Software Requirements Specification

for

11th Lesson
(E-Learning Management System)

Version 1.0

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1.   Introduction

1.1   Purpose

The SRS documentation will provide a detailed understanding about "11th Lesson" which is a cross-platform e-learning application. The app is designed to provide high end materials like hand notes and interactive videos for both teachers and students which is especially academic oriented and will help to prepare for the exam at last hour in a more efficient and organized way. The document outlines the system's functionality and features to maintain a good interaction between the stakeholders and the developers which will give a better outcome to fulfill the project's objectives.

1.2   Document Conventions

Top Left Corner: Indicates the page content.
Top Right Corner: Indicates the page serial.
Bold Text: Indicates section titles and important keywords.
Numbering: Follows a hierarchical structure (e.g., 1.1, 1.2).
Bullet Points: Used for listing items and features.

1.3   Intended Audience and Reading Suggestions

Developers: For understanding system's functional and non-functional requirements.
Project Managers: Ensuring the project requirements to be fulfilled.
Quality Assurance: Designing and executing among the test cases based on all the possible requirements.
Stakeholders: Verifying the system as promised and ensuring it meets all needs and expectations.

1.4   Project Scope

11th Lesson aims to organize all the necessary study materials like audio, video and pdfs a student needs to prepare for exam in the last moment and same goes for the teachers. The system will provide:
> Novelty-1: Interactive tutorials based on the academic courses reducing the need for manually organizing materials before exam and minimizing the time of preparation.
> Novelty-2:
> Novelty-3:

1.5   References

Stack Overflow: A Q&A platform where developers share knowledge and solve coding problems.
GeekforGeeks: A go-to resource for learning algorithms, data structures and other programming languages.
W3Schools: It offers tutorials and references on development topics.
10 minutes School: Provides short, engaging lessons on academic courses in a simplified manner.
Quora: A question-and-answer platform where users ask questions and share knowledge across a wide range of topics, including education, technology, and general interests.

2.   Overall Description

2.1   Project Perspective

11th Lesson is a Flutter-based mobile application with Firebase handling authentication, database, storage, and analytics. The system is cloud-based and accessible via Android and iOS devices.

2.2   User Classes and Characteristics

Students: Primary users of the app focus on university-level students across country.
Usage Pattern: Likely to use the app intensively during exam periods, often engaging in self-paced learning sessions.
Expectations: Easy access to concise, high-quality study materials, interactive tools for practice, and immediate feedback on quizzes.

Teachers: Educators responsible for creating, managing, and delivering content on the platform.
Usage Pattern: Regular usage for content management, lesson planning, and student engagement; peak usage before and during exam seasons.
Expectations: Tools for easy content creation, efficient student progress tracking, and features that allow for real-time interaction with students.

Administrators: Users responsible for managing the overall operation of the app, including user accounts, content approval, and system settings.
Usage Pattern: Consistent usage throughout the year with varying intensity depending on app updates, user support needs, and content management activities.
Expectations: Robust administrative tools for user management, detailed analytics, system monitoring, and an intuitive interface for overseeing platform operations.

2.3   Operating Environment

Mobile OS: Android and iOS.
Frontend: Flutter.
Backend: Firebase Authentication, Firestore, Firebase Storage.
Network: Internet connection required.

2.4   User Documentation

User Manuals: Comprehensive guides for different user roles detailing how to use the application.
Quick Start Guides: Short tutorials for new users to get started quickly.
Online Help: Contextual help available within the application.
FAQs: Frequently asked questions to address common user queries.
Support Portal: Platform for users to submit support tickets and track their status.

3.   System Features

The 11th Lesson e-learning app helps both the students and teachers with fast learning and enlarging the area of academic tutorials.

3.1   FR-1: Personalized Dashboard and Content Suggestion

3.1.1   Description and Priority

A personalized dashboard that provides users with an overview of their activities, progress, and upcoming tasks.

3.1.2   Stimulus/Response Sequences

Stimulus: Reacts if user press "Dashboard" link or icon.
Response: The system displays the user's personalized dashboard, including relevant data and visualizations.

3.1.3   Requirements

REQ-1: User Authentication: The system must allow users to securely log in using their credentials like username and password and permit access to their dashboard.
REQ-2: Personalized Dashboard Content: The dashboard should display personalized content based on the users' role as student, teacher, parent, or administrator and recent activity.
REQ-3: Navigate to Brief View: The dashboard will allow users to navigate to detailed views of assignments, quiz results, study materials, progress reports, recent or live classes and so on.
REQ-4: Customize Dashboard: The users can be able to customize the layout of their dashboard by adding, removing, or rearranging widgets.
REQ-5: Communication Tools: The dashboard must integrate communication tools that allow users to send and receive messages directly from the dashboard.
REQ-6: Logging Out: The system will provide a reliable method for users to log out from the dashboard.
REQ-7: Departmental Tutorials: The system will show chapter wise video lectures or notes.
REQ-8: Non-departmental Tutorials: The system will show career and chapter wise suggestion.

3.2   FR-2: Assignment Submission and Grading

3.2.1   Description and Priority
This feature allows teachers to create and assign homework or projects to students. Students can submit their work directly through the platform, and teachers can review, grade, and provide feedback. This feature is critical for maintaining an effective learning environment, ensuring timely feedback for students.

3.2.2   Stimulus/Response Sequences
Stimulus: A teacher clicks on "Create Assignment" or a student click on "Submit Assignment."
Response: Teachers can enter assignment details (due date, description) and assign it to specific students.
Students can upload and submit their assignments.
The system alerts teachers when new submissions are received and allows them to grade and provide feedback. Students receive a notification once their submission is graded.

3.2.3   Requirements
REQ-1: Assignment Creation: The system must allow teachers to create assignments with a title, description, and due date.
REQ-2: Assignment Submission: Students must be able to upload files or input text for assignment submission.

REQ-3: Grading: Teachers should be able to grade submissions, provide feedback, and assign scores.

REQ-4: Submission Notification: The system must notify teachers when a student submits an assignment.

REQ-5: Feedback Delivery: The system should send notifications to students when their assignment is graded and feedback is provided.

REQ-6: Deadline Enforcement: Assignments submitted after the due date should be flagged as late and a notification sent to the teacher.

3.3   FR-3: Progress Tracking and Analytics

3.4   FR-4: Offline Reading

3.5   FR-5: Demo Quiz

3.6   FR-6: Collaborative Learning Spaces

3.6.1   Description and Priority

A feature that allows students to create or join study groups, share resources, and engage in discussions within a collaborative learning environment. This is a high-priority feature for enhancing peer-to-peer interaction and group learning.

3.6.2   Stimulus/Response Sequences

Stimulus: When a user selects "Collaborative Learning Spaces" from the dashboard or navigation menu.

Response: The system displays available study groups the user can join, options to create a new group, and tools for sharing resources and participating in discussions.

3.6.3   Requirements

REQ-1: Group Creation: Users should be able to create new study groups by providing a group name, subject, and description.

REQ-2: Join Study Groups: The system must allow users to browse and join existing study groups.

REQ-3: Resource Sharing: Users must be able to upload and share resources such as documents, notes, and links within the group.

REQ-4: Discussion Forum: Each study group must include a discussion forum where members can post questions, participate in threads, and reply to messages.

REQ-5: Group Messaging: The system must enable group members to send direct messages or announcements to all members.

REQ-6: Group Management: Group creators must be able to manage membership (invite, remove users) and moderate content.

3.7   FR-7: Publication

3.7.1   Description and Priority

The Publication feature allows teachers to publish exam-oriented study materials such as notes, PDFs, and quizzes for students. This feature is essential for delivering structured and relevant academic content and is considered a high-priority functionality of the system.

3.7.2   Stimulus/Response Sequences

Stimulus: When a user selects the "Publish" option from the dashboard to upload content, or when a student accesses the published materials section.

Response: The system stores the uploaded content, categorizes it based on course and exam, and makes it available to eligible students for viewing or download.

3.7.3   Requirements

REQ-1: Content Upload: Users must be able to upload study materials such as notes, PDFs, and other supported files.

REQ-2: Content Categorization: The system must allow teachers to categorize published content by university, course, and exam type.

REQ-3: Content Visibility Control: Teachers should be able to set content visibility (public or restricted to specific students or courses).

REQ-4: Content Access: Students must be able to view and download published materials from their dashboard.

REQ-5: Content Update and Removal: Teachers must be able to edit or remove previously published content.

REQ-6: Notification on Publication: The system should notify students when new study materials are published.

4.   External Interface Requirements

4.1   User Interfaces

Defines the look and feel of the system's interfaces, ensuring usability and accessibility for all user classes.
Requirements:

Simple and distraction-free UI.

Responsive design for different screen sizes.

Intuitive navigation.

Wireframes:

Login Page: Simple and secure login interface.

Dashboard: Overview of recent activities and quick access to features.

Scan Interface: Camera view with scanning indicators.

Document View: Detailed view of scanned documents with verification status.

4.2   Software Interfaces

Firebase Authentication.
Firestore Database.
Firebase Storage.
Firebase Analytics.

5.   Non-functional Requirements

5.1   NFR-1: Performance Requirements

REQ-1: The system shall load dashboard content within minimal seconds.

REQ-2: The system shall support a large number of concurrent users during exam periods.

5.2   NFR-2: Security Requirements

REQ-1: The system shall use Firebase Authentication for secure access.
REQ-2: The system shall restrict data access based on user roles.

5.3   NFR-3: Usability Requirements

REQ-1: The system shall be easy to use for non-technical users.
REQ-2: The system shall require minimal user actions to access content.

5.4   NFR-4: Scalability

REQ-1: The system shall scale automatically with increased users and data.

5.5   NFR-5: Reliability and Availability

REQ-1: The system shall ensure high availability using cloud infrastructure.
REQ-2: The system shall prevent data loss using Firebase backup mechanisms.

6.   Other Requirements

Legal Requirements: The system must align with the information security management standards, for example ISO/IEC 27001.
Copyright Compliance: The system must follow copyright laws and regulations, ensuring that all content used or provided on the platform is properly licensed or owned by the organization.
Business Requirements: The system should align with the organization's strategic goals, including improving efficiency in vehicle verification and reducing fraud.
Backup and Recovery: The system shall implement regular data backups and have a disaster recovery plan to restore services in case of failures.

7.   Conclusion

The 11th Lesson application is a focused, exam-oriented e-learning system designed to maximize learning efficiency within limited time. The combination of Flutter and Firebase ensures scalability, security, and real-time performance suitable for academic use.

Appendix A: Glossary

Term	Definition
SRS	Software Requirements Specification.
API	Application Programming Interface.

Appendix B: Issues List

Issue ID	Description	Priority	Status	Comments
ISS001	Integration with existing web databases needs API support	High	In Progress	Awaiting API documentation.
ISS002	Performance optimization for peak load scenarios	High	In Progress	To be addressed in testing.