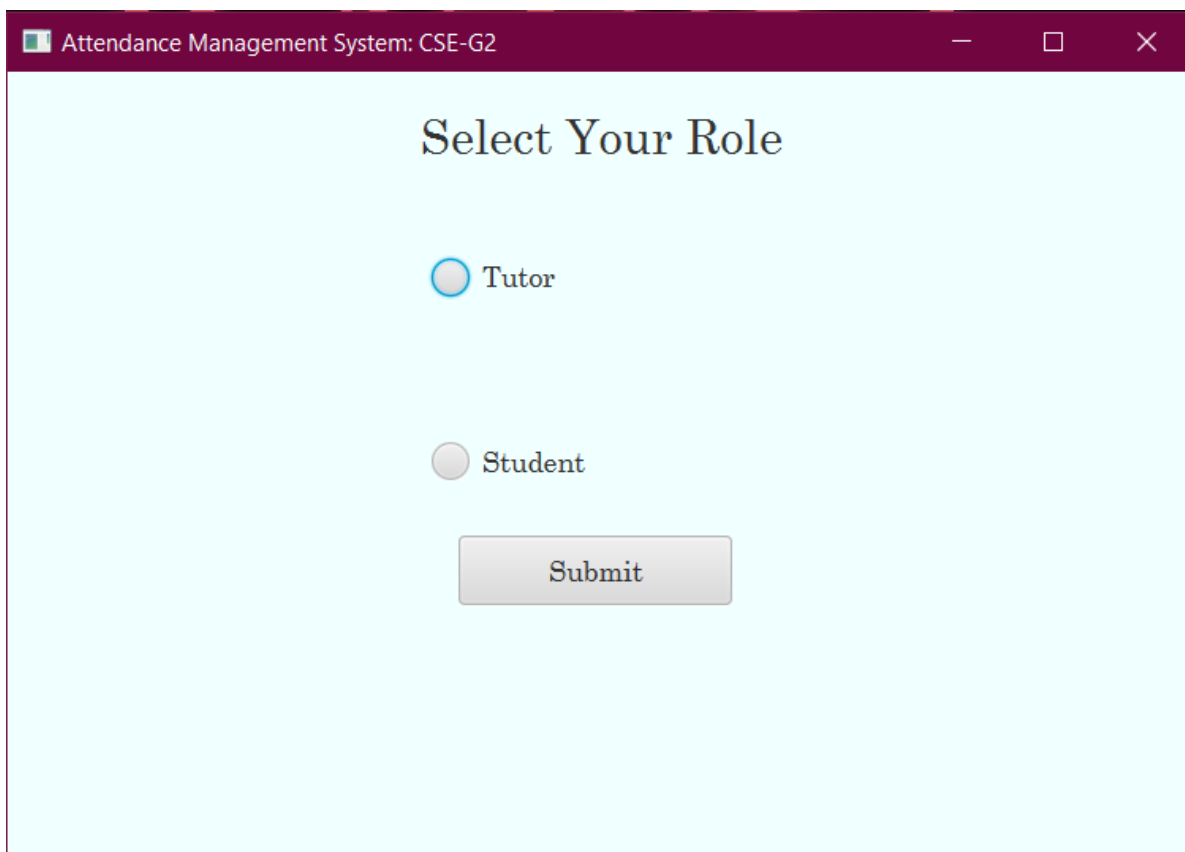


Figure 1 : RoleSelect Page

Attendance Management System

Tutor Login Page

Email ID

Password

Login

Figure 2: Tutor Login Page

Course	Roll Number	Present	Late	Excused	Unexcused
19Z305	19Z301	6	0	0	0
Month	19Z302	6	0	0	0
August	19Z303	6	0	0	0
Get Records	19Z304	6	0	0	0
Edit Records	19Z305	4	0	0	2
Log Out	19Z306	6	0	0	0
	19Z307	6	0	0	0
	19Z308	6	0	0	0
	19Z309	6	0	0	0
	19Z310	6	0	0	0
	19Z311	6	0	0	0
	19Z312	6	0	0	0
	19Z313	6	0	0	0
	19Z314	6	0	0	0
	19Z315	6	0	0	0
	19Z316	6	0	0	0
	19Z317	6	0	0	0
	19Z318	5	0	0	1
	19Z320	6	0	0	0
	19Z321	6	0	0	0
	19Z322	6	0	0	0
	19Z323	6	0	0	0
	19Z324	6	0	0	0
	19Z326	6	0	0	0
	19Z327	5	0	0	1
	19Z328	6	0	0	0
	19Z329	6	0	0	0
	19Z330	6	0	0	0
	19Z331	6	0	0	0
	19Z332	6	0	0	0

Figure 3: Tutor Profile Page

Attendance Management System

Edit Attendance Records For CSE-G2

Roll Number of Student: 19Z332

Select Subject: 19Z303

Select Month: August

Parameters to be Altered:

- ☒ Present: 8
- ☒ Late: 0
- ☒ Excused: 0
- ☐ Unexcused: 0

Edit Record

Back

Figure 4: Edit Records Page, Tutor Profile

Attendance Viewer

19Z332 Attendance Viewer

Filter records	Month	Subject	Present	Late	Excused	Unexcused
Subject	August	Computer Architecture	8	0	0	0
19Z303	September	OOP Lab	10	0	0	0
Month	September	Environmental Studies	3	0	0	0
August	October	Object Oriented Programming	10	0	0	0
	August	Computer Architecture	8	0	0	0

Get Records

Log Out

Figure 5: Student Profile Page

References

1. Oracle Documentation for JavaFX: <https://docs.oracle.com/javafx/2/api/index.html>
2. JetBrains Help for JavaFX: <https://www.jetbrains.com/help/idea/javafx.html>
3. JavaFX Documentation and Tutorials : <https://docs.oracle.com/javase/8/javase-clienttechnologies.htm>
4. MySQL Documentation: <https://dev.mysql.com/doc/>