

Integration Requirement Documentation
Project: Learning Management System
Software Engineering - L2
Spring 2022
Habib University
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Integration Requirement - Learning Management System

Purpose: The purpose of this document is to describe the effort and the end product of one of the mandatory requirements of Sprint 2 of Software Engineering (L2) project Spring 2022 at Habib University which was to integrate the project with the project of at least one another team.

Requirement: Integration with other projects

(Note: Although the project aimed to integrate all projects made my groups of L2, due to time constraints the instructor asked students to integrate at least one another project)

Approach: Our team decided to integrate the software with team “Muawin”. For this purpose, through verbal communication and collaboration, the two teams agreed on the following two steps to be accomplished in order to integrate the two projects. Note that we aimed to integrate based on the database developed:

1. The teacher’s data developed and deployed by team “Muawin” shall be used by team “Learning Management System” to let the teacher log in.
2. The Students’ and the Attendance Record database shall be developed and deployed by team “Learning Management System” which shall be used by team “Muawin” to generate relevant reports.

Step 1: The teacher’s data developed and deployed by team “Muawin” shall be used by team “Learning Management System” to let the teacher log in.

Team “Muawin” provided us with the following URL in order to share their data of teachers via API.

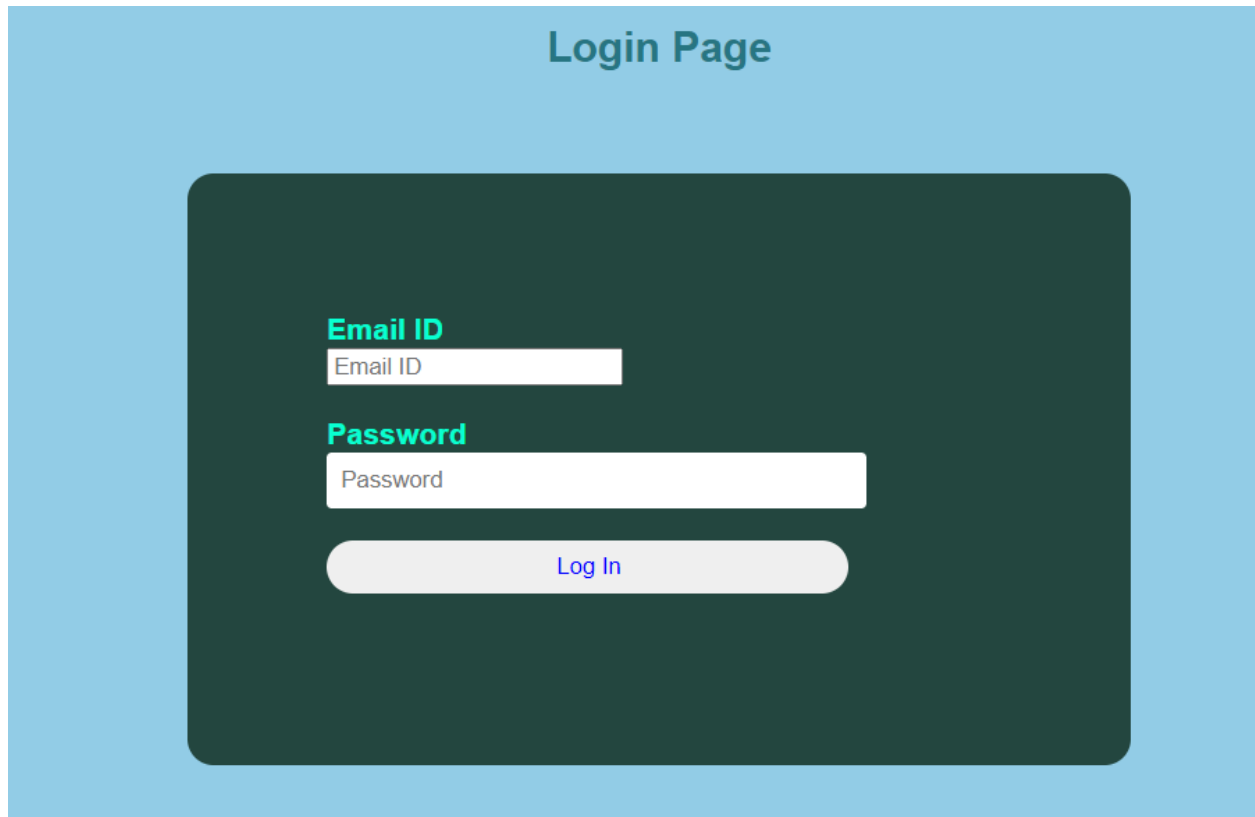
<http://fizzaar39.pythonanywhere.com/api/teacher/login?email=fizzaa39@gmail.com&password=minerva>

Note that using change # 2, the team “Learning Management System” made changes in the design (of their class diagram). For further details please refer to change management documentation provided in the following URL:

<https://docs.google.com/document/d/1RxJxlo3qijoPrhDv184pH2aGdFv3Ygfaj1FGKDW6rnM/edit?usp=sharing>

Using the “request” module of python, the “Learning Management System” team was able to include the provided data of teachers for login purposes. Following are some of the screenshots giving an insight of integration:

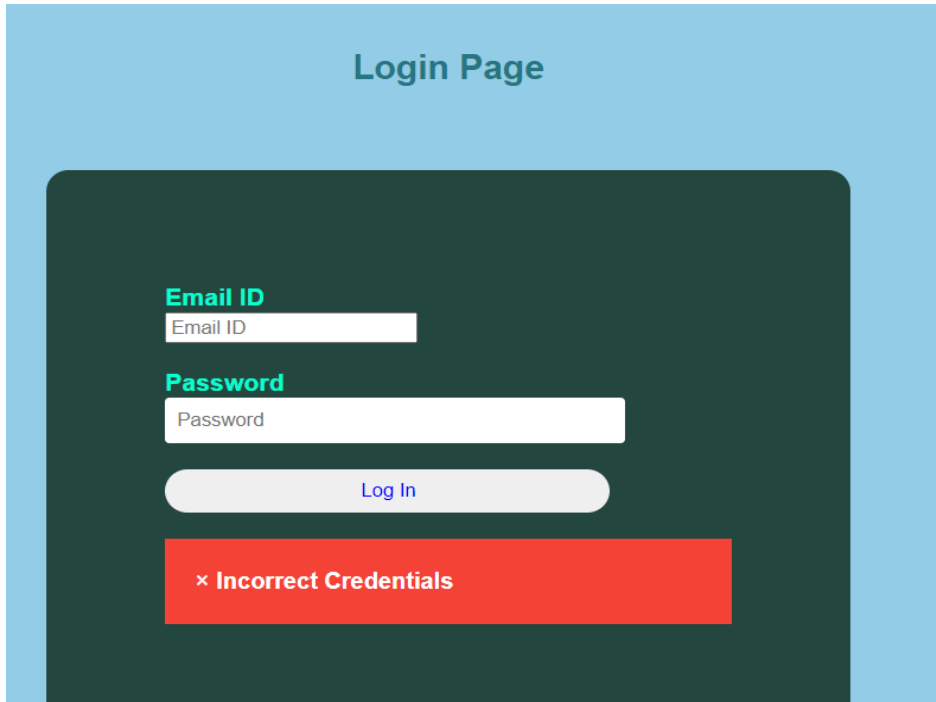
Log In Screen for teachers:



The image shows a login page with a light blue background. At the top center, the text "Login Page" is displayed in a dark teal font. Below this, there is a dark teal rounded rectangle containing the login form. The form has two input fields: the first is labeled "Email ID" in teal text with a placeholder "Email ID" in gray; the second is labeled "Password" in teal text with a placeholder "Password" in gray. Below the password field is a light gray rounded button with the text "Log In" in blue.

Failed to Log In:

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Login Page

Email ID
Email ID

Password
Password

Log In

× Incorrect Credentials

Upon Successful Login, the system gives 2 options:

- [Report Generation](#)
- [Mark Attendance](#)

And upon choosing “Mark Attendance” option:

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dd/mm/yyyy ☐

1	Ben Smith	<input type="radio"/> P <input type="radio"/> A <input type="radio"/> L
2	Harry Potter	<input type="radio"/> P <input type="radio"/> A <input type="radio"/> L
3	John Riddle	<input type="radio"/> P <input type="radio"/> A <input type="radio"/> L
4	Jennifer Styles	<input type="radio"/> P <input type="radio"/> A <input type="radio"/> L
5	New World	<input type="radio"/> P <input type="radio"/> A <input type="radio"/> L
6	Hermione Granger	<input type="radio"/> P <input type="radio"/> A <input type="radio"/> L
7	Snow White	<input type="radio"/> P <input type="radio"/> A <input type="radio"/> L

Submit

Note that since in this sprint, our tickets did not include redirecting teachers to the students of their particular section only (after selecting one of the class and section), therefore the user story is still not complete yet.

Step 2: The Students' and the Attendance Record database shall be developed and deployed by team "Learning Management System" which shall be used by team "Muawin" to generate relevant reports.

Team "Learning Management System" made the relevant classes of the database on MySQL over pythonanywhere.

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```
← → ↻ 🔒 www.pythonanywhere.com/user/shamsahafeez1/consoles/24405515/

Bash console 24405515

20:58 ~ $ mysql -u shamsahafeez1 -h shamsahafeez1.mysql.pythonanywhere-services.com -p
bash: mysql: command not found
20:59 ~ $ mysql
ERROR 2002 (HY000): Can't connect to local MySQL server through socket '/var/run/mysqld/mysqld.sock' (2)
20:59 ~ $ mysql -u shamsahafeez1 -h shamsahafeez1.mysql.pythonanywhere-services.com -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 13251378
Server version: 5.7.34-log Source distribution

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> USE flaskapp
ERROR 1044 (42000): Access denied for user 'shamsahafeez1@%' to database 'flaskapp'
mysql> USE shamsahafeez1$flaskapp;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> show TABLES;
+-----+
| Tables_in_shamsahafeez1$flaskapp |
+-----+
| attendance |
| students   |
+-----+
2 rows in set (0.00 sec)
```

```
← → ↻ 🔒 www.pythonanywhere.com/user/shamsahafeez1/consoles/24405515
🐍 Bash console 24405515

| students |
+-----+
2 rows in set (0.00 sec)

mysql> select * from attendance;
+-----+
| at_ID | date       | st_id | status |
+-----+
| 1     | 2022-04-20 | 1     | a      |
| 2     | 2022-04-20 | 2     | p      |
| 3     | 2022-04-20 | 3     | p      |
| 4     | 2022-04-20 | 4     | p      |
| 5     | 2022-04-20 | 5     | l      |
| 6     | 2022-04-20 | 6     | a      |
| 7     | 2022-04-20 | 7     | p      |
| 8     | 2022-04-21 | 1     | l      |
| 9     | 2022-04-21 | 2     | p      |
| 10    | 2022-04-21 | 3     | p      |
| 11    | 2022-04-21 | 4     | p      |
| 12    | 2022-04-21 | 5     | p      |
| 13    | 2022-04-21 | 6     | p      |
| 14    | 2022-04-21 | 7     | a      |
+-----+
14 rows in set (0.01 sec)

mysql> select * from students;
+-----+
| st_id | Name           | DOB       |
+-----+
| 1     | Ben Smith      | 2006-02-12 |
| 2     | Harry Potter   | 2004-03-01 |
| 3     | John Riddle    | 2004-05-01 |
| 4     | Jennifer Styles | 2005-05-20 |
| 5     | New World      | 2004-03-09 |
| 6     | Hermione Granger | 2004-08-10 |
| 7     | Snow White     | 2003-12-11 |
+-----+
7 rows in set (0.00 sec)
```

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To start off by sharing the students' data:

<https://www.pythonanywhere.com/user/shamsahafeez1/shares/77384c5d194a4b5e93f480dd17098703/>

However, it gave an error:



Internal Server Error

The server encountered an internal error and was unable to complete your request. Either the server is overloaded or there is an error in the application.

The developers were unable to debug the code given the time constraint

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Summary:

The teacher's data developed and deployed by team "Muawin" was used by team "Learning Management System" to let the teacher log in. Since team "Learning Management System" could not deploy the database due to time constraint, the students' and attendance data was not integrated in team Muawin's codebase.

Limitations:

1. Due to limited time, it was difficult to manage all the tasks required in this sprint.
2. The limited experience and expertise in coding, caused developers to take greater time than expected to complete tasks required.
3. Team members were not only working as developers but were responsible for completing the documentation and other miscellaneous tasks including testing and reviewing code.

Lessons Learnt and Future Directions:

The system could have been easier to integrate if the repository architecture was used and a common pool of data was shared amongst all the groups. For this purpose, the same class diagram should have been used by all groups. Moreover, for future integration, the "Report Generation" option shall redirect the user (teacher) to the project developed by Team "Muawin". This shall be implemented once Team "Muawin" has published their project. Additionally, it is essential to give sufficient time to developers with limited experience in order to complete the phases of software development as per the planned timeline.