Business Requirements Document

SkillMentor.AI

A Personalized Learning Pathway with AI-powered Recommendations Empowering Learners to Skill Excellence

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1. Executive Summary

SkillMentor.AI is an AI-powered web application designed to offer personalized course recommendations to learners based on their interests. The system enables students to explore, enroll in, and track academic courses, while administrators can manage content, monitor student progress, and issue certificates. It integrates Next.js and Express.js/Nest.js for full-stack scalability, Gemini API for AI features, and MongoDB Atlas for database reliability.

2. Project Objectives

2.1. Primary Objectives

- Deliver personalized course recommendations
- Facilitate seamless enrollment, tracking, and course management
- Enable students to upload resumes and update profile
- Provide real-time dashboards and visual progress for users
- Support admin features for course and student management

2.2. Success Criteria

- 99.9% uptime with smooth video summary generation
- Recommendations served under 2 seconds
- PDF certificate generation upon 100% course completion
- Support for >500 concurrent students

3. Stakeholders

3.1. Primary Stakeholders

- Students (learners)
- Course Administrators
- Platform Developers

3.2. Secondary Stakeholders

- Educational institutions
- AI service providers (Gemini)

4. Functional Requirements

4.1. User Management

- Student registration and login via NextAuth
- Resume upload and profile update
- View enrollment and progress history

4.2. Course Management

- Add/View/update/delete course details (title, syllabus, difficulty)
- Auto-aggregation of course ratings via reviews
- Filter by level (Beginner/Intermediate/Advanced)

4.3. Recommendation Engine

- AI-generated video summaries (Gemini API)

4.4. Enrollment & Tracking

- Enroll in multiple courses
- Progress tracking with visual progress bar
- Alerts for inactivity

4.5. Certification & Feedback

- Generate downloadable PDF certificates on completion
- Students can submit reviews and feedback
- Export video summaries as PDFs

5. Non-Functional Requirements

5.1. Performance

- Page loads under 3 seconds
- Real-time updates via Redux
- Handle 100+ concurrent sessions

5.2. Security

- JwtAuth-based secure authentication
- Role-based access control
- Resume & personal data encryption

5.3. Usability

- Mobile responsive, intuitive UI
- PDF viewer for learning material
- Dark/light theme accessibility

6. User Interface Requirements

6.1. Student Interface

- Course browsing and search filters
- Dashboard with progress and AI suggestions
- Resume upload and profile page

6.2. Admin Interface

- Student management panel
- Course creation/updation dashboard
- Certificate and feedback tracking

7. System Integration Requirements

7.1. AI Integration (Gemini)

- Extract video content summary
- Generate PDF from AI summary

7.2. PDF Tools Integration

- Upload and read PDFs
- Export summaries and certificates as PDF

8. Reporting Requirements

8.1. Business Reports

- Total enrollments
- Course-wise ratings and completions
- Learning behavior trends

8.2. Administrative Reports

- User logs and system usage
- Certificate issuance logs
- Feedback and review reports

9. Data Requirements

9.1. Student Data

- Personal & academic details
- Resume (PDF format)
- Progress and enrollment history

9.2. Course Data

- Title, syllabus, instructor
- Difficulty level
- Reviews and rating statistics

10. Security Requirements

10.1. Authentication

- NextAuth with session control
- Admin login with role-based privileges

10.2. Data Protection

- Resume and profile data encrypted at rest
- Secure resume parsing
- Encrypted storage of feedback and reviews

11. Compliance Requirements

11.1. Legal Compliance

- GDPR and data privacy policies
- Copyright-safe content usage
- Educational platform standards

11.2. Industry Standards

- OWASP security practices
- API standardization (REST)
- Coding and deployment standards

12. Implementation Phases

Phase 1: Core Features

- User login
- Course browsing and filtering
- Recommendations
- Resume upload and profile update

Phase 2: Enhanced Features

- Progress tracker
- Course enrollment and dashboard
- Review and rating module
- PDF summary generation

Phase 3: Administrative Features

- Admin login and course management
- Certificate issuance
- Student progress tracking

Phase 4: Optimization

- Testing and bug fixes
- Security hardening
- Mobile UI improvements
- Final documentation

13. Assumptions and Constraints

13.1. Assumptions

- Students will upload valid resumes
- Gemini API remains available
- MongoDB Atlas connection is stable

13.2. Constraints

- Budget limited to educational use
- Free-tier AI usage limits
- Third-party dependencies for PDF generation

14. Risk Management

14.1. Technical Risks

- AI summary errors
- PDF generation delays
- Gemini API rate limiting

14.2. Business Risks

- Low student adoption

- Difficulty in resume parsing

- Platform scaling issues

15. Success Metrics

15.1. Business Metrics

- Number of active learners

- Course completion rates

- Certificate downloads

- Feedback positivity score

15.2. Technical Metrics

- AI response time

- Bug resolution rate

- Feature usage analytics

16. Approval and Sign-off

This document requires approval from:

- Product Owner

- Educational Advisors

- AI Integration Team

- Data Security Officer

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