Software Engineering Project (BSCSS3001)

Milestone 1 Report

Team No. 5

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Contents

1. User Requirements

- **Topic-Specific Resources**
  - The AI agent should recommend topic-specific resources like videos and notes.
- **Dynamic Content Updates**
  - Adapt recommendations with the latest course materials and updates.
- **Ethical Problem-Solving**
  - The AI agent should promote academic integrity by advising general approaches instead of direct answers.
- **Collaborative Discussions**
  - The AI agent should suggest discussion threads or peer collaboration for doubt clarification.
- **Progress Tracking**
  - The AI agent should track student progress and provide reminders for deadlines.
- **External Resource Suggestions**
  - The AI agent should Recommend credible external resources for deeper exploration.
- **RAG System for FAQs**
  - The AI agent should Utilize a Retrieval-Augmented Generation (RAG) system for FAQs to minimize unnecessary language model calls.

2. User Identification

- **Primary Users**
  - **Students enrolled in the IITM BS program:**
    - These are the end-users who will use the AI agent to navigate the SEEK portal, access resources, improve learning strategies, and receive academic guidance.

- **Secondary Users**
  - **Course Instructors:**
    - Responsible for course content creation and updates. They may interact with the AI agent indirectly to monitor its alignment with academic goals and ensure ethical boundaries.

- **Tertiary Users**
  - **Program Administrators:**
    - Oversee the SEEK portal's operations and ensure the AI agent is integrated properly into the system without disrupting the user experience.
  - **Developers and Maintenance Teams:**
    - Responsible for building, testing, and maintaining the AI agent, ensuring its alignment with educational and technical requirements.

3. User Stories

- **Core Functionality: Conversational Guidance**
  - **For Students**
    - **As a student,**
      - I want the AI agent to provide tailored study strategies based on my course progress, so that I can optimize my learning experience and manage my time effectively.
    - **As a student,**
      - I want the AI agent to recommend videos, notes, and other materials for specific topics.
    - **As a student,**
      - I want the AI agent to provide debugging tips for programming errors in my practice assignments, so that I can improve my problem-solving skills independently.
    - **As a student,**
      - I want the AI agent to provide stress management support, such as productivity tips to maintain a healthy mindset.
- **Dynamic Resource Recommendations**
  - **For Students**
    - **As a student,**
      - I want the AI agent to dynamically adapt its recommendations to reflect the latest course materials and assignments, so that I can stay updated with the most relevant resources.
    - As a student,
      - I want the AI agent to suggest credible external resources (like official documentation or academic articles), so that I can deepen my understanding of complex topics.

3. User Stories

- **Academic Integrity**
  - **For Students**
    - **As a student,**
      - I want the AI agent to encourage ethical practices by offering general problem-solving strategies, so that I can complete assignments independently without violating academic integrity.
  - **For Instructors**
    - **As an instructor,**
      - I want the AI agent to restrict direct answers to assessment-related queries, so that the platform upholds academic integrity.
- **Collaborative Learning**
  - **For Students**
    - **As a student,**
      - I want the AI agent to suggest relevant discussion threads within the SEEK portal,so that I can collaborate with peers and clarify doubts.
- **Artefacts and Progress Tracking**
  - **For Students**
    - **As a student,**
      - I want the AI agent to track my progress on assignments and quizzes, so that I can stay on top of deadlines and prioritize tasks.
  - **For Program Administrators**
    - **As a program administrator,**
      - I want the AI agent to store anonymized interaction data, so that we can analyze its effectiveness and identify areas for improvement.
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3. User Stories

- **Technical Features**
  - **For Developers**
    - **As a developer,**
      - I want the AI agent to use a Retrieval-Augmented Generation (RAG) system for frequently asked questions, so that it can efficiently respond without unnecessary LLM calls.
    - **As a developer,**
      - I want the AI agent to respect rate limits and token limits during interactions, so that it provides reliable and efficient responses.
  - **For Program Administrators**
    - **As a program administrator,**
      - AI agent should notify of suspicious usage patterns to ensure compliance with academic policies.
- **Engagement Features**
  - **For Students**
    - **As a student,**
      - I want the AI agent to adapt its tone and guidance to suit my preferred learning style, so that I feel more comfortable using it for assistance.