Master Team Project WS2021

Milestone 2: HelpMeLearn

Master Team Project Winter 2021

Global Distributed Software Development

CEO & CTO:

Prof. Dr. Rainer Todtenhöfer

Team 04

Hasib Iqbal (hasib.iqbal@informatik.hs-fulda.de)	:	Team Lead | Frontend Developer
Mohammad Rakibul Hasan	:	Frontend Lead
Rohat Sagar Urif Sonu	:	Frontend Developer
Mohammad Salman Haydar	:	Backend Lead
Talha Jahangiri Khan	:	Github Lead | Backend Developer
Chowdhury Amlan Barua	:	Cloud & Backend Developer
Nisha Devi	:	Backend Developer

Revision	Date
Version 1.0	7 December 2021

7 December 2021

Table of Contents

Functional Requirements:

Priority 1: MUST HAVE

Admin Users:
List of pending users: Admin users should be able to view a list of users that are pending approval.
View of pending posts: Admin users should be able to view a list of posts that are pending approval.

Unregistered Users:
Register: Unregistered users should be able to register to the website when providing a unique email address.

Registered Users:
Login: Registered users should be able to log in using their correct login credentials unless they are not approved by an Admin user.

Tutors:
Add a Post: Registered tutors should be able to post his/her tutoring ad with the necessary information. Which includes image, CV, available time slot, and subject.
View Post lists: Registered tutors should be able to view the list of posts they posted.
Send Message: Registered Tutors can send messages to each other or students.
View Message Details: The tutor can read the conversation thread with another User or students.

Students:
View Post list: Users can view the list of posts posted on the website.
Search Post: Users can search posts by their title, level, and subject.
Sort Post: Users can sort published or search result items by published/posted date and title in ascending or descending order.
View details of Post: Users can view the details of published posts like User Name, Title, date, etc.
Comment on Post: Users can comment or give feedback on the tutor post.
Set Preference: Users can set their preferences based on topic, time, and level.

PRIORITY 2: DESIRED

Admin Users:
Block User: Admin users can block any user who has posted an inappropriate post on the site.
Block posted Post: Admin users can block any post after being published.

Tutors:
Tutors can add a post including video.

Students:
Recommend tutor: Based on preferences, the website will recommend tutors to the registered students.

PRIORITY 3: OPPORTUNISTIC

Admin Users:
Bulk Approve Posts or Users: Admin can approve the bulk of posts or users that are pending approval.

Students:
Add a Post: Students can add a post for their preferences for a tutor.

Main Data Items and Entities

In this section, a general description of data and entities will be discussed. The description of data is similar to milestone 1 with some modifications. The main entities involved in the project as listed as:

- **User**
    1. User ID
    2. Username: Unique Identifier of user-created at first login
    3. First Name
    4. Last Name
    5. Type: Indicates type of user (tutor, student, admin)
    6. Email
    7. Password: password is stored as a hash for security reason
    8. Status: Indicates the status of the user (active, suspended)
    9. UserType:ENUM

- **POST**
    1. Post ID
    2. Title
    3. Description (description including no of rooms, space, area)
    4. Schedule
    5. Creator Id (Id of the user who created the post)
    6. Created At (Timestamp)
    7. Updated At (Timestamp)
    8. Status: ENUM

- **CHAT**
    1. Chat ID
    2. TutorID
    3. StudenrID
    4. Created At (Timestamp)

- **TEXT**
    1. Text ID
    2. Chat ID

- **Document**
    1. DocumentID
    2. PostID

- **Comment**
    1. UserID
    2. PostID
    3. Created At (Timestamp)

UI Mockups and Storyboards

Attached at the end of the document, to not disturb the overall layout flow of the Milestone 2 document.

High-level Architecture, Database Organization

Here, the database schema/organization such as its DB tables and items in each table will be discussed. Additionally, initial details regarding media storage and search/filter implementation for database items will be discussed as well.

Database Schema:

This is the initial, high-level description of the database schema and its tables. Additional tables might be created, and current tables may change based on future decisions and feature implementations.
The schema will include four tables detailed as follows:

- **USER**: This is the table that contains all relevant user information:

Column	Description
UserId	Unique identifier. Will be used as primary key
UserName	Name of User
Type	Default is guest but can be changed by student, tutor or admin
Email	Email of user
Status	Shows status of the user as either “active” or ‘suspended’
UserType(ENUM)	Name of each type of user such as: Student, Tutor, Admin

- **POST**: This is the table that holds data of a post, where events and announcements by a Tutor are posted.

Column	Description
PostID	Unique identifier. Will be used as primary key
Title	Title of the post
TutorID	ID of the user who created the post
CreatedOn	Date when the post was created
Subject	Title of the post
Schedule	Post description
Status (ENUM)	Status of the post

- **TEXT:** This table will hold that of text message of chat between Tutor and Student

Column	Description
TextID	ID of each text
ChatID	ID of chat between Tutor and Student

- **CHAT:** This table will hold the data of Tutors and Students.

Column	Description
ChatID	ID of each chat
TutorID	ID of Tutor
StudentID	ID of Student

- **DOCUMENTS:**

Column	Description
DocumentID	ID of document
POSTID	ID of Post related to the Document

- **COMMENTS:**

Column	Description
PostID	ID of a Post
UserID	ID of a user who comments
Created At	Time of Comment

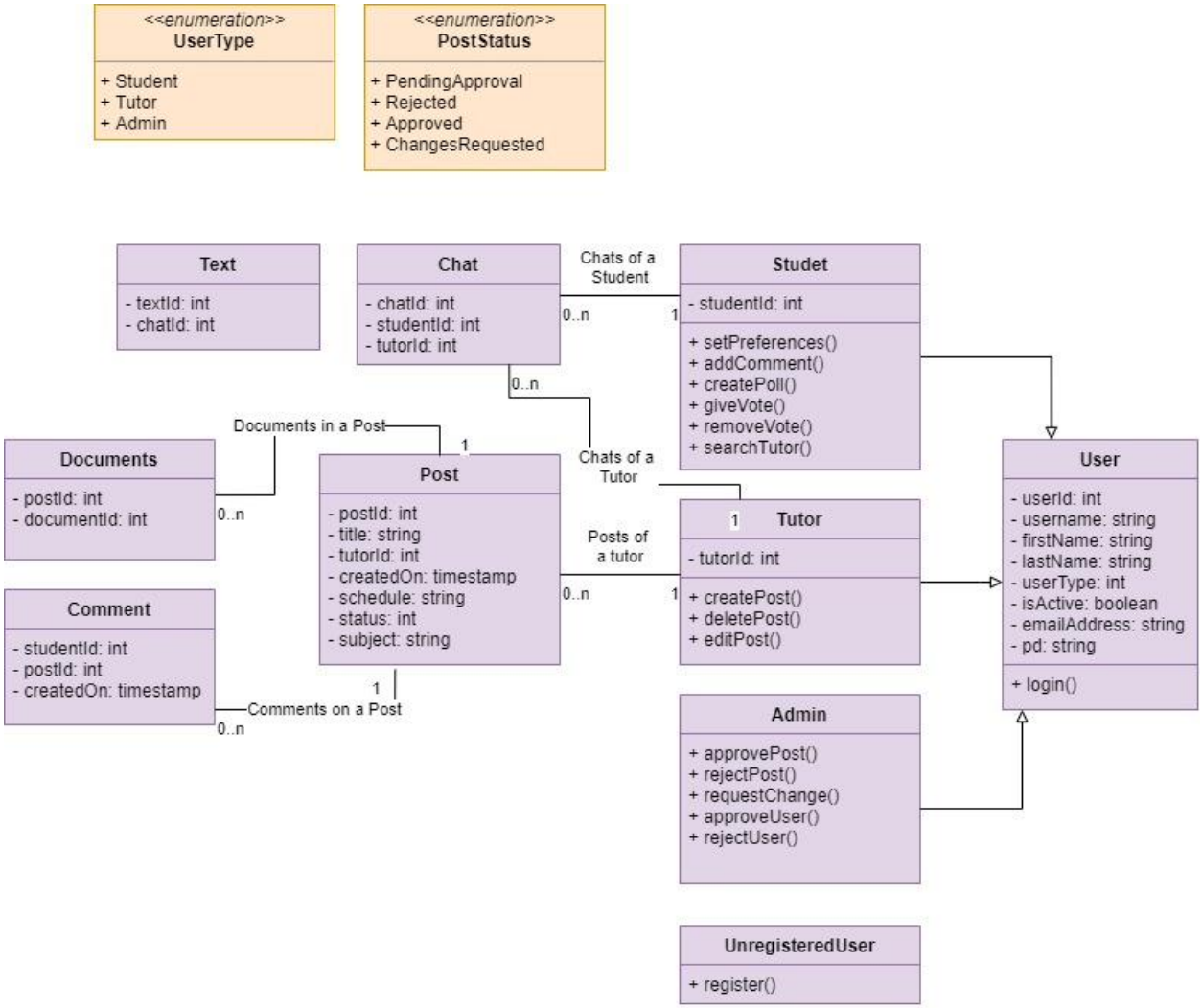
Media Storage:

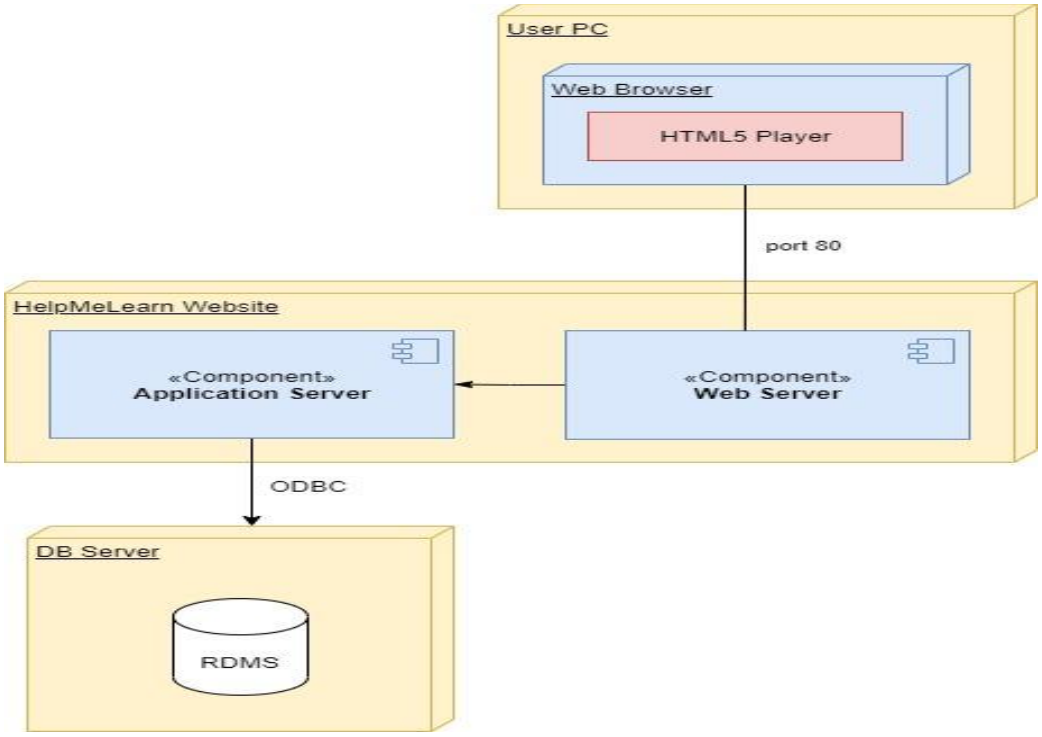
For media storage, File storage will be used as it makes organization of data easier. We will create a folder within our project for storing media files. Then store the relative path of the media directory in the MySQL database. The expected size of one picture is between 700 kbs to 3MBs. The expected size of the relative path is 300 characters.

Search/Filter Implementation:

For the implementation of the search/filter: The TutorName, Department, and SubjectType will be available as a drop-down for the user to select one to be applied to the query. “SubjectType” and the “Title of Post” are the searchable terns which can be derived from POST table. In the case of searching for similar words, the LIKE operator will be used, which will look for similarities between user input and the columns “title” and “username”. To date by date or price, the terms “timestamp” or “price” will be sorted either in ascending or descending order using the “ORDER BY” and “ASC” or “DESC” operations.

High-Level UML Diagrams





Key Risks

- **Skills Risk:**

We have software development experience on different software platforms in our bachelor's programs. Furthermore, most of us have little experience developing tutoring websites. While developing this course project, we as a team may lack technical skills for individuals to cover all the aspects of the project. Eventually, team members will learn the skills, this learning may include programming languages, frameworks, and other skills related to software development practices. We may have online sessions to cover up these issues and team members who have specific experience on specific technology will help others and vice versa.

- **Schedule Risk:**

Project estimations can be wrong or incorrect when project tasks and scheduled releases are not analyzed properly. Schedule risks mainly affect a project and may lead to project failure. Wrong deadline estimations, inappropriate tracking of resources like staff, systems, and skills of individuals, and failure to identify problems in the project can lead to the delay of the project.

To overcome these risks, we will use planning documents, such as specifications and project plans, and perform a detailed task analysis of the work to be performed so that we can reduce the critical paths and dependencies available.

- **Technical Risk:**

Technical risks may lead to failure of functionality or performance in the production environment. This may occur if we use deprecated frameworks/plugins or any dependencies which need to be updated all the time to maintain the consistency of the project. We will use updated frameworks, API, plugins, or any other dependencies.

- **Teamwork Risk:**

Shared values and coordination of expertise are important factors for team leaders to consider achieving high-quality software teamwork. Since team members are sharing most of the responsibilities to deliver within deadlines, some individuals may contribute less than others. This may create a negative perception among team members. Also, sometimes miscommunication may happen among team members. All these issues may lead to some negative perceptions that can make the team less effective. We should clearly mention the task responsibilities and accountability for individual contributions to maximize the group effort.

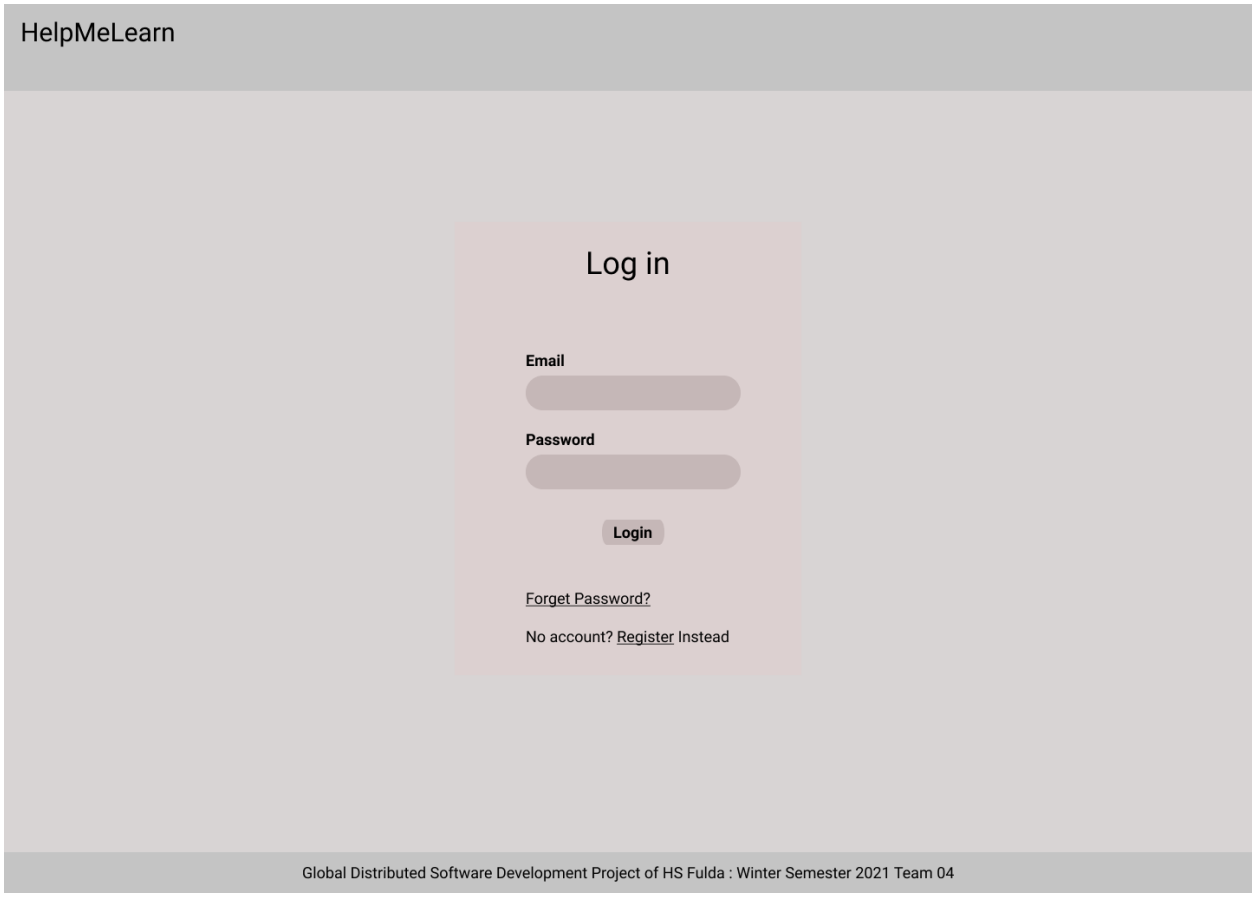
- **Legal/Content Risk:**

For the software industry, legal risk management is a growing concern. In some cases, it can be a serious threat to the commercial and financial success of software systems. As a student, sometimes we may not find guidance on legal assurance, as it is not covered in the software best practice frameworks and international standards. Especially using any public APIs, plugin, or software snippet may lead to copyright allegations and claims. We will be working with the services of open source communities wherever possible and give proper credits and acknowledgments wherever needed.

UI Mockups and Storyboards

Figma Prototype Link:

https://www.figma.com/proto/LyS2L4GtfQQcopDyKmPNGk/HelpMeLearn?node-id=7%3A84&scaling=min-zoom&page-id=0%3A1&starting-point-node-id=7%3A84



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Registration

Name :

Gender :

Email :

Password :

Confirm Password :

User Type :

Create

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Hello, Rakib.

Browse Course

Subject | Level | Price | Gender

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Hasib Iqbal €25/Hour

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Chowdhury Amlan Barua €25/Hour

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Hasib Iqbal

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Offered Courses

Distributed Application	€30/Hour
	Details
Mathematics	€25/Hour
	Details

Qualifications

Subject	Qualification Level	Grade
Distributed Application	Bachelor	A+
Mathematics	Bachelor	A+

Reviews

Rakib Hasan

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Message

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Hasib Iqbal

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Offered Courses

Distributed Application €30/Hour Details

Mathematics €25/Hour Details

Qualifications

Subject	Qualification Level	Grade
Distributed Application	Bachelor	A+
Mathematics	Bachelor	A+

Reviews

Rakib Hasan

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Hello, I have checked your profile. I'm interested to learn Distributed Application from you.

|Aa Send

Message

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Hasib Iqbal

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Edit Profile

Offered Courses

Distributed Application	€30/Hour Details
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Hasib Iqbal

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Save | Edit

Offered Courses Add New Course

Distributed Application	€30/Hour Details
Mathematics	€25/Hour Details

Curriculum Vitae Add New Course

Hasib's CV.pdf

Qualifications Add Qualification

Subject	Qualification Level	Grade
Distributed Application	Bachelor	A+
Mathematics	Bachelor	A+

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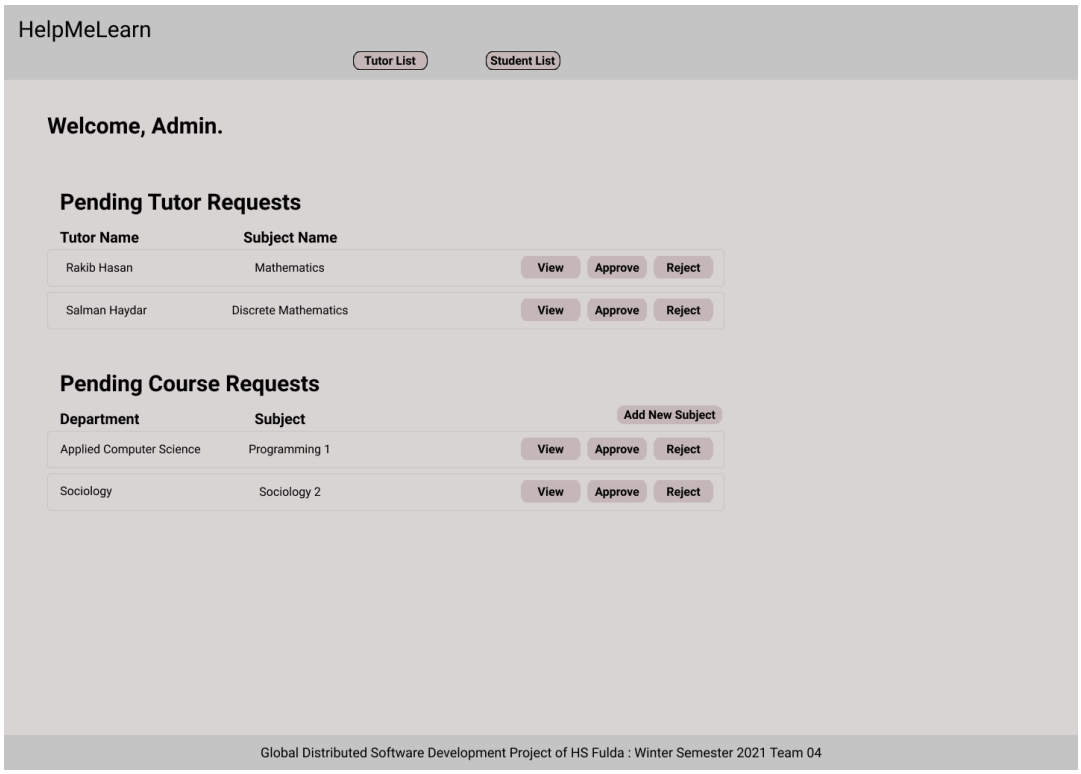
HelpMeLearn
Tutor List
Student List
Welcome, Admin.
Pending Tutor Requests
Tutor Name
Subject Name
Rakib Hasan
Mathematics
View
Approve
Reject
Salman Haydar
Discrete Mathematics
View
Approve
Reject
Pending Course Requests
Add New Subject
Department
Subject
Applied Computer Science
Programming 1
View
Approve
Reject
Sociology
Sociology 2
View
Approve
Reject
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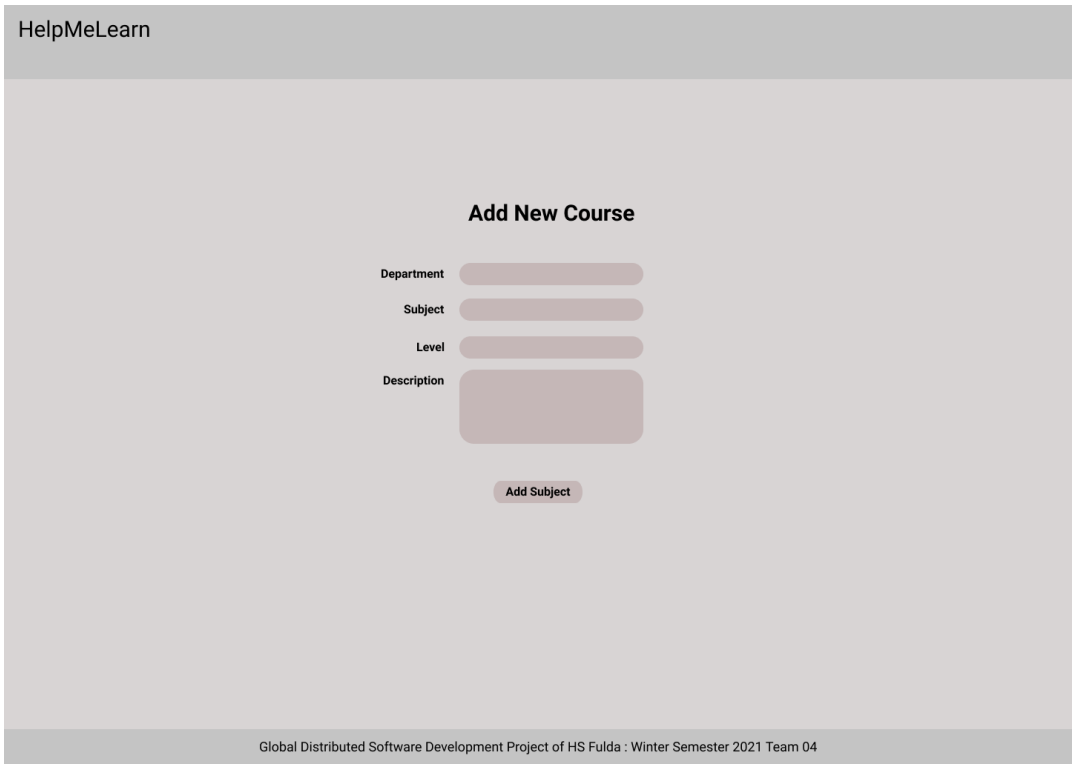
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Level
Description
Add Subject
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