PROJECT GROUP REPORT

TutorEase

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Communication Methods

Our primary communication tool is WhatsApp as it is most effective and convenient mobile platform for sending and receiving messages. Which gave us challenges when we tried to have group discussion through text messages. We then decided to use Blackboard collaborate for our online meeting, which allows us to be more professional and productive. GitHub repository for sharing coding task and documentation.

Task Allocation and roles

Team Member	Role	Task
Sbonga Shweni	Leader and Back-end Developer:	Project Scope
Bukhobenkosi Mbinda	Secretary and Front-end Developer	Meeting minutes
Siyanda Mthimkhulu	Researcher and DevOps engineer	Technology research
Okuhle Sithole	Researcher and Front-end Developer	Technology research
Asimbonge Mbende	Celib and Back-end Developer	Compile
Luke Duffell	Front-end Developer	Functional requirements
Thandolwethu Zamasiba Khoza	Back-end Developer	Problem Definition

Group Organisation

Due to his strong presentation skills, Sbonga Shweni will be our group leader and chairperson for the remainder of the year as of this term. He'll be incredibly helpful when something needs to be explained to our supervisor and other students. Siyanda Mthimkhulu and Okuhle Sithole will assist us with the technical aspects of our application and carry out the necessary research. They have demonstrated their

suitability for this position by assisting us in determining what is necessary for this project to succeed, including all necessary technology. Luke Duffell, Okuhle Sithole, and Bukhobenkosi Mbinda will oversee the application's appearance and feel. They will ensure that the web application is visually appealing to consumers by utilizing their design expertise.

In her role as a mediator, Thandolwethu Zamasiba Khoza will ensure that all parties to a dispute reach a settlement and cooperate with one another. For the remainder of the year, Bukhobenkosi Mbinda will remain the group secretary. Asimbonge Mbende will be a compiler and will lead a back-end development team comprised of Thandolwethu Zamasiba Khoza and Sbonga Shweni.

Because this project is large and requires a great deal of learning, we will not be switching responsibilities; instead, we will allow each member ample time to become well-versed in their assigned tasks and perform to the best of their abilities.

Problem Definition

TutorEase aims to address the need for a comprehensive online platform tailored specifically for Java programming learners and tutors. The platform seeks to streamline the learning process by providing tools for effective communication, resource sharing, scheduling, and feedback exchange between students and tutors.

Functional Requirements:

User Registration and Profiles:

- Users (both students and tutors) should be able to register on the platform.
- Tutors must be able to create detailed profiles containing information such as skills, experience, and availability.

Search and Matchmaking:

- Students should have the ability to search for tutors based on various criteria such as skill level and availability.
- Tutors should be able to list their expertise and availability, allowing students to find suitable matches.

Scheduling:

- The platform should integrate calendar systems for both tutors and students to schedule tutoring sessions.

Messaging and Communication:

- In-platform messaging functionality should enable seamless communication, including screen, webcam, and audio sharing between tutors and students.
- Users should receive notifications for new messages, session reminders, and updates.

Resource Sharing:

- Tutors should have the ability to share learning resources, code examples, and reference materials.
- The platform must support file upload and download features for sharing documents and code snippets.

Rating and Reviews:

- Students should be able to rate and review tutors based on their learning experience.
- Tutors should have the capability to rate and provide feedback on student progress and engagement.

Scope

Introduction

Welcome to TutorEase, a web platform dedicated to facilitating seamless learning experiences in Java programming. Our project aims to provide a user-friendly interface and cutting-edge tools for individuals at all levels, from beginners to advanced learners, to master Java programming efficiently.

Objective

- ➢ To create a user-friendly platform for individuals to register and navigate effortlessly.

- To offer a diverse range of tutors and classes tailored to individual needs and schedules.
- To provide advanced virtual classroom environments for interactive learning experiences.
- To foster collaboration among students and tutors, maximizing learning potential.

Technology

- **React**: Use React for building the frontend components and handling the user interface.
- **WebRTC:** Implement WebRTC for peer-to-peer video and audio streaming between tutors and students.
- **Node.js with Express.js:** Utilize Node.js along with Express.js for building the backend server to handle authentication, session management, and data processing.
- **WebSocket:** Use WebSocket for real-time communication between tutors and students for features like screen sharing.
- Use Azure App Service to deploy.
- **MySQL:** Store user data, session information, and recorded sessions in a SQL database.