Software Requirements Specification (SRS)
For Online Tuition Media Platform

Purpose

This document outlines the Software Requirements Specification (SRS) for an Online Tuition Media Platform, designed to connect tutors, guardians, and students efficiently. The platform ensures seamless user experience, providing features such as automated tutor-student matching, notifications, and secure data handling.

This SRS is the primary communication tool between the development team and stakeholders, ensuring that the final system meets all requirements.

Scope

The Online Tuition Media Platform provides a digital solution for connecting students, tutors, and guardians. Its primary functions include registration, profile management, automated matching based on location and requirements, tuition booking, and interactive learning through live and recorded sessions. The platform supports notifications, progress tracking, and secure transactions via encrypted payment gateways. Accessible via web and mobile applications, it caters to global users with multi-language and multi-currency options. Future enhancements include AI-based recommendations and gamification features. The platform ensures scalability, security, and usability, making it a comprehensive tool for modern education.

Stakeholders

The Online Tuition Media Platform serves a diverse set of stakeholders, each with specific needs and roles within the system. The intended audience includes:

- **Students**:
  - Primary users who are looking for tutors to improve their academic performance.
  - They use the platform to search for tutors based on subject, location, and availability, and to book tuition sessions.
- **Guardians/Parents**:
  - Secondary users who are often responsible for managing the educational needs of their children.

  - They use the platform to find suitable tutors, manage bookings, and monitor the progress of their children's learning.

- **Tutors**:
  - Educators who provide tutoring services on the platform.
  - They create profiles, list their areas of expertise, set availability, and offer live or recorded lessons to students.
- **Platform Administrators**:
  - Administrators who oversee the functionality of the platform, manage user accounts, verify tutors, handle disputes, and ensure smooth system operation.
  - They are responsible for ensuring content compliance and maintaining a high standard of service.
- **Customers/Business Owners**:
  - The entity or organization managing the platform.
  - They ensure the platform operates effectively, handling business operations, updates, and managing relationships with tutors and students.

Overview

The Online Tuition Media Platform is a digital system that connects students, tutors, and guardians for efficient, flexible, and secure learning. Students can search for tutors based on subject, location, and budget, while tutors can manage their availability and provide live or recorded lessons. Key features include automated tutor matching, booking and scheduling, live video classes, progress tracking, and notifications. The platform supports global accessibility with multi-language and multi-currency options, making it ideal for a diverse user base. It aims to enhance the learning experience by offering both synchronous and asynchronous learning opportunities.

Overall Description

The **Online Tuition Media Platform** connects students with tutors in a secure, easy-to-use environment. It allows students to search for and book tutors based on subject, location, and availability. Tutors can manage schedules, conduct live or recorded sessions, and track student progress. Key features include automated tutor matching, booking and scheduling, live

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video classes, progress tracking, and notifications. The platform is scalable, supporting global users with multi-language and multi-currency options. It aims to enhance the learning experience by offering flexible, accessible, and efficient tuition services.

Product Perspective

The Online Tuition Media Platform is a web and mobile-based system that connects students and tutors. It integrates payment gateways for secure transactions and uses email/SMS for notifications

Product Functions

The Online Tuition Media Platform provides a variety of functions to facilitate seamless interactions between students, tutors, and administrators. These functions include:

1. **User Registration and Profile Management**:
    - Students, tutors, and guardians can register, create, and manage personal profiles with relevant details such as subject expertise, location, and learning preferences.
2. **Search and Matchmaking**:
    - Students can search for tutors based on criteria like subject, location, availability, and budget. The system also provides automated matching suggestions based on these parameters.
3. **Booking and Scheduling**:
    - Students can book tutoring sessions based on tutor availability. Tutors can manage their schedules, allowing them to set their preferred working hours.
4. **Live and Recorded Sessions**:
    - The platform supports live video tutoring sessions with interactive features (e.g., chat, whiteboards). Additionally, tutors can upload pre-recorded lectures for students to access asynchronously.
5. **Progress Tracking and Feedback**:

- Students can track their learning progress through dashboards showing attendance, completed sessions, and test scores. Tutors can provide feedback and performance assessments.

6. **Notifications**:
   - Automatic notifications are sent for session reminders, booking confirmations, updates on new matches, or any changes to scheduled sessions.
7. **Payment Processing**:
   - Secure online payment gateways allow students to pay for tutoring sessions. Tutors can track their earnings and manage financial transactions.
8. **Review and Ratings**:
   - Students can leave ratings and reviews for tutors after sessions, helping future students make informed decisions.
9. **Admin Panel**:
   - Administrators can monitor user activity, manage content, verify tutor profiles, resolve disputes, and ensure the platform runs smoothly.

User Characteristics

The Online Tuition Media Platform serves various types of users, each with distinct characteristics and needs. These users include:

1. **Students**:
   - **Role**: The primary users of the platform who seek tutoring services to improve their academic performance or learn new subjects.
   - **Skills**: Basic to advanced digital literacy; they need an easy-to-navigate interface to search for tutors, book sessions, and track their progress.
   - **Needs**:
     - Quick access to tutor profiles and search results.
     - Ability to manage bookings and monitor learning progress.
     - Notifications and reminders for sessions and deadlines.
2. **Guardians/Parents**:
   - **Role**: Secondary users, often responsible for managing their children's education.

- **Skills**: Basic digital literacy, focused on managing and monitoring their child's tuition needs.
- **Needs**:
  - Search for and book tutors.
  - Monitor their child's progress through the platform.
  - Access reports and feedback from tutors to ensure learning goals are met.

3. **Tutors**:
   - **Role**: Educators who provide tuition services to students.
   - **Skills**: Expert knowledge in their subject area; proficient in using digital tools for teaching and managing online sessions.
   - **Needs**:
     - A simple interface to manage their profiles, availability, and booking schedules.
     - Tools for conducting live sessions (video, whiteboard, chat).
     - Ability to track student progress and provide feedback.
     - Secure payment processing for their earnings.
4. **Platform Administrators**:
   - **Role**: Individuals who manage the system's overall operation, ensuring smooth functioning.
   - **Skills**: Technical expertise in managing web applications, user verification, and resolving disputes.
   - **Needs**:
     - Access to monitor and control user activities (students, tutors).
     - Tools for content moderation, account verification, and dispute resolution.
     - Reports and analytics to track platform performance.

Assumptions

1. **User Access to Devices**:
   - Users (students, tutors, and guardians) have access to a device with an internet connection, such as a computer, tablet, or smartphone.
2. **Basic Digital Literacy**:
   - Users are assumed to have basic digital literacy and familiarity with navigating online platforms, enabling them to easily use the platform's features like searching, booking, and managing sessions.

3. **Stable Internet Connectivity**:
    - It is assumed that users have access to a stable internet connection, which is necessary for features like live video classes, notifications, and real-time updates.
4. **Availability of Tutors**:
    - Tutors listed on the platform are available to offer their services within the set schedule and have the necessary equipment (e.g., webcams, microphones) for online teaching.
5. **Timely Payments**:
    - It is assumed that students will make payments on time for tuition services, and the payment processing systems (like PayPal or Stripe) will function without issues.
6. **System Reliability**:
    - The platform will be available and functional 99.9% of the time, excluding scheduled maintenance or unforeseen outages.
7. **Privacy and Security Compliance**:
    - The platform will comply with data privacy regulations (e.g., GDPR) to protect personal data and sensitive information for all users.

Dependencies

1. **Third-Party Payment Systems**:
    - The platform relies on third-party payment gateways (such as PayPal, Stripe) to process transactions securely. Any downtime or changes in their API could affect payment functionality.
2. **Video Conferencing Tools**:
    - The platform depends on integrated video conferencing solutions (e.g., WebRTC, Zoom API) for live sessions. These external tools must be reliable for seamless interaction during tutoring.
3. **External Notification Services**:
    - The platform uses third-party services (e.g., email servers, SMS APIs) for sending notifications and alerts. These services must be available for timely delivery of session reminders and updates.
4. **Cloud Hosting/Infrastructure**:
    - The platform's hosting and data storage are dependent on cloud service providers (e.g., AWS, Azure) for scalability and performance.

Any issues with the cloud infrastructure may affect the platform's uptime and data access.

5. **User Compliance**:
    - The success of the platform relies on users (tutors, students, and guardians) providing accurate information and abiding by the platform's terms and conditions for security and quality control.
6. **Legal and Regulatory Compliance**:
    - The platform is dependent on compliance with various local laws and regulations regarding online education, data protection, and financial transactions.

These assumptions and dependencies help define the operational and technical boundaries of the platform, ensuring that the system functions effectively while accounting for external factors that could impact its success.

Specific Requirements

The Specific Requirements for the Online Tuition Media Platform are detailed, precise functionalities and constraints that the system must fulfill to meet user needs and expectations. These requirements are derived from the general goals and user characteristics, and they guide the development and implementation of the platform.

User Interfaces

The Online Tuition Media Platform is designed to provide a user-friendly and intuitive experience for different users, including students, tutors, guardians, and administrators. The platform includes several key user interfaces (UIs) to facilitate interaction with the system. Below are the primary interfaces for each user type:

1. Student Interface

- **Registration and Login Page**:
    - A simple form to create an account using email, Google, or Facebook.
    - Secure login with email and password or two-factor authentication for enhanced security.
- **Dashboard**:
    - After logging in, students land on their dashboard, where they can:

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    - View recommended tutors based on subject, location, and availability.
    - Access ongoing, upcoming, and completed sessions.
    - Monitor their learning progress, session history, and feedback from tutors.
    - View ratings and reviews for tutors they have booked.
- **Tutor Search Page**:
    - A search bar where students can filter tutors by subject, price, rating, availability, and location.
    - Interactive map view for locating tutors nearby.
    - Option to sort results based on user ratings or expertise.
- **Session Booking Page**:
    - Students can book a session by selecting a tutor, available time slot, and confirming payment.
    - A confirmation page will appear with session details, including time, tutor, and payment summary.
    - Option to cancel or reschedule bookings.
- **Progress Tracking Page**:
    - Displays visual progress tracking, including completed lessons, test results, attendance, and performance.
    - Notifications for upcoming assignments or exams.
- **Notifications & Messages**:
    - Real-time alerts for session reminders, new tutor matches, session updates, and feedback requests.
    - In-app messaging to communicate with tutors about session details or clarifications.

2. Tutor Interface

- **Registration and Profile Setup Page**:
    - Tutors create profiles by listing qualifications, subjects they teach, rates, and availability.
    - Option to upload a profile picture and bio for students to review.
    - Tutors set their schedules, marking availability for students to book.
- **Dashboard**:
    - Tutors can see their upcoming sessions, pending bookings, and payments.

  - A summary of feedback received and ratings to track their performance.
- **Session Management Page**:
  - Tutors can accept or decline session requests based on availability.
  - A session history for reviewing past sessions and planning future ones.
- **Payment Management Page**:
  - Tutors can view their earnings, track completed sessions, and manage payment details.
  - A secure link to withdraw earnings or view transaction history.
- **Feedback and Rating Page**:
  - Tutors can view ratings and feedback left by students and provide responses if necessary.
- **Notifications & Messaging**:
  - Alerts for new session bookings, cancellations, or messages from students.
  - In-app messaging to communicate with students for session reminders, content sharing, or queries.

3. Guardian Interface

- **Registration and Login Page**:
  - Similar to the student interface, guardians can sign up and log in to manage their child's learning needs.
- **Dashboard**:
  - Guardians can monitor their child's progress, view booked sessions, and track their academic development.
  - Access to detailed reports from tutors on their child's performance and feedback.
- **Tutor Search and Booking**:
  - Guardians can search for suitable tutors for their children based on preferences, such as subject expertise, tutor ratings, and availability.
  - They can also book sessions and manage payments on behalf of the student.
- **Session Management**:
  - Option to view upcoming sessions, cancel or reschedule bookings, and receive updates on session changes.

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4. Administrator Interface

- **Admin Login Page**:
  - Secure login for administrators to access the back-end system for managing platform functionality.
- **User Management Page**:
  - Admins can view and manage student, tutor, and guardian accounts.
  - Tools to approve, verify, or suspend user accounts based on platform rules and guidelines.
- **Session and Content Moderation**:
  - Admins can monitor active sessions for compliance with platform guidelines and manage any content uploaded by tutors or students (e.g., materials, reviews).
- **Reporting and Analytics Page**:
  - Admins can view system-wide data and statistics, such as the number of active users, session frequencies, revenue reports, and platform growth.
  - A detailed report on session ratings, user feedback, and system performance to optimize platform efficiency.
- **Dispute Management Page**:
  - Admins can handle complaints, disputes, or issues raised by students or tutors, ensuring proper resolutions.

5. Common Features Across All User Interfaces

- **Responsive Design**:
  - All pages are mobile-responsive, adapting to screens of varying sizes (desktop, tablet, smartphone).
  - Seamless navigation and functionality across devices to ensure accessibility.
- **Help and Support Section**:
  - FAQs, video tutorials, and a contact page for users to get help regarding platform features, payment issues, or technical difficulties.
- **Language and Currency Preferences**:
  - Users can choose their preferred language and currency settings, making the platform adaptable for global use.

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Hardware Interface

The Hardware Interface for the Online Tuition Media Platform involves the devices and systems that enable users to interact with the platform:

1. **User Devices**:
    - PCs/Laptops with a webcam, microphone, and stable internet connection for browsing, live sessions, and communication.
    - Mobile Devices (Smartphones/Tablets) with a camera, microphone, and touch interface for accessing the platform on the go.
2. **Tutor-Specific Hardware**:
    - Tutors may use high-quality webcams, headsets, interactive whiteboards, and sometimes dual monitors for teaching.
3. **Backend Servers**:
    - The platform relies on cloud servers (AWS, Google Cloud) to store data, manage sessions, and ensure scalability for high traffic.
4. **Peripheral Devices**:
    - Optional hardware like stylus pens, external speakers, and storage devices to enhance the teaching or learning experience.
5. **Internet Requirements**:
    - Stable internet (Wi-Fi or Ethernet) is essential for smooth video streaming, with a minimum of 1-2 Mbps download/upload speed.

Software Interface

The Software Interface of the Online Tuition Media Platform consists of various components that enable smooth interaction between the platform and external systems:

1. **Frontend Interfaces**:
    - Web and mobile apps (iOS and Android) that allow students, tutors, guardians, and administrators to interact with the platform for registration, profile management, session booking, and progress tracking.
2. **Backend Software**:
    - Handles user data, booking management, payments, and session scheduling using server-side technologies like Node.js or Django, with databases (e.g., MySQL or MongoDB) to store user profiles and session details.

3. **Third-Party Integrations**:
    - Payment Gateways (e.g., PayPal, Stripe) for secure transactions, Video Conferencing APIs (e.g., Zoom) for live sessions, and Notification Services (e.g., Twilio) for alerts and reminders.
4. **Admin Interface**:
    - Admin dashboard for managing users, content, payments, and system performance.
5. **Security**:
    - OAuth and JWT for secure login, data encryption (SSL/TLS), and Two-Factor Authentication (2FA) for enhanced security.
6. **External Tools**:
    - Integration with educational tools (e.g., Google Classroom) and AI systems for personalized tutor recommendations.

These interfaces together provide a secure, scalable, and interactive learning platform for all users.

Communications Interfaces

The Communications Interfaces of the Online Tuition Media Platform facilitate seamless interactions between users, the backend, and external systems:

1. **User Interface**:
    - The platform's web and mobile apps allow students, tutors, guardians, and administrators to interact with the system, search for tutors, book sessions, and communicate through real-time chat, video calls, and notifications.
2. **Backend Communication**:
    - APIs manage user registration, session scheduling, and database operations for storing user data and session records. Secure communication is ensured using HTTPS and JWT for authentication.
3. **Third-Party Integrations**:
    - Integration with payment gateways (e.g., PayPal, Stripe) for secure transactions, video conferencing tools (e.g., Zoom, WebRTC) for live sessions, and notification services (e.g., Twilio, SendGrid) for real-time alerts.
4. **Admin Interface**:
    - Admins can monitor platform activities, manage users, and generate reports through a dedicated dashboard.

5. **Security**:
    - Communication is secured using encryption (TLS) and secure authentication methods (OAuth, 2FA) to protect sensitive data and transactions.

Functional Requirements for The User (Student/Guardian)

Functional Requirement 1

ID: FR1
TITLE: Search and View Tutors
DESCRIPTION:
The system shall allow students and guardians to search for tutors based on subject, location, availability, and price. Each tutor profile should display their name, qualifications, subjects taught, availability, and pricing.
RATIONALE:
This feature allows students to easily find suitable tutors based on their specific learning needs, helping them make informed decisions.
DEPENDENCIES: None

Functional Requirement 2

ID: FR2
TITLE: Book Tutoring Sessions
DESCRIPTION:
The system shall allow users to book tutoring sessions with selected tutors. Users will choose a time slot based on tutor availability and confirm the booking. A booking confirmation will be sent to the user.
RATIONALE:
This functionality provides users with the ability to schedule sessions according to their preferred times, ensuring a seamless booking experience.
DEPENDENCIES: FR1

Functional Requirement 3

ID: FR3
TITLE: Manage Payment for Sessions
DESCRIPTION:
The system shall enable users to make payments for tutoring sessions using integrated payment gateways (e.g., PayPal, Stripe). Users will receive confirmation

of their payment.
RATIONALE:
Allowing users to securely pay for tutoring sessions ensures that payments are processed easily and efficiently.
DEPENDENCIES: FR2

Functional Requirement 4

ID: FR4
TITLE: View Tutor Profiles and Reviews
DESCRIPTION:
The system shall display detailed tutor profiles, including qualifications, teaching methods, and feedback from previous students. Users can view ratings and read reviews to help in selecting the right tutor.
RATIONALE:
Providing access to reviews and ratings helps users make informed decisions when selecting a tutor, improving their overall experience.
DEPENDENCIES: FR1

Functional Requirement 5

ID: FR5
TITLE: Track Learning Progress
DESCRIPTION:
The system shall allow students to track their learning progress through a dashboard that displays completed lessons, test results, and feedback.
RATIONALE:
Progress tracking helps students stay on top of their learning goals and motivates them by showing improvements.
DEPENDENCIES: FR2

Functional Requirement 6

ID: FR6
TITLE: Manage User Profile
DESCRIPTION:
The system shall allow users to create, update, and manage their personal profiles, including preferences, past bookings, and learning goals.
RATIONALE:
Profile management provides a personalized experience for students and guardians,

allowing them to store preferences and easily access their history.
DEPENDENCIES: None

Functional Requirement 7

ID: FR7
TITLE: Receive Notifications and Alerts
DESCRIPTION:
The system shall send notifications to users for upcoming sessions, booking confirmations, feedback requests, and system updates. Notifications should be customizable based on user preferences.
RATIONALE:
Push notifications keep users informed and ensure they don't miss important updates regarding their tutoring sessions.
DEPENDENCIES: FR2

Functional Requirement 8

ID: FR8
TITLE: Save Favorite Tutors and Sessions
DESCRIPTION:
The system shall allow users to save their favorite tutors, sessions, and resources for future reference.
RATIONALE:
This feature helps users quickly find their preferred tutors and sessions, providing a better and more convenient user experience.
DEPENDENCIES: FR1

Functional Requirement 9

ID: FR9
TITLE: Share Tutor Information with Others
DESCRIPTION:
The system shall allow users to share tutor profiles and session details with friends or family via social media or messaging apps.
RATIONALE:
This functionality enhances user engagement by making it easy for users to share recommendations with others.
DEPENDENCIES: FR1

Functional Requirement 10

ID: FR10
TITLE: View Tutor Availability and Schedule
DESCRIPTION:
The system shall allow users to view tutors' available time slots and schedule sessions based on mutual availability.
RATIONALE:
Displaying tutor availability ensures that students can select convenient times for their sessions without conflict.
DEPENDENCIES: FR2

Functional Requirements for The Administrator

Functional Requirement 1

ID: FR11
TITLE: Manage User Accounts
DESCRIPTION:
The system shall allow administrators to view, edit, deactivate, or delete user accounts (students, tutors, and guardians). Administrators should be able to search for users by name, email, or user ID, and perform actions such as resetting passwords, updating contact information, or blocking accounts in case of violations.
RATIONALE:
This functionality allows administrators to ensure only valid and compliant users have access to the platform, improving security and user experience.
DEPENDENCIES: None

Functional Requirement 2

ID: FR12
TITLE: Verify and Approve Tutor Profiles
DESCRIPTION:
The system shall allow administrators to review and verify tutor profiles, including qualifications, experience, and teaching materials. Tutors must submit verification documents (e.g., degrees, certifications), which the administrator will approve or reject.
RATIONALE:
Verifying tutors ensures that only qualified educators provide services on the

platform, maintaining high standards of education.
DEPENDENCIES: None

Functional Requirement 3

ID: FR13
TITLE: Monitor and Manage Tutoring Sessions
DESCRIPTION:
The system shall allow administrators to monitor ongoing tutoring sessions for compliance with platform guidelines. Administrators can access session data (e.g., tutor-student interactions, session duration) and intervene in case of issues or complaints.
RATIONALE:
Monitoring sessions ensures quality control and resolves any potential conflicts that may arise between users.
DEPENDENCIES: FR11

Functional Requirement 4

ID: FR14
TITLE: Manage Payment and Transaction History
DESCRIPTION:
The system shall allow administrators to view, approve, or dispute payments and transaction histories. Administrators should be able to manage payment-related issues, including refunds, commission calculations for tutors, and payments to service providers.
RATIONALE:
This feature allows administrators to ensure accurate and timely payments, maintaining financial integrity for both students and tutors.
DEPENDENCIES: None

Functional Requirement 5

ID: FR15
TITLE: Content Moderation and Management
DESCRIPTION:
The system shall allow administrators to review and moderate user-generated content, including tutor descriptions, course materials, and feedback. Admins can approve, edit, or remove content to ensure compliance with platform standards.

RATIONALE:
Content moderation ensures the quality, appropriateness, and relevance of materials provided on the platform.
DEPENDENCIES: FR11

Functional Requirement 6

ID: FR16
TITLE: Manage System Notifications
DESCRIPTION:
The system shall allow administrators to configure and send notifications to users regarding new tutors, class schedules, promotions, and updates. Notifications can be sent via email, SMS, or in-app messages.
RATIONALE:
This feature helps keep users informed in real time about relevant updates, ensuring active engagement and satisfaction.
DEPENDENCIES: None

Functional Requirement 7

ID: FR17
TITLE: Generate Reports and Analytics
DESCRIPTION:
The system shall allow administrators to generate reports on key platform metrics, including active users, tutor performance, session popularity, and user satisfaction. These reports can be filtered by date, tutor, or session type.
RATIONALE:
Reports help administrators track platform performance and make informed decisions to enhance user experience and service quality.
DEPENDENCIES: None

Functional Requirement 8

ID: FR18
TITLE: Manage User Feedback and Complaints
DESCRIPTION:
The system shall allow administrators to view and respond to feedback and complaints submitted by users. Admins can flag, address, or escalate complaints related to tutor performance, billing issues, or user behavior.
RATIONALE:

Managing feedback and complaints ensures that the platform maintains a high level of customer service and satisfaction.
DEPENDENCIES: None

Functional Requirement 9

ID: FR19
TITLE: Manage Security Settings
DESCRIPTION:
The system shall allow administrators to manage and configure security settings, such as password policies, session timeouts, and login restrictions. Administrators can also monitor suspicious login attempts and manage access control for users and staff.
RATIONALE:
Security management is critical to protecting user data and preventing unauthorized access to sensitive information on the platform.
DEPENDENCIES: None

Functional Requirement 10

ID: FR20
TITLE: Backup and Restore System Data
DESCRIPTION:
The system shall allow administrators to initiate data backups and restore data from previous backups in case of system failure or data corruption. Backups can be scheduled or manually triggered by administrators.
RATIONALE:
Data backup and restoration ensure the continuity of platform services and protect user information in case of technical issues.
DEPENDENCIES: None

Functional Requirement 11

ID: FR21
TITLE: Manage Payment Systems (Future Feature)
DESCRIPTION:
The system shall allow administrators to manage and configure payment systems for services like bookings, tutoring fees, or platform commissions. This includes integrating payment gateways and defining transaction policies.

RATIONALE:
This functionality is essential for enabling financial transactions within the platform as it evolves to offer paid services.
DEPENDENCIES: None (Future Implementation)

Performance Requirements

1 Prominent Search Feature

ID: QR1
TITLE: Response Time for Search Function
DESCRIPTION:
The system shall provide search results within 2 seconds for common queries (e.g., tutor name, subject) and no more than 5 seconds for complex queries (e.g., filtering based on multiple criteria such as location, rating, price, and subject). This applies to both the mobile application and the web portal.
RATIONALE:
Search functionality is a core feature for students looking for tutors and for tutors managing their availability. A fast search improves user satisfaction by helping users find what they need quickly.
DEPENDENCIES: None

2 Usage of the Search Feature

ID: QR2
TITLE: Scalability of Search Function Under High Load
DESCRIPTION:
The search functionality shall support up to 1000 concurrent users performing searches without noticeable degradation in performance. The system should maintain consistent response time during normal and high-load periods and automatically scale resources during peak times.
RATIONALE:
As the platform grows, it needs to handle a large volume of users conducting searches simultaneously. Maintaining performance ensures users can always access search features smoothly, even during peak periods.
DEPENDENCIES: None

3 Real-time Location-based Updates

ID: QR3
TITLE: GPS Data Refresh Rate
DESCRIPTION:
The system shall update GPS-based location information for users in real-time, with data being refreshed every 5 seconds to ensure accurate display of nearby tutors, available time slots, and session locations.
RATIONALE:
Users need up-to-date location data to find relevant tutors or book sessions nearby. Delays in data refresh could lead to poor user experiences or missed opportunities for bookings.
DEPENDENCIES: None

4 Mobile App Load Time

ID: QR4
TITLE: Mobile Application Startup Time
DESCRIPTION:
The mobile application shall load and be fully functional within 3 seconds of launching on modern devices (defined as devices released within the last 3 years). For older devices, load times should not exceed 5 seconds.
RATIONALE:
Users expect quick performance, especially during startup. Slow loading times could result in poor user retention and app abandonment.
DEPENDENCIES: None

5 Data Synchronization

ID: QR5
TITLE: Synchronization Speed Between Web Portal and Mobile Application
DESCRIPTION:
The system shall ensure that changes made via the web portal (e.g., adding new tutors, updating tutor availability, or managing sessions) are synchronized and reflected on the mobile app within 1 minute.
RATIONALE:
Real-time or near-real-time synchronization ensures that all users have access to the most up-to-date information, reducing confusion or errors when booking sessions or managing profiles.
DEPENDENCIES: None

6 Database Query Performance

ID: QR6
TITLE: Database Response Time for Queries
DESCRIPTION:
The system's backend database shall return results for queries within 500 milliseconds for simple queries and no more than 2 seconds for complex queries (e.g., multi-table joins or complex filtering).
RATIONALE:
Efficient database performance is vital to ensure fast and responsive system interactions, from tutor searches to session bookings and profile management.
DEPENDENCIES: None

7 Notification Delivery Speed

ID: QR7
TITLE: Notification Delivery Time
DESCRIPTION:
The system shall deliver notifications (such as booking confirmations, session reminders, feedback requests) to users within 10 seconds of the triggering event. This applies to both push notifications and email alerts.
RATIONALE:
Timely notifications help users stay informed of important events (e.g., upcoming sessions, changes in availability), ensuring that they can take timely actions and remain engaged with the platform.
DEPENDENCIES: None

8 Concurrent User Handling

ID: QR8
TITLE: Maximum Concurrent Users
DESCRIPTION:
The system shall support up to 5000 concurrent users during peak usage times (e.g., high traffic hours), with no more than a 5% reduction in performance (e.g., slightly slower response times) under high load.
RATIONALE:
As the platform scales, it must be able to handle high traffic volumes without significant performance degradation. Ensuring smooth operation during peak usage

is critical for user satisfaction and platform reliability.
DEPENDENCIES: None

Design Constraints

1 Hard Drive Space

ID: DC1
TAG: Storage Requirement
GIST: The mobile application and related files should not exceed 150 MB of storage on a user's device.
SCALE: **150 MB**
METER: Maximum application size
MUST: The mobile application (iOS and Android), including all dependencies and offline data, must remain under 150 MB in size.
PLAN: Regularly optimize code, images, and assets to ensure the mobile app size stays within the required limits.
WISH: Optimize the application for under 120 MB to allow more features in future updates without compromising performance.
MB: **150 MB** (Maximum Bound)
DEFINED: The storage limit applies specifically to Android and iOS platforms to ensure fast downloads and minimal device space usage.

2 Compatibility with Devices

ID: DC2
TAG: Device Compatibility
GIST: The system must be compatible with all devices running Android 8.0+ and **iOS 12.0+**.
SCALE: Android 8.0 (API level 26) and iOS 12.0
METER: Minimum supported OS versions
MUST: The mobile application must support Android 8.0+ and iOS 12.0+ or newer versions for full functionality.
PLAN: Test the platform regularly on multiple devices using the minimum OS versions to ensure compatibility.
WISH: Extend support to older devices if feasible without affecting performance.
MB: Minimum Bound
DEFINED: These are the minimum supported OS versions for the application to ensure compatibility.

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3 **Web Browser Compatibility**

ID: DC3
TAG: Web Portal Browsers
GIST: The web portal must be compatible with all major modern web browsers.
SCALE: Chrome, Firefox, Safari, Edge (latest 2 versions)
METER: Supported browsers
MUST: The web portal must be fully functional on the latest two versions of Chrome, Firefox, Safari, and Microsoft Edge.
PLAN: Conduct cross-browser testing to ensure that the web portal performs consistently across all major browsers.
WISH: Support older browser versions without breaking critical functionalities, where feasible.
MB: Minimum Bound (latest 2 versions)
DEFINED: The system must support all major browsers to ensure accessibility across different platforms.

4 Network Requirements

ID: DC4
TAG: Internet Connectivity
GIST: The system should operate efficiently on a network with a minimum speed of **3G** for mobile applications and 10 Mbps for the web portal.
SCALE: 3G mobile, 10 Mbps broadband
METER: Minimum network speed required
MUST: The mobile application must function efficiently on a 3G connection, and the web portal must perform adequately on a 10 Mbps broadband connection.
PLAN: Test performance on lower network speeds to ensure basic functionality remains uninterrupted in diverse environments.
WISH: The platform should be optimized for use in areas with even slower network speeds with minimal performance degradation.
MB: Minimum Bound
DEFINED: The system must work with basic mobile and broadband connections, enabling users in various regions to access services without disruptions.

5 Security and Privacy Standards

ID: DC5
TAG: Data Security

GIST: The system must adhere to industry-standard security and privacy practices, including data encryption and secure authentication mechanisms.
SCALE: AES-256 encryption, OAuth 2.0
METER: Security compliance
MUST: The system must use AES-256 encryption for all sensitive data stored or transmitted, and implement secure user authentication via OAuth 2.0 for login and service access.
PLAN: Perform regular security audits and penetration testing to identify vulnerabilities and ensure compliance with privacy regulations.
WISH: Implement two-factor authentication (2FA) to provide additional security for user accounts.
MB: Minimum Bound

DEFINED: The system must ensure secure communication and data storage to protect user privacy and meet compliance requirements.

6 Server-Side Scalability

ID: DC6
TAG: Server Load
GIST: The server must scale to handle up to 5000 concurrent users.
SCALE: 5000 concurrent users
METER: Concurrent user support
MUST: The server infrastructure must be able to handle 5000 concurrent users during peak times without significant performance degradation or downtime.
PLAN: Implement load balancing and cloud infrastructure to allow dynamic scaling of server resources as demand fluctuates.
WISH: The server infrastructure should be scalable to support 10,000 concurrent users in future releases, with minimal infrastructure cost increases.
MB: Minimum Bound
DEFINED: The platform must scale to accommodate high traffic during peak usage periods to ensure reliability and performance.

7 Power Consumption

ID: DC7
TAG: Mobile Power Optimization
GIST: The mobile app must minimize battery usage to extend device battery life during continuous GPS usage.

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SCALE: Battery-efficient operation
METER: Battery consumption
MUST: The application should minimize battery usage, especially when using **GPS** for real-time location-based services.
PLAN: Optimize the application by reducing GPS polling frequency when the user is stationary and by using energy-efficient coding techniques.
WISH: Provide a low-power mode option for users who wish to conserve battery life while using the app.
MB: Minimum Bound
DEFINED: The application's power consumption should be minimized to ensure extended device usage without significant battery drain.

Software System Attributes

1. Reliability

- **Uptime**: The system must maintain 99.9% availability, ensuring minimal downtime.
- **Fault Tolerance**: It must recover from failures within 30 seconds without losing user data.

2. Maintainability

- **Modularity**: The code should be modular and well-documented to allow easy updates and maintenance.
- **Ease of Updates**: New features should be added with minimal disruption to existing functionality.

3. Security

- **Encryption**: All sensitive data must be encrypted using AES-256**.**
- **Authentication**: The system should implement multi-factor authentication (MFA) for added security.
- **Regular Audits**: Conduct regular security checks to maintain compliance.

4. Usability

- **User-Friendly**: The platform must be intuitive, requiring minimal training, and include accessibility features for users with disabilities.

- **User Satisfaction**: Aim for a 4.5/5 satisfaction rating based on usability feedback.

5. Scalability

- **Concurrent Users**: The platform must support up to 5000 concurrent users and be able to scale for 10,000 users in the future.
- **Dynamic Scaling**: Use cloud infrastructure to scale resources based on demand.

6. Portability

- **Cross-Platform**: The mobile app must work seamlessly on **i**OS and Android**,** and the web portal should be accessible across major browsers.

7. Efficiency

- **Resource Optimization**: Minimize CPU**,** memory, and bandwidth usage to ensure the platform runs smoothly even on lower-end devices.
- **Battery Efficiency**: For mobile devices, optimize the app to reduce battery consumption during prolonged usage.

8. Availability

- **24/7 Access**: The platform should be available at all times, with 99.9% **availability** and downtime restricted to maintenance windows.

Prioritization and Release Plan

The prioritization and release plan for the Online Tuition Media Platform ensures that essential features are launched first, followed by further improvements based on user feedback.

Prioritization of Features:

- **Must-Have**: Essential for initial launch (e.g., user registration, tutor search, session management, payment gateway).
- **Should-Have**: Important but can be added later (e.g., push notifications, performance reports).

- **Could-Have**: Nice-to-have features for future updates (e.g., AI tutor matching, gamification).
- **Won't-Have**: Features out of scope for the current release (e.g., offline classes, peer-to-peer tutoring).

Release Phases:

1. **Alpha Release (3 months)**:
    - Internal testing of core features (user registration, tutor search, session management).
2. **Beta Release (6 months)**:
    - External testing with a small user group, adding features like ratings, notifications, and session history.
3. **Public Release (Version 1.0) (9 months)**:
    - Public launch with mobile app, basic reporting, and payment integration.
4. **Post-Launch Updates (Ongoing)**:
    - Add features like multi-language support, AI tutor matching, and security improvements.