AI Assessment System – Mini (React + Node + MongoDB)

# Overview

This is a mini AI-powered assessment system designed to dynamically generate technical assessments based on user-provided role, tech stack, experience level, and custom requirements. It supports test creation, test-taking with monitoring, and AI-powered evaluation.

# Key Features

- Role-based and skill-specific assessment generation

- Natural language requirement parsing for custom test creation

- Test delivery UI with timer and tab-switch monitoring

- AI/LLM-enhanced evaluation with strengths, weaknesses, and recommendations

- Backend: Node.js + Express + MongoDB

- Frontend: React + TailwindCSS

- Optional integration with OpenAI for advanced question generation

# System Phases

## Phase 1 – Requirement Parsing

User inputs role, tech stack, experience, and requirements. System parses into a normalized blueprint (skills, difficulty, topics).

## Phase 2 – Assessment Generation & Delivery

Generates relevant questions using a local question bank (optionally augmented with LLMs). Stores assessments in MongoDB. Provides test UI with real-time timer and tab-switch detection.

## Phase 3 – AI-Powered Evaluation

Evaluates submissions with automated scoring. Uses AI for descriptive answers. Generates detailed report including overall score, per-skill analysis, strengths/weaknesses, and recommendations.

# Setup Instructions

## Backend

1. cd backend && cp .env.example .env

2. Set MONGO\_URI and OPENAI\_API\_KEY in .env

3. npm install && npm run dev (runs on http://localhost:5001)

## Frontend

1. cd frontend && npm install

2. Set VITE\_API\_URL to backend URL in .env

3. npm run dev (runs on http://localhost:5173)