Department of Computer Science & Engineering

UE17CS355 – Web Tech II Laboratory

Project Evaluation

Project Title : Online Learning Portal

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Project Description

We have created an online course management portal for managing the courses of an institution.

Not only is this useful for both students and instructors to manage their courses, but also provides recommendations to users when they need help choosing a course.

We used the MERN stack to implement this application.

Technologies Used

We have implemented the following technologies in the building of this project:

- *MongoDB for the data storage*
- *Express as a back end framework*
- *React.JS as a front end framework*
- *Node.JS for the back end*
- *Python for intelligent recommendations*
- *RESTful APIs for communication between components*
- *Router*
- *React Bootstrap*
- *Web socket for the chatting functionality*

Techniques Implemented

The various techniques implemented are:

- RESTful APIs for communication between components
- Web sockets for the chat application:
  - Socket.IO enables real-time bidirectional event-based communication
  - It relies on Engine.IO, which first establishes a long-polling connection, then tries to upgrade to better transports that are "tested" on the side, like WebSocket.
  - A heartbeat mechanism is implemented at the Engine.IO level, allowing both the server and the client to know when the other one is not responding anymore.
- Router
- React Bootstrap

Intelligent Functionality

We have implemented a recommendation engine that helps a user choose a course based on the choices of other users who have applied for the same course as them.

The core logic being applied here is known as collaborative filtering. Collaborative filtering is used to make personalized recommendations for users with similar preferences.

We implemented this engine with the help of python and it's libraries. The engine runs independently on it's own server and is called from the backend when necessary.

Thank You!