

# AI Quiz Generator Website - Documentation

## Overview:

The AI Quiz Generator website is a platform that allows users to generate topic-based quizzes, take them with or without a timer, upload PDFs to extract quiz questions, and receive instant results and reports. The website includes Google authentication via Firebase, report generation as downloadable PDFs, and a performance dashboard with analytics and charts.

## Main Features:

1. Google Login (Firebase Authentication)
2. Generate Quiz with topic, difficulty, number of questions, and timer option
3. Upload PDF to auto-generate questions
4. Instant results (marks, percentage, time taken)
5. Downloadable detailed quiz reports in PDF format
6. Past Quizzes dashboard (view, retake, report)
7. Analytics dashboard (performance over time, accuracy by difficulty)
8. Dark Mode toggle
9. Export options for individual and summary reports

## Tech Stack:

- Frontend: React + Tailwind CSS
- Backend: Node.js + Express
- Database: MongoDB Atlas
- Authentication: Firebase Google Login
- AI Quiz Generation: OpenAI API
- PDF Handling: pdf-parse, pdfkit/jspdf
- Charts: Recharts / Chart.js

## User Workflow:

1. User logs in with Google
2. User chooses 'Generate Quiz', provides topic or uploads PDF
3. Selects difficulty, number of questions, and timer
4. Takes quiz and submits answers
5. Results and detailed report displayed with download option
6. Quiz saved in 'Past Quizzes'
7. User can view analytics in Reports dashboard