Master Team Project WS2021
Milestone 1: HelpMeLearn

Master Team Project Winter 2021

Global Distributed Software Development

CEO & CTO:

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Team D

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Executive Summary

Nowadays, humanity is used to clicks, to the most convenient way to get to what the person wants. In the world of clicks, we want to try to make life easier for people both students and teachers. However, we have decided to focus on one of the most primary needs of everyone, which is a learning. HelpMeLearn is online tutoring platform where students and teachers get connected together.

HelpMeLearn is being developed exclusively for students and teachers from of Hochschule Fulda and San Francisco State University. In HelpMeLearn, we aim to help students to learn from experienced teachers. It does not matter if a student looking for some extra lectures on a specific subject to clear his/her concept or wants to know more about that course, we are here to support that student and do the hard job of finding a suitable teacher for him/her. In HelpMeLearn, users can search among thousands of courses. With the help of our unique matching system, we will find the most suitable teacher for a particular student who wants to learn. Students can instantly contact our teachers through our chat system and our private chat system ensures their security and ease of use.

Through HelpMeLearn, we offer one-to-one learning solutions for students of Hochschule Fulda and we connect learners with qualified, expert tutors online, on-demand, 24/7/361. We provide tutoring services in numerous academic subjects and test preparation areas in an engaging and uplifting learning environment. Our core philosophy is that when a learner needs help, the best way to get it is right away from an experienced teacher. Our mission is to help every learner first realize and then reach their full potential.

Personae & Main Use Cases

Here, the categories of users who are likely to use the application will be discussed, along with the use cases in which the application will be useful. The application usage will assume that all users using it have a stable internet connection and a PC/Laptop to allow for adequate viewing of the web application.

Personae

Type 1: Administrator

Administrator is responsible for maintaining the application. This type of user has full access to the application & he must verify posts of the tutors.

Type 2: Teacher

Personal who is qualified or expert in a field & wants to instruct people on that field.

Type 3: Student

Personal who thinks he needs to learn about some topic from an expert.

Type 4: Guest

Personal who can see limited offerings in the web application but is not allowed to use the platform.

Main Use Cases

Use Case 1: A student wants to learn about a new topic.

A student has just started his semester in Hochschule Fulda. After some weeks, he thinks he should have some extra lectures on a specific subject to clear his concept. So, he thinks of going for a student tutor, & search for one in the tutoring service platform. After registering, he can see all the tutoring offering that is available & verified by administrator. He can then contact to the tutor that matches his expectation.

Use Case 2: A student who knows about a topic but wants to know more from an expert.

A student is studying in Hochschule Fulda. He has completed some courses but one of the courses seems interesting to him. He wants to know more about that course & thinks that he can look for someone who is expert in that topic. He then registered as a student in the tutoring service platform & searched for an expert tutor in that field. He then messaged that tutor, & discussed how the tutor wants to give some lectures.

Use Case 3: A graduated student is looking for a tutor to brush up his knowledge.

A student is graduated from Hochschule Fulda. He is now working in some industry for 3 years. For a new project, he needs to work on something new that he has little knowledge. So, he decided to know about that topic from someone. He then registered in the tutoring service platform & searched for an expert tutor in that field. He then messaged that tutor, & states his expectation. With the help of the platform, he got in touch with someone who can meet his expectation.

Use Case 4: An outgoing student has gathered expertise in some specific field & thought he can share his expertise

A student who is nearly at the end of graduation has gathered an expertise in numerous fields. He thought he can share his expertise with another student. He recorded some demo lectures on some topics and register as a tutor on the tutoring service platform. Then he posts a position for tutoring with some of his demo lectures. It gets reviewed by the administrator & then get published in the platform. Students can now see his offering & some students messaged him to have lecture from him.

List of main data items and entities

- **Users:**
  - **Student ->** Any user interested in finding coaching for subjects.
  - **Tutor ->** Users that are experienced in teaching students and offering coaching to interested students to help in subjects.
  - **Admin ->** Super user that helps maintain order on the website. Such type of user has full access to approve / decline or revoke posts (content) on website. Delete users that violate rules. Has full privilege over the website.
  - **Unregistered users (guest) ->** Users that can access the website without logging in to a specific account. Limited actions.

- **Comments:** Comments on the profile of the tutor related to feedback of services.

- **Images:** All the images including the tutor profile picture, other related content.

- **CV:** Entity will contain the information of tutors including qualifications, subjects taught, background, experience.

- **Messages:** Text exchanged between students and tutors.

- **Preferences:** List of values defined by users(students) for their ideal match to tutors.

Initial List of functional requirements

No	Description
1	There will be four user categories e.g., admin, tutor, and students and unregistered users
2	Any unregistered user (Tutor or Student) from Fulda or SFSU should be able to register themselves
3	Admin should have the ability to approve/disapprove any tutoring post from the user (tutor)
4	Tutor should be able to post his/her tutoring add on the platform with necessary information. Which includes image, CV, available time slot, subject etc.
5	Students should be able to search on the system to find their desirable tutor by several topics like subject name, level (undergraduate/masters) etc.
6	Student and tutor should be able to communicate with the live chat system in our platform
7	Admin should be able to delete or request for update of any incomplete or inappropriate items or users
8	Students can set preferences for tutors to have a good match with required preferences.
9	Poll can be made for voting for required course by tutors that are not available for tutoring.
10	Students can comment as feedback for their services on tutor profile.

List of non-functional requirements

- Application shall be developed, tested, and deployed using tools and servers approved by Class CTO and as agreed in M0 (some may be provided in the class, some may be chosen by the student team, but all tools and servers have to be approved by class CTO).

- Application shall be optimized for standard desktop/laptop browsers e.g., must render correctly on the two latest versions of two major browsers.
- All or selected application functions must render well on mobile devices.
- Data shall be stored in the database on the team's deployment server.
- No more than 50 concurrent users shall be accessing the application at any time.
- Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
- The language used shall be English (no localization needed).
- Application shall be very easy to use and intuitive.
- Application should follow established architecture patterns.
- Application code and its repository shall be easy to inspect and maintain.
- Google analytics shall be used (optional).
- No e-mail clients shall be allowed. Interested users can only message to sellers via in-site messaging.
- Pay functionality, if any (e.g., paying for goods and services) shall not be implemented nor simulated in UI.
- Site security: basic best practices shall be applied (as covered in the class) for main data items.
- Media formats shall be standard as used in the market today.
- Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development.
- The application UI (WWW and mobile) shall prominently display the following exact text on all pages "Fulda University Software Engineering Summer 2021. For Demonstration Only" at the top of the WWW page. (Important to not confuse this with a real application).

Competitive Analysis

Feature	Finde	SolutionInn	Chegg	Khan Academy
Search courses with filters.	Yes	Yes	Yes	Yes
Send message to teachers	Yes	Yes	Yes	Yes
Register as a student or Teacher.	Yes	Yes	Yes	Yes
Poll (Vote) based course creation	Yes	No	No	No
Information about Upcoming courses	Yes	No	No	Yes
Teacher-Student blog	No	No	Yes	Yes
Online Video Lessons	No	No	Yes	Yes

The internet nowadays is overpopulated with online tutoring websites, but we feel that our website will make a difference in the market. Having listed the main features of our competitors, we noticed that apart from the main basic features that are almost equally amongst competition, there are some subtle, yet effective features offered among them. For example, only our website offers vote-based course creation which means Teacher can create a poll where students can vote on which topics they are interested to learn. According to Poll, teachers will understand on which course or topic students are struggling with.

High-level System Architecture & Technologies

Technology Stack

- **Server Host:** Amazon AWS and Google Cloud [1vCPU 2 GB RAM]
- **Operating System:** Ubuntu Server 20.04 LTS
- **Server Database:** MySQL V8.0.27
- **Web Server:** NGINX V1.20.1 (Ubuntu)
- **Server-Side Technologies:** NodeJS
- **Front-End Technologies:** HTML, CSS, JavaScript

Additional Technologies

- **IDE:** Visual Studio Code
- **Task Scheduling:** Microsoft Teams
- **Back-End Library & Frameworks:** Express JS V4.17.1
- **Front-End Library & Frameworks:** React V17.0.2, Bootstrap V5.1.3

Team and roles

Our team is consisting of five talented software engineers. Based on two meetings that we had during the first week, we got to know each other more and know our expertise, and decide which roles should be assigned to whom.

Here is a summary of the team members and their tasks during this project:

Team Member	Role
Hasib Iqbal	Team Lead | Frontend Developer
Mohammad Rakibul Hasan	Frontend Lead
Mohammad Salman Haydar	Backend Lead
Talha Jahangiri Khan	Github Master | Backend Developer
Chowdhury Amlan Barua	Cloud & Backend Developer

Checklist

Task	Status
Team found a time slot to meet (online) outside of the class	Done
GitHub master chosen	Done
Team decided and agreed together on using the listed SW tools and deployment server	Done
Team ready and able to use the chosen back and Frontend Frameworks and those who need to learn are working on learning and practicing.	Done
Team lead ensured that all team members read the final M1 and agree/understand it before submission.	Done
GitHub organized as discussed in class	Done