INTELLIGENT ASSESMENT PLATFORM

Roadmap and Milestones

Milestone 1: Initial Setup

- **Task 1:** Set up the development environment for ReactJS (frontend) and Java Spring Boot (backend).
- **Task 2:** Configure MongoDB with a schema design for questions, answers, and results.
- **Task 3:** Integrate CrewAI, Ollama, and Lama2 to process text input and generate MCQs.

Expected Outcome:

- A basic working environment with all tools configured and connected.

Milestone 2: Teacher’s Interface

- **Task 1:** Build a React component for teachers to upload content (Unit-1).
- **Task 2:** Create a backend API to send content to AI (via CrewAI or Lama2).
  - AI processes the content and returns topic-wise questions and answers in JSON format.
- **Task 3:** Store AI-generated questions and answers in MongoDB with a topic-wise structure.
- **Task 4:** Design a UI to display AI-generated content for teachers to review and select questions.

Expected Outcome:

- Teachers can upload content and review AI-generated questions topic-wise.

Milestone 3: Student’s Interface

- **Task 1:** Create a React component for students to view and attend tests.
  - Backend API fetches teacher-selected questions from MongoDB.
- **Task 2:** Implement a submission mechanism to collect answers.

- **Task 3:** Calculate results using topic-wise analysis.
    - Sort results topic-wise and determine the elbow point for low-score topics.

Expected Outcome:

- Students can take tests, submit answers, and see their results with topic-wise feedback.

Milestone 4: Retest and Threshold Management

- **Task 1:** Allow teachers to set threshold values for topics.
- **Task 2:** Compare student results with threshold values to identify retest needs.
- **Task 3:** Generate retest questions using frequency-based algorithms and store them in MongoDB.
- **Task 4:** Design a retest workflow for students, reusing questions stored in the database.

Expected Outcome:

- Adaptive retesting with threshold-based logic and teacher-student interaction.

Milestone 5: Advanced Features

- **Task 1:** Implement session management and authentication (JWT) for teachers and students.
- **Task 2:** Optimize database queries for faster retrieval.
- **Task 3:** Log activity for debugging and analytics.
- **Task 4:** Add a dashboard for teachers to monitor student progress.

Expected Outcome:

- Fully functional platform with advanced monitoring and analytics.

Milestone 6: Testing and Deployment

- **Task 1:** Conduct unit tests for backend APIs and frontend components.
- **Task 2:** Perform integration testing for AI, backend, and database workflows.
- **Task 3:** Deploy the application on a cloud platform (AWS or alternatives).

Expected Outcome:

- A production-ready "Intelligent Assessment Platform."
