SAMADHAN
CODE CREATE & INNOVATE

A 2-days National Level Hackathon on

AI in education

Smart Quiz Generator

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www.samadhan.sistec.ac.in/

PROBLEM STATEMENT

✓ Current Issues:- Manual quiz creation takes 3-5 hours per topic for educators- Limited availability of topic-specific, high-quality questions- Delayed feedback affects student learning progress- Time-consuming manual grading process- Lack of detailed performance analytics for learners

✓ Impact: Teachers overwhelmed with admin work, students receive poor learning feedback

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PROPOSED SOLUTION

AI-Powered Quiz Platform:-

Instant Generation: AI creates topic-specific multiple-choice questions in seconds.

SmartGrading: Automatic evaluation with immediate results

VisualAnalytics: Performance tracking with charts and progress visualization

User-Friendly: Clean CSS interface accessible on all devices

APPROACH & METHADOLGY

- ✓ Technical Stack:
- ✓ Backend: Java REST API for data processing and AI integration
- ✓ Frontend: CSS-based responsive interface
- ✓ AI Engine: OpenAI API for question generation
- ✓ Architecture:* RESTful design for scalability

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KEY FEATURES

- ✓ **Adaptive Learning – Adjusts difficulty based on the user's performance.**
- ✓ **Clean & Responsive UI – User-friendly design with smooth navigation.**
- ✓ **Progress Bar – Visual indicator of quiz completion status.**
- ✓ **Export & Share – Save quiz reports in PDF/Excel and share results.**

TECH STACK USED

Frontend: React.js, Tailwind CSS
Backend: Node.js, Express.js
Database: MongoDB / Firebase
AI Integration (optional): OpenAI API for generating dynamic questions
Deployment: Netlify (Frontend), Render/Heroku (Backend)

Data Requirements and Privacy Considerations

Data Needed:
- ✓ Topic/subject input from users.

Data Handling:
- ✓ Secure storage of user performance data.

Privacy:
- ✓ Ensure compliance with data security standards.
- ✓ Anonymize student data if stored.

AI Technologies and Methods

✓ **Natural Language Processing (NLP)**: For generating topic-based questions.

✓ **Machine Learning**: For adaptive difficulty levels.

✓ **Data Analytics**: For performance tracking and insights.

✓ **API Integration**: For question generation.

Implementation Approach

Development Steps:

✓ **Backend** – Build a Java backend with REST APIs.

✓ **AI Integration** – Connect OpenAI API for quiz generation.

✓ **Frontend** – Develop quiz UI using HTML & CSS.

✓ **Deployment & Testing** – Test on small groups.