EDUFLOW

SRS Document

## 1. Introduction

### EduFlow Overview:

- EduFlow is a dedicated platform designed to address both academic and mental health needs, making it unique in the education technology sector.
- Elaborate on how current educational platforms like Coursera or Udemy focus primarily on academic content, whereas EduFlow goes beyond by integrating wellness tools.
- **Mission Statement**: Create a balanced digital environment that enhances both learning and mental well-being.

### Target Audience:

- Students at all academic levels (K-12, undergraduate, post-graduate)
- Teachers, lecturers, and academic professionals
- Researchers and professionals seeking continuous learning opportunities
- Anyone seeking to reduce anxiety and improve focus through relaxation media

### EduFlow Vision:

- To be the go-to platform for holistic education and mental well-being by offering a unique combination of academic resources and wellness content.

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## 2. Functional Requirements

User Management:

- Detailed description of features such as account creation, login, profile management, and role-based access (student, teacher, researcher).
- Security Measures: Password encryption, two-factor authentication, account recovery procedures.

Content Management:

- Break down how educational content (videos, audiobooks, lecture notes) is uploaded and categorized.
- Define how users (especially verified educators) contribute content, including quality checks, copyright handling, and approvals.

Search and Filtering:

- Define filters by subject, level (beginner to expert), content type (video, audio, text).
- Example: A student looking for "Physics lectures for beginners" would have filter options like subject (Physics), difficulty (Beginner), format (Lecture).

AI Integration:

- Explain how AI will use user behavior data to improve recommendations.
- Describe how a personalized learning experience is crafted, similar to how Netflix or Spotify uses recommendation engines.

Relaxation Media Integration:

- How EduFlow incorporates scientifically backed relaxation techniques.
- Types of media offered: Guided meditation, calming music playlists, nature sounds, etc.

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## 3. Non-Functional Requirements

Performance:

- Define performance benchmarks (e.g., video streaming should load in <2 seconds).
- Focus on minimizing load time, optimizing API calls, and managing

concurrency during peak usage.

Security:

- In-depth discussion on data protection, SSL/TLS encryption, and database security mechanisms.
- Add information about compliance with regulations like GDPR or COPPA for educational platforms.

Usability and Accessibility:

- Detail how the platform will adhere to WCAG (Web Content Accessibility Guidelines) to ensure accessibility for users with disabilities.
- Mockups of UI showing how EduFlow ensures ease of use, such as simple navigation and readability.

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## 4. Technical Requirements

### 4.1 Tools Used

- **Frontend**:
  - **HTML/CSS/JavaScript**: For building static and dynamic user interfaces.
  - **React.js**: Optional, for creating reusable UI components and managing application state.
  - **Bootstrap**: Ensures responsive design across devices.
- **Backend**:
  - **Node.js**: Backend server to handle user requests, manage authentication, and serve content.
  - **Express.js**: Framework for building RESTful APIs to handle frontend requests.
- **Database**:
  - **MySQL/PostgreSQL**: For storing user profiles, course data, content metadata, and progress.

### 4.2 API

- **RESTful APIs**: APIs will be used to enable communication between the frontend and backend. The APIs will handle:
  - User registration, login/logout.
  - Retrieval of educational content.

- Upload and moderation of user-generated content.
- AI recommendation requests.
- Chatbot integration for customer support.

### 4.3 Programming Languages

- **Frontend**: HTML, CSS, JavaScript (with optional React.js).
- **Backend**: JavaScript (Node.js, Express.js).
- **Database**: SQL (MySQL/PostgreSQL).
- **Optional AI Modules**: Python (for AI model development, TensorFlow integration).

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## 5. Security

EduFlow will implement a series of measures to ensure that user data and content are secure:

- **Data Encryption**: All communicawtion between clients and servers will be encrypted using SSL/TLS.
- **User Authentication**: OAuth 2.0 or JWT (JSON Web Tokens) will be used for managing user sessions and preventing unauthorized access.
- **Database Security**: Sensitive data in the database (e.g., passwords) will be encrypted. Access control mechanisms will prevent unauthorized access to user data.
- **DRM Protection**: Digital Rights Management (DRM) will be implemented to secure educational videos and other licensed content, preventing piracy.

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## 6Version Control System

**GIT: Git will be used as the version control system to manage code changes and collaborate with team members effectively.**

**GitHub: A GitHub repository will host the code, allowing version tracking, code review, and easy branching/merging.**

| Version | Description of Changes |
|---|---|
| 0.1 | Initial draft of the SRS document with high-level project overview and basic |

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|---|---|
| | requirements. |
| 0.2 | Added initial functional requirements for basic user interface and streaming features. |
| 0.3 | Frontend development completed, UI/UX design, responsive design, and layout creation. |
| 0.4 | Updated with frontend integration details, including styling, animations, and basic interactivity using JavaScript. |

Time Duration

Frontend Development

| Phase | Tasks | Estimated Duration |
|---|---|---|
| HTML/CSS/JavaScript | UI/UX design, responsive layout, basic user interactions | 2 weeks |
| React.js (Optional) | Dynamic components, state management | 1-2 weeks |

Backend Development

| Phase | Tasks | Estimated Duration |
|---|---|---|
| Node.js and Express | Authentication, API requests, database interactions | 3 weeks |
| RDBMS | Database design (user profiles, | 1 week |

| | | |
|---|---|---|
| | content metadata) | |

Connection Management

| Phase | Tasks | Estimated Duration |
|---|---|---|
| Video Streaming Setup | Content uploads, moderation system, encoding, streaming | 2 weeks |
| DRM Protection (Optional) | DRM integration for securing content | 1 week |

Connection Management

| Phase | Tasks | Estimated Duration |
|---|---|---|
| Recommendation Engine | Implementing AI-based recommendation system | 2-3 weeks |
| Chatbot | Chatbot for user support | 1 week |

Testing and Deployment

| Phase | Tasks | Estimated Duration |
|---|---|---|
| Testing | Unit, integration, and user testing | 2 weeks |
| Deployment (AWS) | Deploying the application, setting up CDN | 1 week |

Project Management

| Phase | Tasks | Estimated Duration |
|---|---|---|
| JIRA Tracking | Progress tracking, task assignment | Ongoing (throughout) |

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## 7. Duration

The project will be developed over a period of **9 weeks**, divided into **5 sprints**:

- **Sprint 1 (Weeks 1-2)**:
  - Setting up the project environment, establishing the frontend-backend connection, and basic user management features.
- **Sprint 2 (Weeks 3-4)**:
  - Implementing core video streaming functionality, content management system, and relaxation media integration.
- **Sprint 3 (Weeks 5-6)**:
  - Adding search and filtering functionalities, implementing user-generated content features.
- **Sprint 4 (Weeks 7-8)**:
  - AI recommendation system, chatbot integration (optional), and testing.
- **Sprint 5 (Week 9)**:
  - Final testing, bug fixing, and preparing for deployment on AWS.

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## Customer Needs for an Educational Streaming Site

An educational streaming site must cater to a diverse audience by providing engaging content, personalization, and interactivity, while ensuring a

seamless user experience. Below is a comprehensive breakdown of customer needs, incorporating advanced features to further enhance the platform.

1. Quality and Diverse Content
   - Comprehensive Course Library: A broad range of subjects, including academic disciplines, hobbies, professional skills, and personal development.
   - Engaging Educational Material: High-quality video lessons, clear instruction, and expert instructors.
   - Up-to-date Information: Courses that reflect current trends, research, and developments in various fields.
   - Personalized Learning Paths: Tailored course recommendations based on user preferences, learning history, and career goals.
   - Adaptive Learning: Algorithms that adjust course pace and difficulty based on a user's performance.

2. User-Friendly Interface
   - Easy Navigation: Clear, intuitive browsing and search functions for quick access to relevant content.
   - Multiple Device Compatibility: Seamless access across devices like desktops, tablets, and smartphones.
   - Personalized Experience: Customizable course suggestions and learning pathways aligned with learner progress.

3. Accessibility and Flexibility
   - On-Demand Content: Ability to access courses anytime, at the learner's own pace.
   - Offline Viewing Options: Downloadable content for learning without an internet connection.
   - Closed Captioning and Subtitles: Support for learners with hearing impairments or language preferences. Features like adjustable playback speed for enhanced accessibility.
   - Pace Flexibility: Learners can progress at their own speed, revisiting lessons or moving ahead as they feel comfortable.

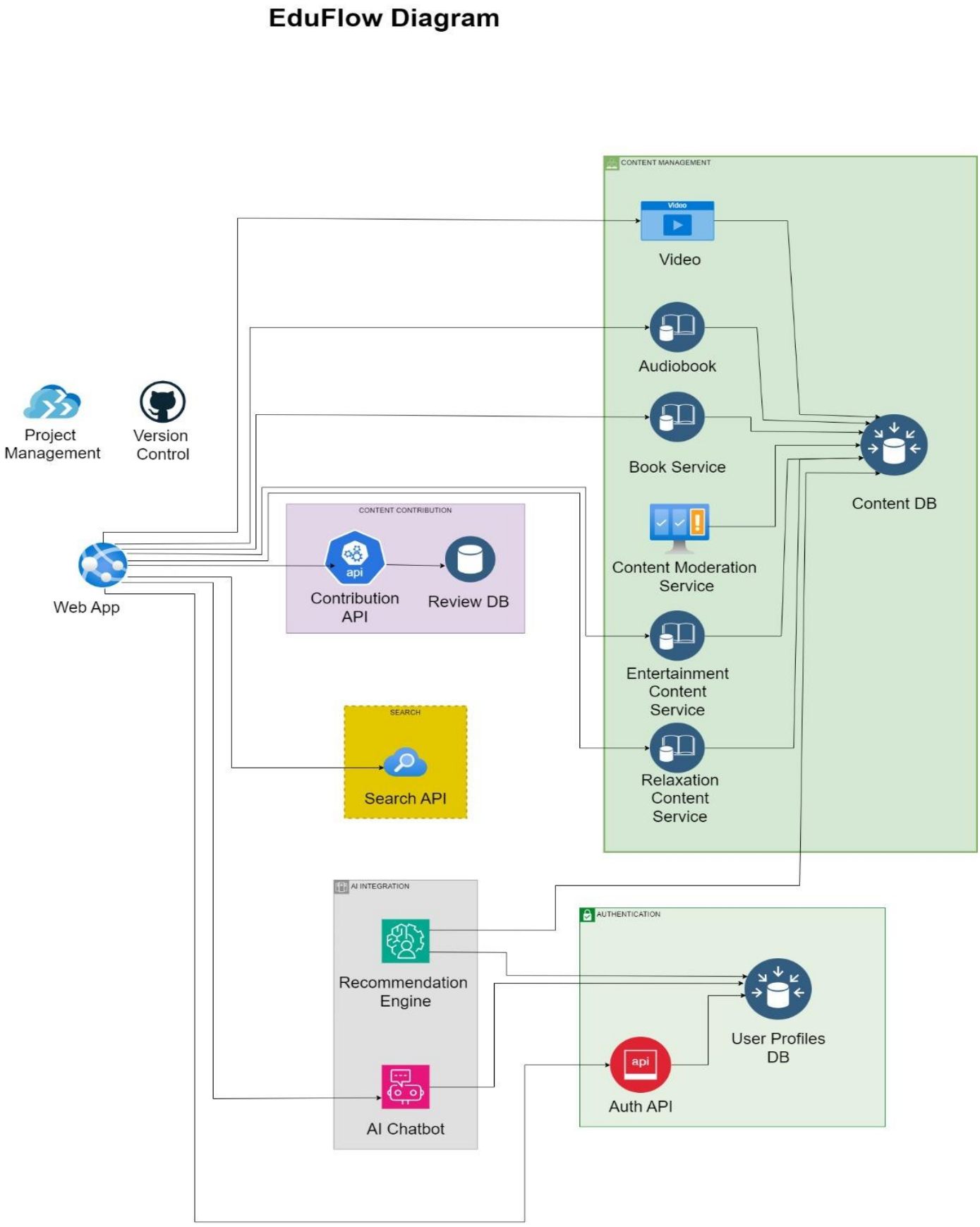
4. Interactive and Engaging Learning
- Quizzes and Assessments: Frequent assessments to reinforce learning and track progress.
- Discussion Forums & Live Sessions: Real-time interaction with instructors and peers.
- Gamification Elements: Badges, rewards, certificates, and leaderboards to boost motivation.
- Interactive Challenges and Quizzes: Make learning more engaging with competitive features like challenges and interactive tasks.
- Virtual Study Groups: Online groups where learners can collaborate, discuss topics, and share resources.
- Mentor Programs: Connect learners with experienced mentors for guidance and support.

5. Certifications and Credentials
- Certificates of Completion: Valid credentials to showcase learning achievements, useful for career development.
- Accreditation: Recognized courses from industry experts or accredited institutions, adding value to the learner's portfolio.

6. Affordability and Pricing Flexibility
- Flexible Pricing Options: Subscription models, pay-per-course plans, and tiered pricing to fit various budgets.
- Free Trials and Sample Content: Opportunities for users to explore content before committing to paid options.
- Value for Money: Affordable pricing that reflects the quality and variety of the courses.

7. Security and Privacy
- Data Protection: Secure handling of personal and payment information to ensure a safe user experience.
- Content Protection: Strong measures to prevent unauthorized sharing.

# 9. Flowchart


EduFlow Diagram
CONTENT MANAGEMENT
Video
Video
Audiobook
Book Service
Content DB
Content Moderation Service
Entertainment Content Service
Relaxation Content Service
Project Management
Version Control
CONTENT CONTRIBUTION
api
Contribution API
Review DB
Web App
SEARCH
Search API
AI INTEGRATION
Recommendation Engine
AI Chatbot
AUTHENTICATION
User Profiles DB
api
Auth API

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**10. Work Split-Up**

The project will be split into the following key components:

- **Frontend Development**:
  - **HTML/CSS/JavaScript**: Creating responsive web pages, user interfaces, and interaction designs.
  - **React.js (optional)**: Managing state and enhancing user interaction on the platform.
- **Backend Development**:
  - **Node.js/Express.js**: Building APIs to manage user registration, content retrieval, and handling secure user data transmission.
  - **RDBMS (MySQL/PostgreSQL)**: Designing the database to store and query content metadata, user profiles, and course history.
- **AI Integration**:
  - **Recommendation System**: Implementing machine learning models to suggest personalized content.
  - **Chatbot**: Integrating a conversational AI chatbot to provide assistance and support.
- **Testing & Deployment**:
  - Unit and integration testing of each system component.
  - Deployment on AWS using EC2, S3, and CloudFront services for scalable content delivery.

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**11. Maintenance**

After the initial deployment, the platform will require regular maintenance to ensure its stability and growth:

- **Bug Fixes**: Identifying and resolving issues reported by users or found during testing.
- **Content Moderation**: Regular reviews to ensure content is appropriate and free from violations.
- **Security Updates**: Regular patching and security checks to prevent vulnerabilities.
- **Feature Enhancements**: Based on user feedback, continuous

development of new features or improvements.

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## 12. Short-Term Goals

- **Initial Platform Setup**: Within the first 3 weeks, the basic user registration and video streaming system will be operational.
- **User Testing**: A test group of users will be introduced to the platform by Week 6 to gather feedback and refine the UI/UX.
- **AI Implementation**: By Week 7, the AI-driven recommendation system will be integrated and optimized for user-specific content suggestions.
- **Final Deployment**: The platform will be fully operational and deployed on AWS by Week 9, with ongoing maintenance and feature rollouts.

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