Lab 1 – EduSense

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CS 411W Professional Workforce Development II

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1. Introduction

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) is to define the functional and non-functional requirements for the EduSense platform. This document serves as a formal agreement between stakeholders—including developers, project sponsors, and future users—on the expected capabilities, behavior, and constraints of the system. It provides a foundation for system design, development, testing, and maintenance.

1.2 Scope

EduSense is a web-based and mobile-accessible educational platform designed to promote responsible AI use in academic and professional learning environments. It addresses concerns about student over-reliance on AI tools by guiding users through reflective prompts and challenge-based interactions that encourage critical thinking and problem-solving. Educators can upload assignments, monitor student-AI interactions, and identify learning gaps. The platform integrates with learning management systems (LMS) and supports scalable deployment across institutions.

1.3 Definitions, Acronyms, and Abbreviations

Glossary

- Artificial Intelligence (AI): A commonly used term encompassing any machine learning algorithm designed to train from a given input to provide an expected output.
- Large Language Model (LLM): An advanced machine learning algorithm trained on massive text datasets to understand and generate human-like language.
- Canvas LMS: A learning management system used by educators to manage course content, assignments, and communication with students.
- Challenge Mode: Setting that encourages learners to try on their own before getting help. It limits access to answers to encourage thinking through the assignment first.
- Guided prompts: Targeted questions or hints created to help students think critically and come up with their own solution.
- MFCD (Modified Functionality Component Diagram): A diagram showing the major hardware and software components of the product and how they interact.
- Usage Tracking: The process of recording how users interact with the system, such as which features they use or how they engage with LLM prompts.

1.4 References

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1.5 Overview

The remainder of this SRS is organized as follows:

- Section 2 provides an overall description of the EduSense system, including its context, features, user roles, and assumptions.
- Section 3 (not included here) will detail specific functional requirements.
- Section 4 will outline non-functional requirements such as performance, security, and usability.
- Section 5 will include any appendices or supporting information.

2. Overall Description

2.1 Product Perspective

EduSense is a standalone educational platform that integrates with existing LMS systems such as Canvas via API. It is designed to support both students and educators by offering AI-assisted learning in a controlled, pedagogically sound environment. The system includes a frontend built with Django and JavaScript, a Python backend for logic and LLM integration, and a PostgreSQL or Firebase database for persistent storage.

2.2 Product Functions

Key features of EduSense include:

- **Guided AI Interaction**: Students receive prompts and reflective questions instead of direct answers.
- **Assignment Upload**: Educators can upload and manage assignments.
- **Usage Monitoring**: Tracks student interactions with the AI to identify learning patterns.
- **Copy/Paste Restrictions**: Prevents misuse of AI-generated content.
- **Canvas LMS Integration**: Syncs assignments and tracks progress.
- **Challenge Mode**: Temporarily limits AI access to promote independent problem-solving.

2.3 User Characteristics

- **Students**: Primary users who interact with the AI assistant for learning support. Expected to have basic digital literacy.

- **Educators**: Upload assignments, monitor student progress, and review AI interaction data. Familiar with LMS tools.
- **Administrators**: Manage system settings, user roles, and data privacy compliance.
- **Corporate Trainers (Future Expansion)**: Adapt the platform for professional development and ethical AI training.

2.4 Constraints

N/A

2.5 Assumptions and Dependencies

N/A

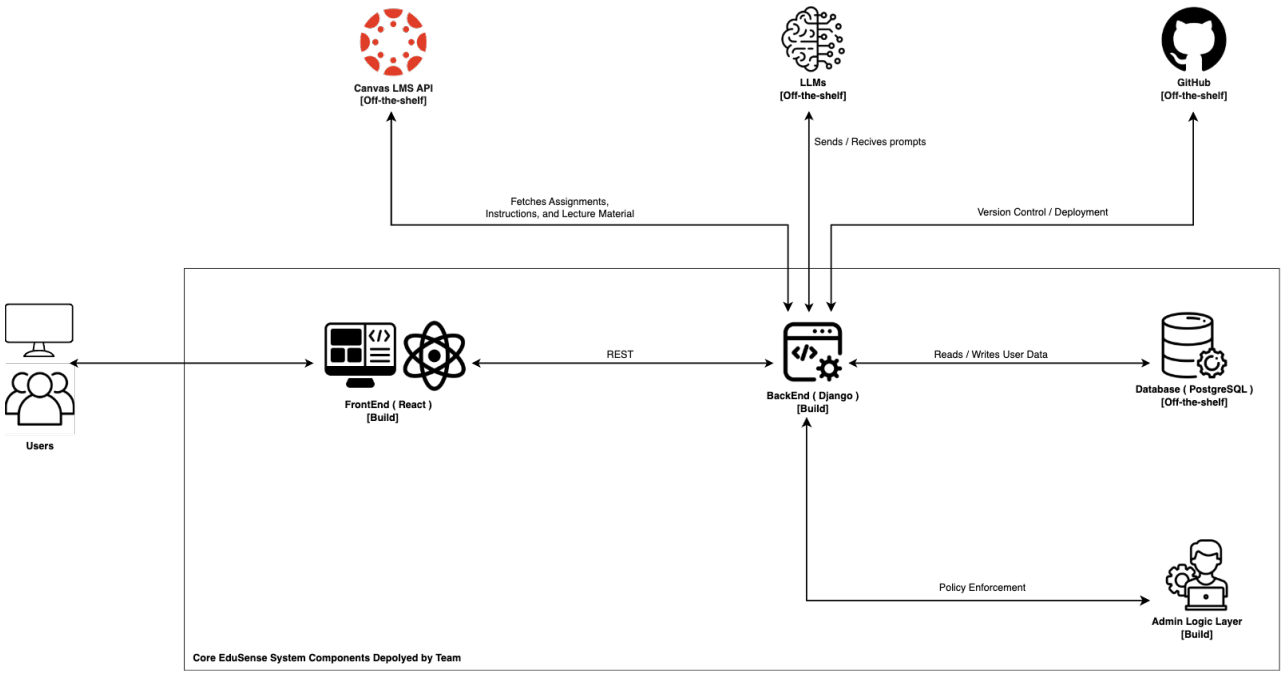

Figure 1: Major Functional Component Diagram

This comprehensive architecture highlights how EduSense leverages both custom-built components and off-the-shelf solutions to create an innovative and robust educational tool for tracking student-AI interactions and syncing with learning management system.

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