

Lab 2

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## 1. Introduction

### 1.1. Purpose

This document describes, defines, and details aspects of Edusense, a learning tool which provides students with guided prompts to encourage critical thinking when confused in their learning.

### 1.2. Scope

Edusense will aim to, utilize LLM technologies to facilitate and encourage learning. Edusense will respond to students' prompts with its own prompts, meant to encourage critical thinking and allow students who would benefit from that added push to reach their own valid conclusions.

### 1.3. Definitions, Acronyms, and Abbreviations

**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.

**MFCDD (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**

Section 2 will summarize Edusense.

Section 3 will go into detail upon Edusense’s specific requirements.

## **2. Overall Description**

### **2.1. Product Perspective**

Edusense will be a LLM-based tool accessible from the web through Canvas. Edusense will filter and modify student prompts to Edusense’s LLM tools in order to produce responses which point the student towards the solution rather than delivering it outright, encouraging critical thinking. Instructors are able to view all of their students’ interactions with Edusense and are able to modify a collection of settings pertaining to how their students may interact with Edusense.

### **2.2. Product Functions**

Edusense will integrate with Canvas, so that instructors can place it into their courses and students can access it easily. Edusense will optionally be able to reference course materials depending on options set by instructors. Quizzes or other graded material Edusense can access will be processed in a way to avoid giving direct solutions to the contents. The LLM functions of Edusense can be used by students through a text

interface and Edusense will record all interactions for later use by students and instructors.

### **2.3. User Characteristics**

Edusense caters to two different types of users: Students and Instructors. Students will be the majority of Edusense's users. Student use of Edusense will assist in their abilities to think critically and discourage looking up or using other LLM tools to find a solution. Instructors will serve as administrators for groups of students, being able to set limitations on students' use of certain words, how many prompts a student can send to Edusense in a day, what resources from the course can Edusense use, and whether or not students may see what sources Edusense used as a source for its response as a few examples. Instructors also have the ability to view the complete conversation history of each student, allowing them to ensure their students do not use Edusense in an inappropriate manner as well as what topics are frequently queried and could be improved in the instructor's own lesson plans.

### **2.4. Constraints**

N/A

### **2.5. Assumptions and Dependencies**

N/A