

Report on SPL Management System

Submitted as

Final Report of SPL-2
Course: SE 503

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Chapter - 1: Introduction

SPL (Software Project Lab) Management System is a web based application which aims to help the students and teachers of IIT [1] , DU. This application will help the students to find appropriate supervisors for SPL-1, SPL-2 and SPL-3. This system will digitalize the supervisor assigning. In SPL-1, the supervisor will be assigned randomly. And in SPL-2 and SPL-3 students will request teachers to be their supervisor. Teachers will be able to accept or reject requests. Then the supervisor will also be able to add marks.

Chapter - 2: Background of the Project

2.1 Software project Lab of IIT (Institution of Information Technology)

In the Institution Of Information Technology, there are three courses in 3rd, 5th and 8th semester named respectively SPL-1, SPL-2 and SPI-3. SPL committee members sometimes face some troubles in supervisor allocating. Each of the groups/students is required to present their progress weekly to the coordinator. Coordinator has to maintain the progress as the form of attendance and he/she has to evaluate the progress of students. There is one project proposal presentation, one/two mid presentation carries and one final presentation carrying a certain mark which has to be stored in hard copy. Then the coordinator has to count these marks separately. Sometimes students can't get the idea what to do or not in their SPL. This application will digitalize those things to ease both teachers and students' activity.

Chapter - 3: Description Of the Project

3.1 Account Management

There will be 3 types of accounts: Admin account, Teachers account, and Students account.

The admin account is responsible for creating teachers accounts. After creating a teacher's account an email will be sent with a password (generated by the system) and users will be able to change the password by logging in. Students will create their account by using IIT mail. Users can edit their information and recover the account if they forget the password. In signing, every user will use email and password. After checking authentication, they'll be logged in.

3.2 SPL Committee Formation

There will be three separate committees for SPL-1, SPL-2 and SPL-3. Every committee will be formed with certain members and a committee head. The admin can select the committee head and members for these three committees.

3.3 Supervisor Allocation

Every teacher can supervise some students or some groups in these three SPL.

1. **SPL-1:** In SPL-1 supervisor will be assigned randomly which can be initiated by the admin/ the SPL committee head.
2. **SPL-2:** In SPL-2 admin will **form a group** of a certain number of members through a **form fill up**. Then the groups can send requests to teachers to be their supervisor by sharing their ideas. A teacher can accept or reject the request. Teachers will be notified to respond whether he/she is willing to take that group or not.
3. **SPL-3:** In SPL-3 students will send requests to teachers to be their supervisor by sharing their ideas. A teacher will be able to accept or reject the request.

3.4 Use Case Diagram for Supervisor Allocation

Level : 1

Name: Supervisor Allocation

Primary Actor: Teacher(Supervisor, SPL Manager, SPL committee member, Committee head), Student

Secondary Actor: Gmail

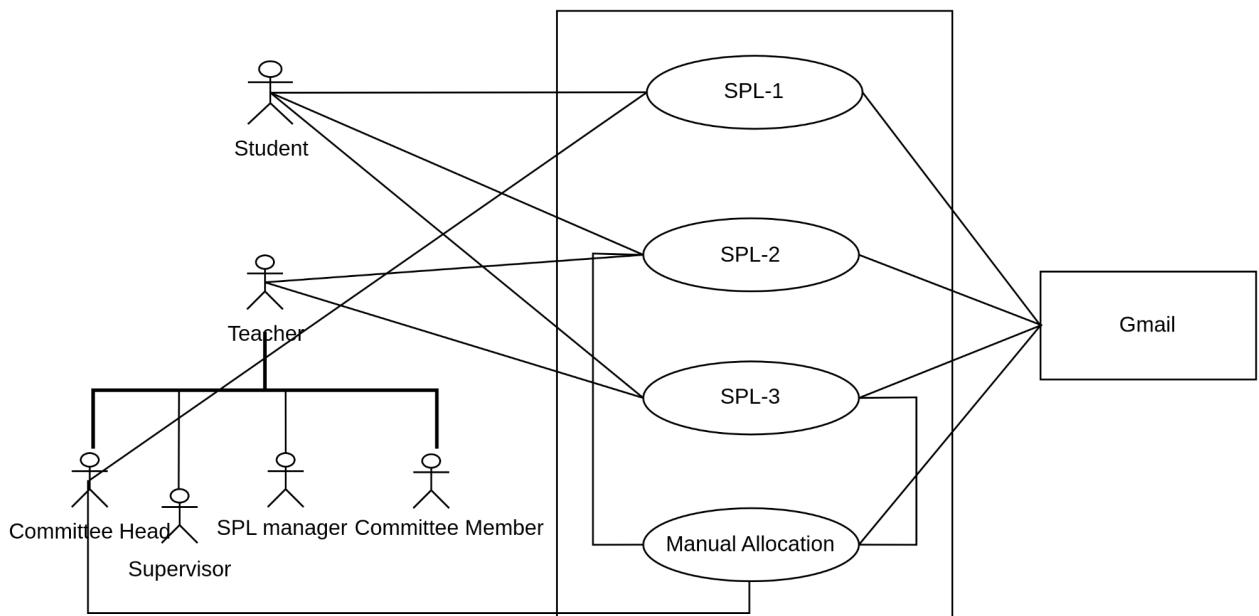


Fig:1 (UCD of Level-1 : Supervisor Allocation)

Description:

1. **SPL-1:** The Committee Head will randomly assign a supervisor for every student.

2. SPL-2: The students will form groups with a specified number of members. Then each group will send requests to teachers to be their supervisor. A teacher can accept or reject the request. For remaining groups, who didn't find any supervisor, the Committee Head will initiate the supervisor-allocation according to teachers' hierarchy.

3. SPL-3: SPL-3 is individual. Each student will be able to share their interested field/ideas in account details. The system will suggest appropriate supervisor for students by matching their field/ideas with teachers interested field/area. Then each student will send requests to teachers to be their supervisor. A teacher can accept or reject the request.

For the remaining students, who didn't find any supervisor, the Committee Head will initiate the supervisor-allocation according to teachers' field/area.

4. Manual Allocation: The Committee Head will be able to manually allocate supervisor for remaining students of SPL-2 and SPL-3.

Level : 1.1

Name: SPL-2

Primary Actor: Teacher(Supervisor, SPL Manager, SPL committee member, Committee head), Student

Secondary Actor: Gmail

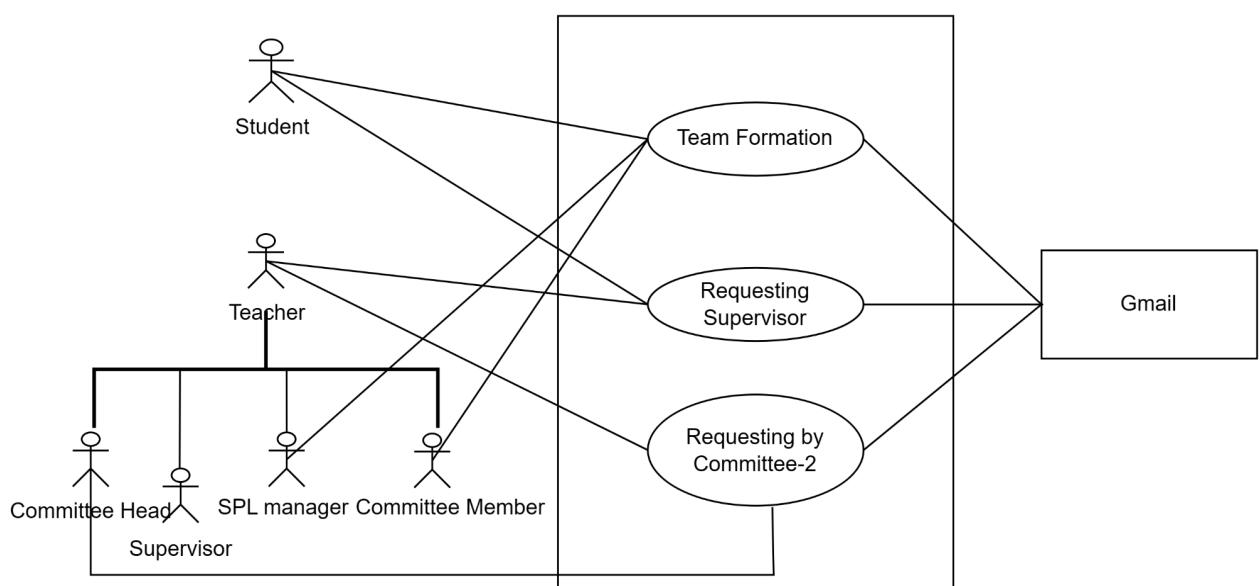


Fig:2 (UCD of Level-1.1 : SPL-2)

Description:

1. Team Formation: The students will form groups with a specified number of members.

2. Requesting Supervisor: Then each group will send requests to teachers to be their supervisor. A teacher can accept or reject the request.

3. Requesting by Committee-2: For remaining groups, who didn't find any supervisor, the Committee Head will initiate the supervisor-allocation according to teachers' hierarchy. Teachers will be notified to respond whether he/she is willing to take that group or not. This process can be continued.

Level : 1.2

Name: SPL-3

Primary Actor: Teacher(Supervisor, SPL Manager, SPL committee member, Committee head), Student

Secondary Actor: Gmail

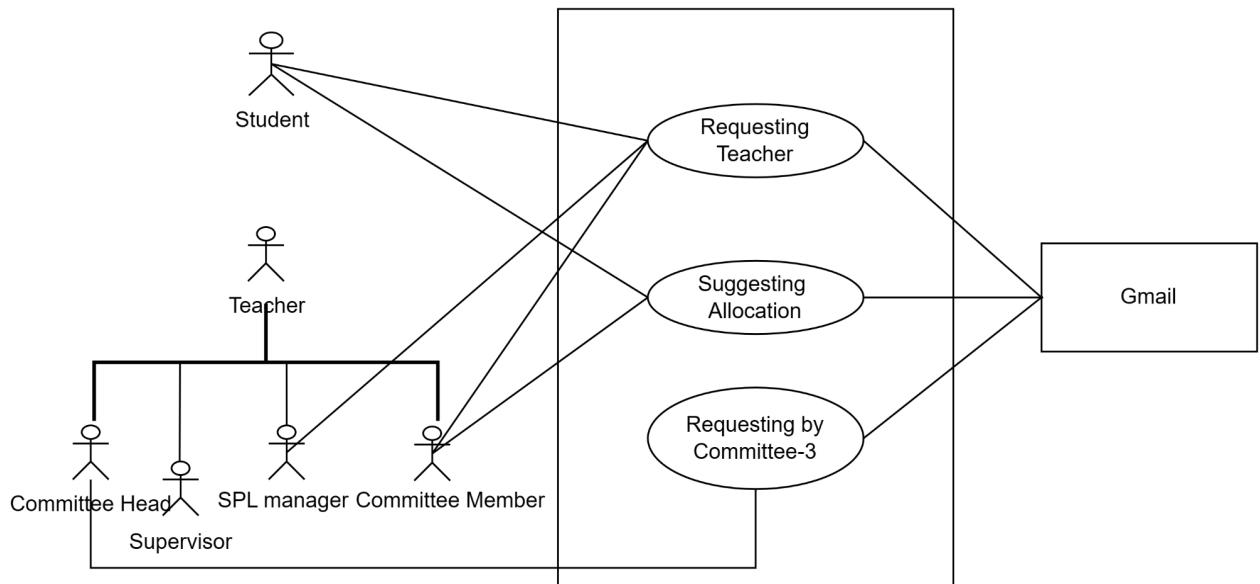


Fig:3 (UCD of Level-1.2 : SPL-3)

Description:

1. Requesting Teacher: Then each group will send requests to teachers to be their supervisor. A teacher can accept or reject the request.

2. Suggesting Allocation: The system will suggest appropriate supervisor for students by matching their field/ideas with teachers of the interested field/area.

2. Requesting by committee-3: For remaining students, who didn't find any supervisor, the Committee Head will initiate the supervisor-allocation according to the ideas matched with the teachers idea. Teachers will be notified to respond whether he/she is willing to take that group or not. Teachers have to respond within a given time. This process can be continued.

3.5 Supervisor's Marking

After allocating Supervisor, the supervisor will be able to see the students list who are assigned with him/her. Supervisor also can add a percentage when the committee head gives permission.

Chapter - 4: Implementation Details

4.1 Event Based Flow (Event Table)

No	Event Name	Initiator Class	Colaborator Class
1	Creating Account	Account	Student, Admin
2	Send email	Account	Notification
3	Edit information	Teacher, Student, Admin	Account
4	Recover account	Teacher, Student, Admin	Account
5	Log in	Admin, Teacher, Student	Account
6	Authenticity Checking	Account	None
7	Select Committee Head (SPL-1, SPL-2, SPL-3)	Admin	Teacher
8	Select/Remove Committee Member & SPL Manager (SPL-1, SPL-2, SPL-3)	Committee Head	Teacher
9	Check notice	Teacher, Student	Notification
10	Randomizing SPL-1 supervisor	Committee Head	Teacher, Student
11	Team Formation	Student	Student
12	Promote Next SPL	Admin	student
13	Add SPL Manager	Committee Head	Teacher
14	Request for Supervisor	Student	Teacher, Notification
15	Response on Team/individual Request	Teacher	Student, Notification
16	Committee request following teachers hierarchy	Supervisor Allocator	Teacher, Student, Notification
17	Matching student and teacher's idea	Supervisor Allocator	Committee Member, Student

18	Committee request following the matching	Supervisor Allocator	Teacher,Student, Notification
19	Manually allocate supervisor	Committee Head	Supervisor Allocation, Teacher, Student, Notification
20	Project Room Notice	Supervisor	Student, Notification
21	Progress Tracking	Supervisor	Students, SPL Manager
22	View Progress	SPL Manager, Student	none
23	Set evaluation Process.	Committee Head	Marking evaluator
24	Upload marks	Supervisor, SPL Manager	Marking Evaluator, SPL Committee
25	Create Presentation event	Committee Head	Teacher
26	Marking presentations	Committee Member	Marking Evaluator
27	Publish continuous evaluation	SPL Manager	Student, Marking Evaluator
28	Collect Final Marks	Marking Evaluator	Marking Evaluator
29	Grade Sheet Generator	Marking Evaluator	Committee Member
30	Promote Next SPL	Admin	Student
31	Modify marks manually	Committee Head	Marking Evaluator
32	Sending Email/notification	Notification	Teacher, student
33	Taking Attendance	SPL Manager	none

4.2 Data Based Flow (Supervisor Allocation)

Here a data flow is shown only for our core features, supervisor assigning

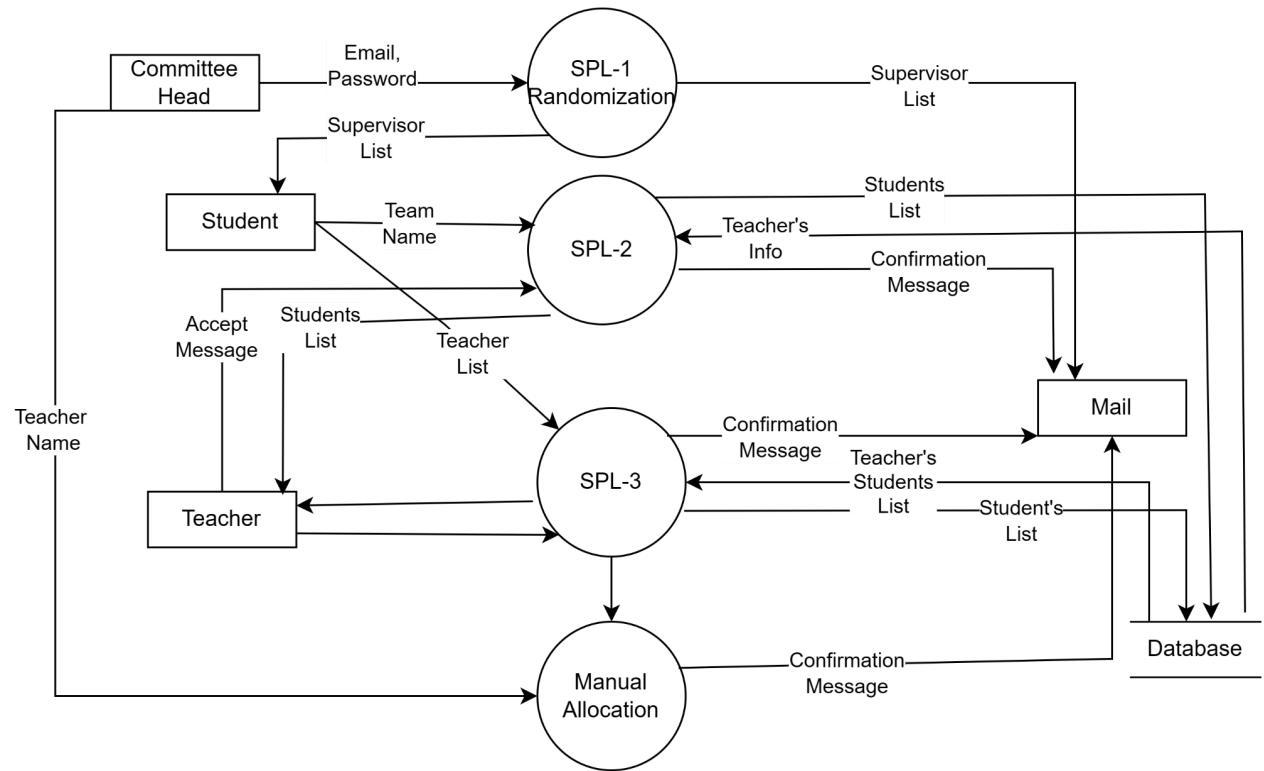


Fig 4: Data flow diagram of Supervisor allocation

Chapter - 5: User Manual

5.1 Opening Page:

After Logging In user will be redirected to LogIn page

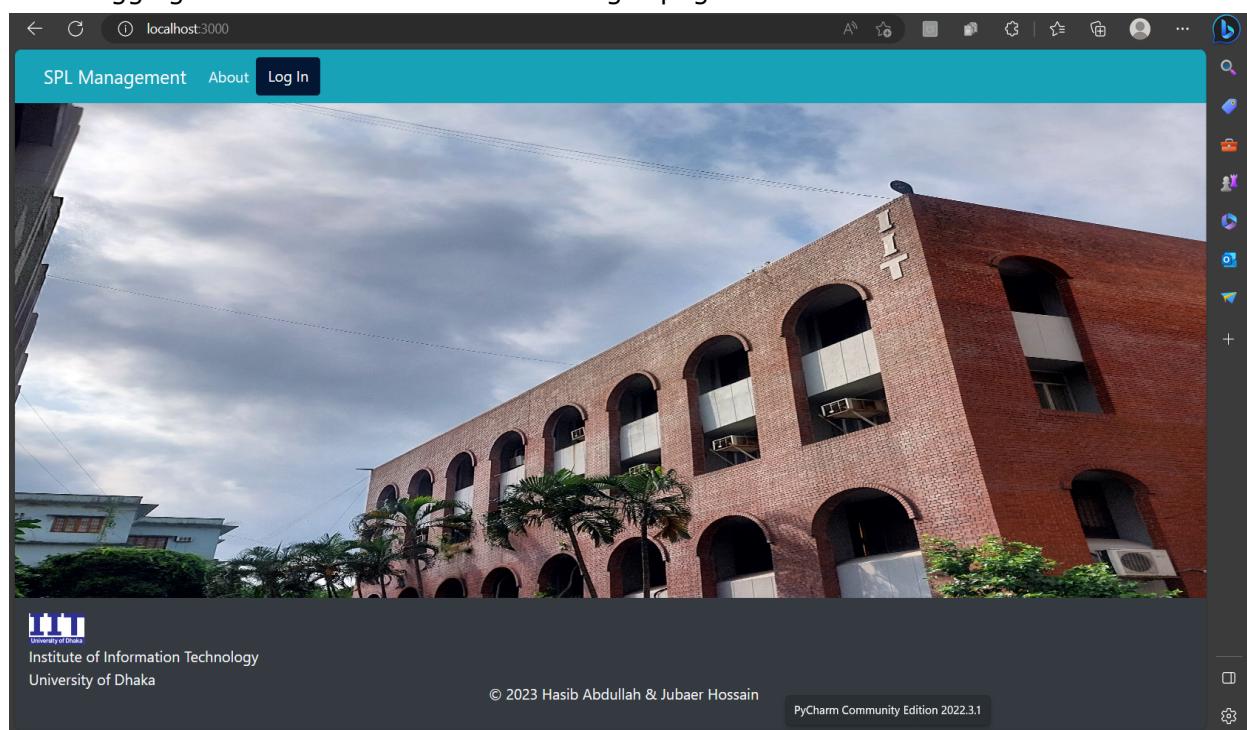


Fig 5 : Opening Page

5.2 LogIn Page:

Here, user have to give valid user email and password

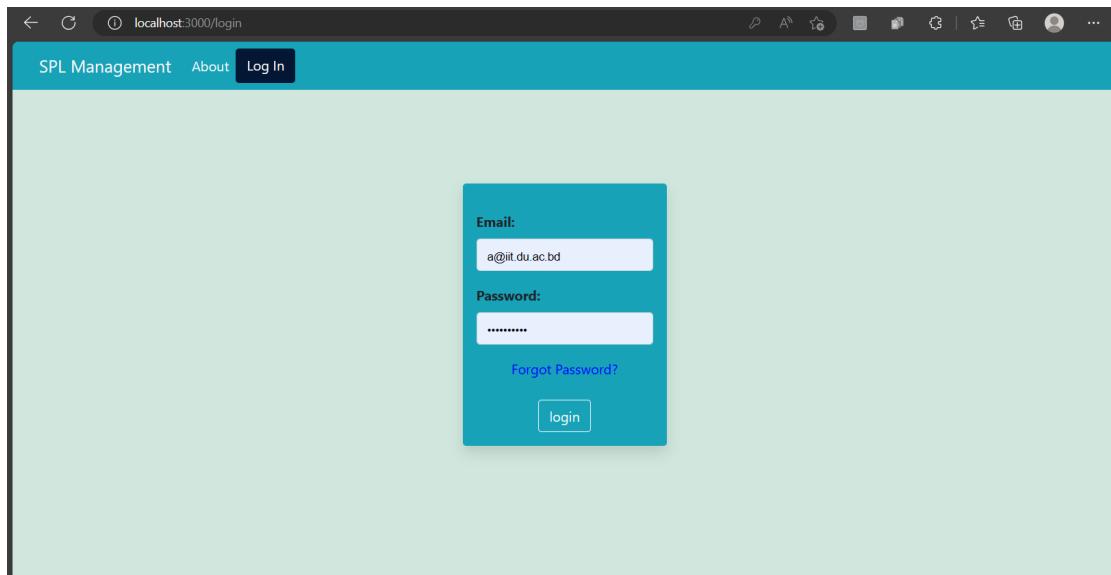


Fig 6: LogIn Page

5.3 Admin Page:

After successful login, the user will be redirected to the Admin page.

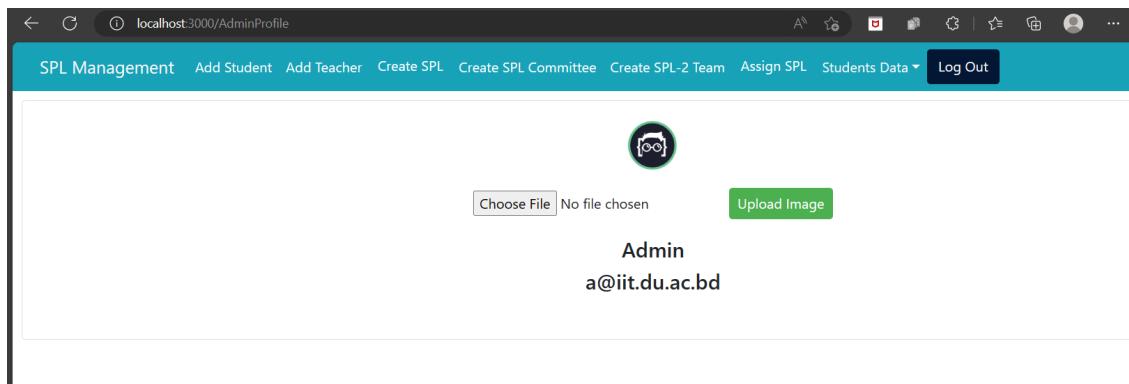


Fig 7: Admin Page

5.3.1 Add Students Account:

Admin have to give proper Students Information to create their account

SPL Management Add Student Add Teacher Create SPL Create SPL Committee Create SPL-2 Team Assign SPL Students Data ▾ Log Out

Roll No	Registration No	Batch	Session	Email	Select Curriculum Year
Roll No	Registration No	Batch	Session	Email	Select Curriculum Year
Roll No	Registration No	Batch	Session	Email	Select Curriculum Year

Add Student Information Submit

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Fig : 8 Add Student

5.3.2 Add Teachers Account

SPL Management Add Student Add Teacher Create SPL Create SPL Committee Create SPL-2 Team Assign SPL Students Data ▾ Log Out

Name:	Email:	Designation:
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Add One More Row Submit

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Fig: 9 Add Teacher

5.3.3 Create SPL:

Activate an SPL by giving Academic Year

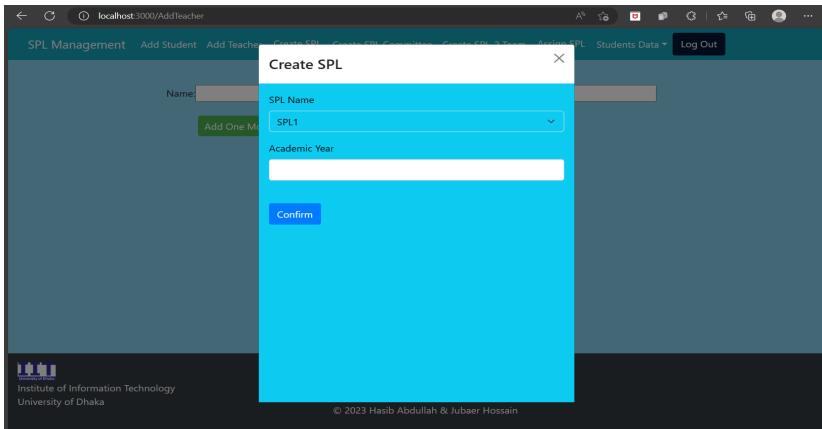


Fig 10: Create SPL

5.3.4 Create SPL Committee:

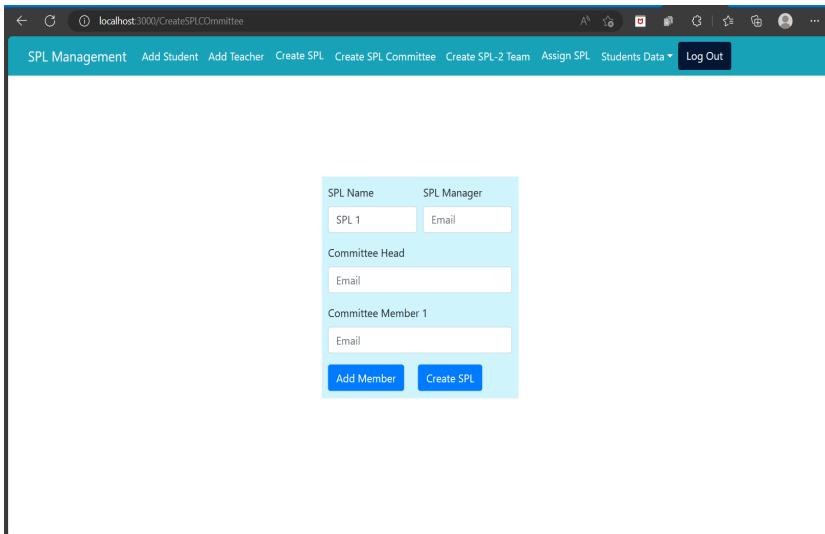


Fig 11: Create SPL Committee

5.3.5 Create SPL-2 Team:

Give a team name and team members email to create a team for SPL-2 students

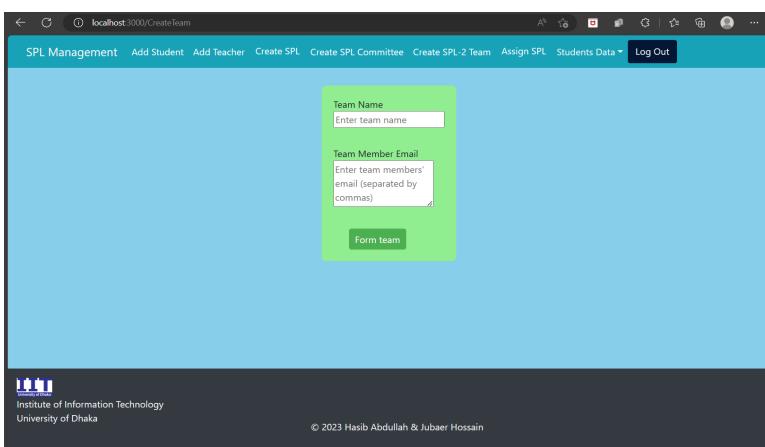


Fig 12: Create Team

5.3.6 Assign SPL:

Assign an SPL to a batch

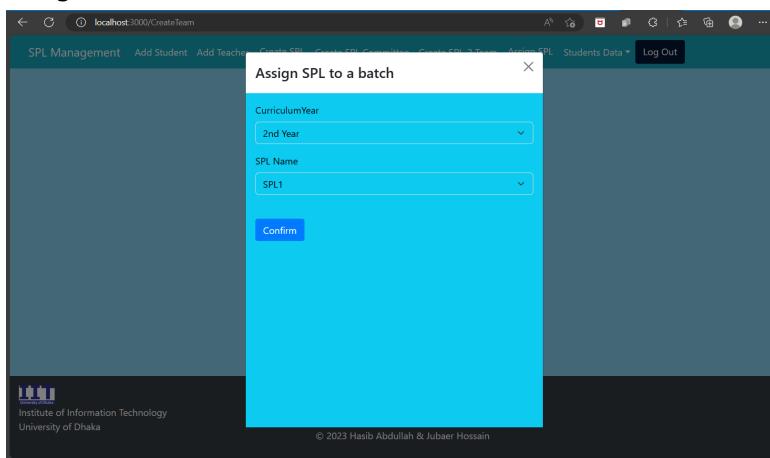


Fig 13: Assign SPL

5.3.7 SPL-1 Randomization:

After adding students admin will create randomization to assign supervisors randomly for SPL-1 students

Roll	Name	Email	SPL-1 Supervisor
BSSE-1301	Shadin Paul	1302@iit.du.ac.bd	Dr. Naushin Nower
BSSE-1302	Abir Ahmed	1301@iit.du.ac.bd	DR. Kazi Muheymin Us Sakib
BSSE-1303	Subin	1303@iit.du.ac.bd	Dr. Zerina Begum

Fig 14: SPL-1 Supervisor Allocation

5.4 Students:

5.4.1 Students Profile

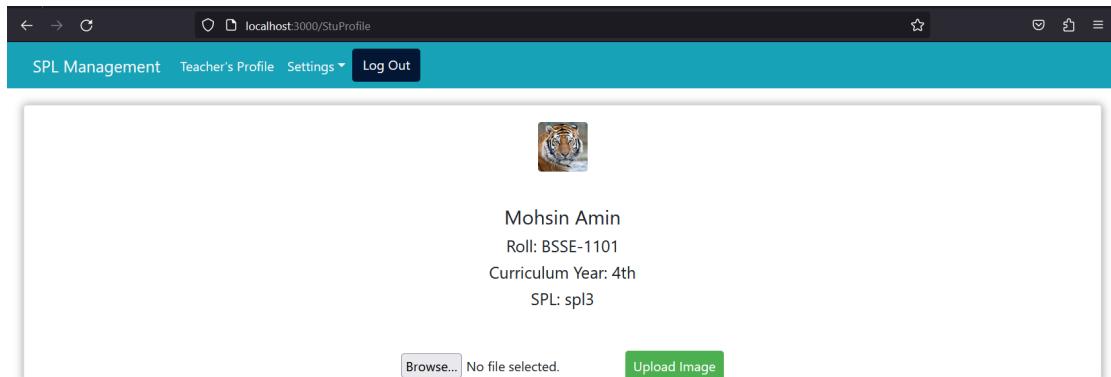


Fig 15: Student Profile

5.4.2 Request Teachers:

SPL-2 student's team will be able to request teachers, but without team creation an individual SPL-2 student will not be able to send requests. But SPL-3 individual students will be able to request teachers

Dr. Naushin Nower Associate Professor Request	Dr. B M Mainul Hossain Professor Request	DR. Kazi Muheymin Us Sakib Professor Request	Dr. Zerina Begum Professor Request
Dr. Mohammad Shoyaib Professor Request	Mohd. Zulfiquar Hafiz Professor Request		

Fig 16: Teachers List

5.5 Teacher:

5.5.1 Profile:

The screenshot shows a web application interface for 'SPL Management'. At the top, there is a navigation bar with links for 'SPL Management' (highlighted in blue), 'New Notice', 'Students Data', 'Settings', and 'Log Out'. Below the navigation bar, there is a profile section for 'Dr. B M Mainul Hossain', showing a small profile picture and the text 'Professor IIT,DU'. A sidebar on the right contains various icons for file operations like search, edit, and delete. In the main content area, there is a section titled 'SPL-2 Students Request' which lists three teams: Team 1, Team 2, and Team 3. Each team has two student icons and their names and batch details.

Team	Students	Batch
Team 1	Hasib Abdullah & Md Jubair	Batch: 12
Team 2	Mehzabin Haque & Sazzad Hossain	Batch: 12
Team 3	Md Sifat & Tasnia Esha	Batch: 12

5.5.2 Supervisor's Marking:

Supervisor can add marks for every students from his/her profile

The screenshot shows a web application interface for 'SPL Management'. At the top, there is a navigation bar with links for 'SPL Management' (highlighted in blue), 'Notification', 'Marking' (highlighted in yellow), 'Assigned Students', 'Students Data', 'Settings', and 'Log Out'. Below the navigation bar, there is a table titled 'Supervisor Marks' showing student information and a mark entry field. The table includes columns for Name, Roll No, SPL, and Supervisor Marks.

Name	Roll No	SPL	Supervisor Marks
Sajjad Hosain	BSSE-1203	SPL2	<input type="text"/> <button>Submit</button>
Mashiat Farin	BSSE-1202	SPL2	23
Avijit Paul	BSSE-1201	SPL2	25
	BSSE-1204	SPL2	<input type="text"/> <button>Submit</button>

Fig 18: Supervisor Marking

Chapter-6: Challenges Faced

1. The database became complex to model as we handled huge number of data for different users
2. Conducting a project with a huge number of data fields
3. New technology (ReactJs [2], NodeJs [3] , MySQL [4]) and new tools learning
4. Making a responsive UI

Chapter-7: Conclusion and Future Work

Throughout the development of the SPL Management System, we gained valuable insights and experiences. We learned the intricacies of integrating diverse technologies such as ReactJS for the frontend, NodeJS for the backend, MySQL for the database. The SPL Management System application has provided teachers, students and IIT authority with a user-friendly and efficient platform for managing SPLs students, committee, and supervisor allocation. It has successfully worked for SPL-1, SPL-2 and SPL-3 supervisor assigning and committee creation. It also provides the availability to supervisors for submitting their marks.

7.1 Future Work:

Full SPL Management system will be a huge project. So we did according to our scope. Next it can be extended for-

1. Presentation event creation to provide marking facilities when external teacher presents on presentation
2. Student's progress monitoring can be added more efficiently
3. Provide suggestions to students when they want to send request to supervisor

References

- [1] <http://www.iit.du.ac.bd/>
- [2] <https://react.dev/learn>
- [3] <https://nodejs.org/en/docs/guides>
- [4] <https://dev.mysql.com/doc/workbench/en/>