SOFTWARE REQUIREMENT SPECIFICATION (SRS)

StudyEase

Version 1.0

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Chapter 1

Introduction

This website is designed to assist the students in their academics by predicting their future career goals based on their performance which is tested via Online Quiz. Moreover, the website have options to download notes of different subjects.

1.1 Document Purpose

The document describes the requirements and specifications of the "StudyEase" Website. It explains the functional features of this website, the main purpose of this website is to help students to select their field of interest through multiple quiz assessments. They can also download notes on their related topics. Also this website enables them to visualize their performance through graph.

1.2 Product Scope

Usually most of the students are confused after their matriculation whether they should opt for Engineering, Medical Sciences or Commerce. This website provides them a solution through its multiple quiz process. After completing all quiz assessments, the website leads them to the particular field of their interest by comparing their scores.

1.3 Intended Audience and Document Overview

This document is intended to serve as a guidance to course teachers and students (matriculation passed). It can be used as a guiding tool for students

especially matric passed to facilitate them in their career choice. The rest of this SRS is organized as follows:

- Section 2 provides an overview description of the software. It gives the proficiency level to be expected of the user, some general constraints, assumptions and dependencies that are presumed while making the software. It gives a basis to establish the technical requirements in the next chapter.

- Section 3 contains most important features presented with detailed description, and requirements. It gives specific requirements which the software is expected to deliver. Functional requirements are given in this section along with the External Interface Requirements. A Use case Diagram is also illustrated to give a clear idea of the software to be developed.

- Section 4 specifies the Non-Functional requirements. Performance, safety and security requirements are mentioned over here. In addition, Software Quality Attributes have been discussed in detail.

1.4 Definitions, Acronyms and Abbreviations

- HTML: HYPER TEXT MARKUP LANGUAGE – It is a language for formulate the structure of the website.

- CSS: CASCADING STYLE SHEET – It is used for designing the website and enhancing its feel.

- JS: JAVASCRIPT – Scripting language used on client side as well as Server side and also allows us to make web pages interactive.

- REACT: A javascript library used for building user interfaces, specifically for single page applications.

- MATERIAL UI: A React library allows us to import and used different components to create a user interface.

- NODE JS: It is a runtime environment that runs on the V8 Engine and execute js code outside a web browser.

- EXPRESS JS: A framework of Node js helps us to manage everything from routes to handle request and views.

- FIREBASE DB: A platform used as a database in this project.
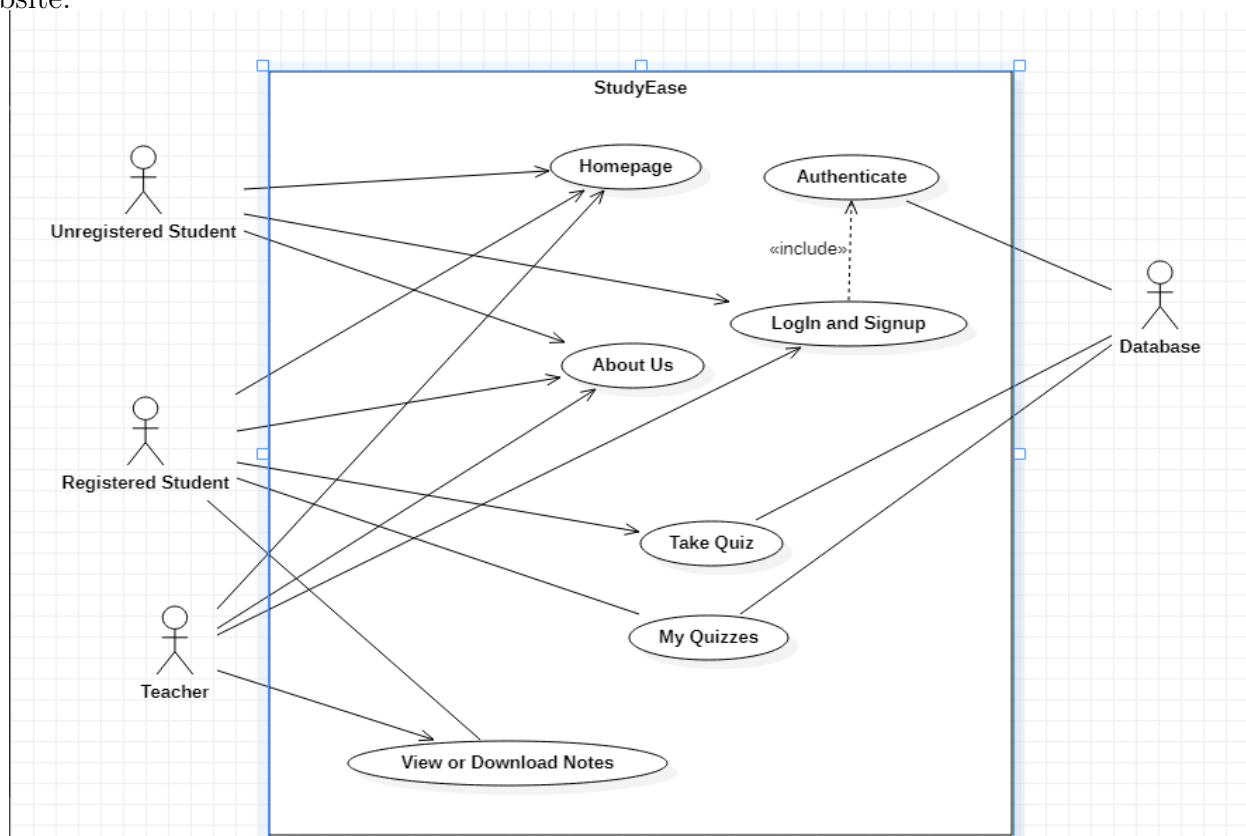
1.5   Document Conventions

The SRS has been prepared using the Latex software which is a document preparation system.

Chapter 2

Overall Description

2.1 Product Perspective

It is a new, self-contained Website used for students and teachers with features of Career decision. The below figure shows the demonstration of the website.

2.2 Product Functionality

- In website, users can register them after providing credentials.

- In website, user will be LogIn after authentication.

- Complete record of Quiz will be maintained to the specific user.

- Downloadable pdfs are available on the website.

- Website will take quiz in order to maintain the record of User interest.

- Website will recommend the users their future goal by analysis of their quiz records.

2.3 Users and Characteristics

2.3.1 System Admin

The person who is responsible for adding or removing any content from the Website. Moreover that person is one who enhances the functionalities of the website later on.

2.3.2 Student

The student is the main person who interact with the website to view and download their study materials and also can decide their field of interest through proper quiz assessments.

2.3.3 Teacher

The teacher is the person who interact with the website for downloading their subject notes for teaching reference.

2.4 Operating Environment

StudyEase would be able to function anywhere without any interruptions caused by any physical or computational means. The website will operate in updated versions of all web browsers that work on windows operating systems (Java script). There would be no constraint on users being able to access the system at a given time. (24/7 availability) Continuous service is preferred, minor service interruptions can be tolerated.

2.5 Design and Implementation Constraints

2.5.1 Hardware Constraint

Hardware limitation of this website application can be unavailability of laptop or pc. If these devices are not available, then the end-user can't use the website to conduct a demonstration.

2.5.2 Browser Constraint

Installation of a web browser is necessary for the working of StudyEase. If a browser isn't installed, then a user must install it in his/her laptop. Internet Browsers such as Google Chrome, Mozilla Firefox, Microsoft Edge etc.

2.5.3 React JS Constraint

Latest versions of the browser should be available which supports JavaScript.

2.5.4 Internet Constraint

StudyEase requires the availability of Internet access at all time, as it is deployed in an Online Server. Without connection to the Internet, the system would be futile.

2.5.5 Input Device Constraint

A mouse and keyboard are necessary to interact with the website application. Touch screen facility is not available.

2.6 User Documentation

To run StudyEase Website, complex working knowledge of computers is not required, since it is targeted towards students who are just passed out their matriculation and now here to explore their career of interest. The GUI is very user-friendly and can be understood easily by a novice learner. However, a basic understanding of Login and Register , Filling Forms , Downloading files and giving an Online Quiz are required for the user to properly benefited from the website.

2.7 Assumptions and Dependencies

2.7.1 Assumptions

A major assumption is that the users of the StudyEase Website are Matric passed students regardless of his/her faculty of Matric but now going to choose their faculty for Intermediate.

- A web browser must be installed on the laptop or PC.

- If StudyEase is being used on a laptop then it must be charged.

- If StudyEase is being used on a PC then a stable power must be supplied.

2.7.2 Dependencies

This Website is highly dependent on the availability of computer and internet connection where the website is going to be accessed.

Chapter 3

Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

The User interface will mainly contain six screens. All six screen will have a consistent layout.

1. Home Screen This is the main navigation page of the website. In this screen, system shows a navigation bar on the header which has anchors for all the screens of the Website. Beside this, in the body there are some elements which shows some info of all the screens along with the info there is a Read More button which redirect the user to that specific functionality of the Website.

2. LogIn and Register This page simply give a user interface of a form where user give their credentials in order to LogIn or Register to the Website for better utilization of its functionalities.

3. View Notes This screen gives an interactive interface to the user in a way that there are several notes along with a short description and user according to his/her need can View or Download their notes.

4. About Us This screen only gives a descriptive information about the website along with Developer credits and their bio in a written manner.

5. Take Quiz This screen allows the user to take quiz of their selected course in a very interactive manner. The Quiz would be based on MCQ's.

6. My Quizzes This screen shows the history of quiz scores of the user along with this system will suggest the user their faculty of interest based on the score of quiz.

3.1.2 Hardware Interfaces

There are no hardware interfaces in our system as StudyEase is a Website for Students Learning with assessment and doesn't require the usage of any hardware component.

3.1.3 Software Interfaces

For Database services, system use Firebase. System will run on Windows operating system such as Windows 10. For communicating with the database, operating system use Node Js and Express Js as servers for fetching or storing data into the database.

3.1.4 Communications Interfaces

StudyEase is an online students learning and assessment platform, so the user needs a web browser and thus internet access is required for communication over the network and communication between the servers.

3.2 Functional Requirements

3.2.1 Home Page

User requirement

1. The user will access the Home Page of the website.

System Requirement

1. System shows a navigation bar along with it in the body all the elements with short info are available.

2. After clicking on any of the element, user will redirect to that specific functionality of the website.

3.2.2 LogIn and Register

User Requirement

1. The user will access the LogIn and Register page of the website.

2. The user will give input his/her credentials.

3. After giving all required information, then user submit the data.

System Requirement

1. System will authenticate the user inputs via database.

2. If authentication successful, the user will redirect to the Home Page of the website.

3. If authentication gets fail, an error message will be shown to notify the user and system waits for the second attempt of the user.

3.2.3 View Notes

User Requirement

1. The user will access the View Notes page of the website.

2. The user will select any of the Notes that he/she wants.

System Requirement

1. System will redirect the user to the link of the pdf notes that he/she selected if the user selected the View option of the notes.

2. If user selects the Download option then a pdf file is going to download on the browser.

3.2.4 About Us

User Requirement

1. The user will access the About Us page of the website.

System Requirement

1. System will redirect the user to a screen where Information regarding the overall website and Developer credits with bio present in a written manner.

3.2.5   Take Quiz

User Requirement

1. The user will access the Take Quiz page of the website.

2. The user will select any of the course from which he/she wants to take quiz.

3. The user starts the quiz by giving correct options via radio buttons.

4. After giving all the options against the MCQ, then the user submit his/her quiz.

System Requirement

1. System will redirect the user to the Take Quiz page where at first system will get input choice of course.

2. System will display the Quiz of that specific course that the student selected and waits for the student to solve it.

3. When user submit quiz, system will check if all the questions are attempted or not. If at least one is not answered then system will not submit the quiz and gives a proper message to the user.

4. If everything is according to the system, the system checks the quiz and the specific quiz score will be stored into the database.

3.2.6   My Quizzes

User Requirement

1. The user will access the My Quizzes page of the website.

System Requirement

1. System will redirect the user to a record where all of the quizzes attempted along with scores are available.

2. System will show the high scored quiz bold and according to that quiz, it gives the student to select that faculty for further progress.
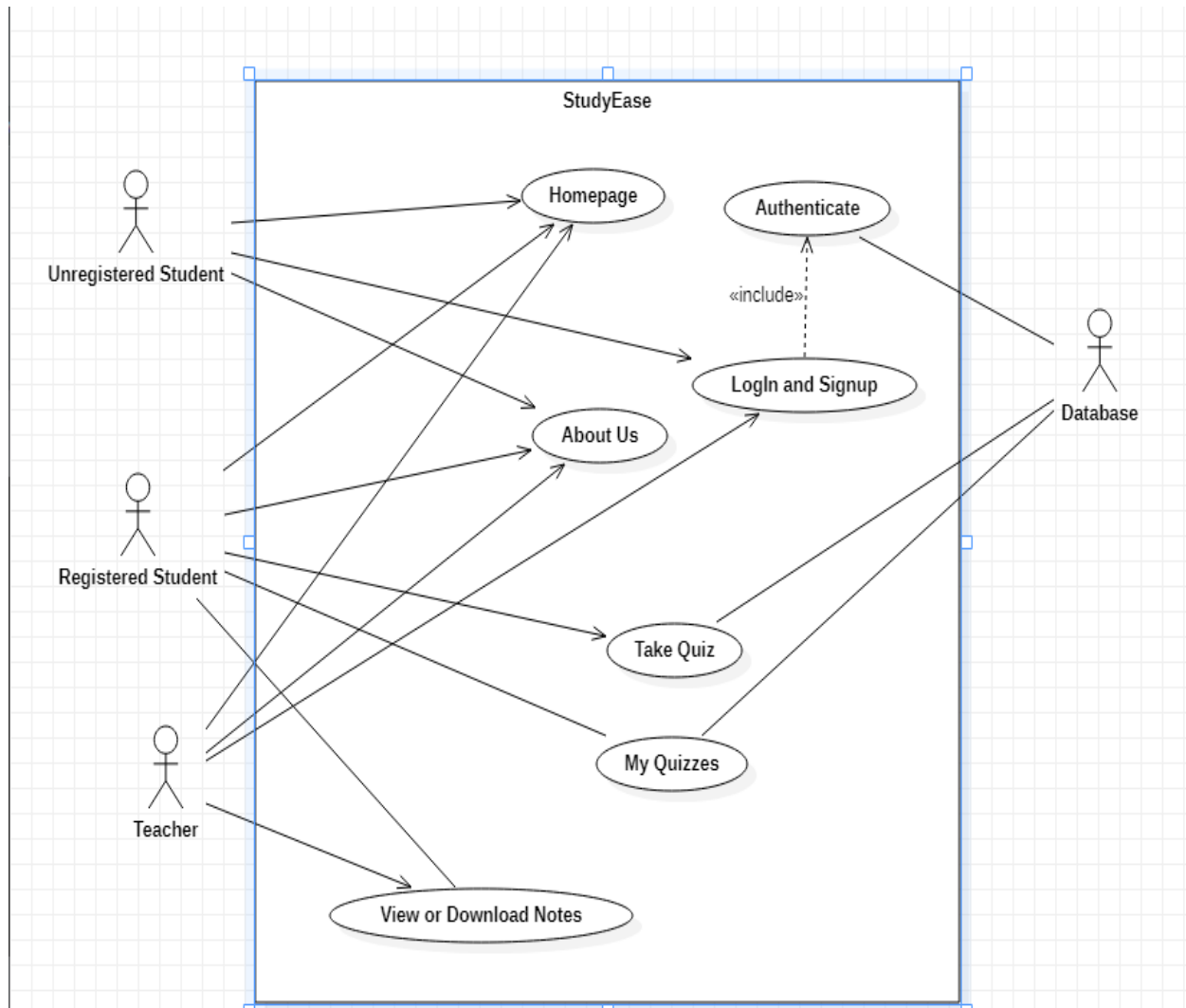
3.3 Behaviour Requirements

3.3.1 Use Case View

The use Cases are being described below:

- Homepage Every user can access to this screen as this is the home screen of the website.

- About Us In order to get some info about the website, every user can also access to that option as well.

- LogIn and Signup If the student wants to take quiz or use any other functionality of the website, he/she should first register to the website.

- Authenticate This is responsible for the authentication of the user credentials via database.

- Take Quiz This functionality which is only for registered user redirect them to the quiz given section.

- View or Download Notes This functionality is also for registered user where user can view or download Notes.

The actors are being described below:

- Unregistered Student is the user who is outsider and is not registered yet and just exploring the website.

- Registered Student is the user who is registered himself/herself to the website. Full website access to that users.

- Teacher is the user who can view or download Notes and can somehow explore the website.

- Database is the external entity for authentication, storing and retrieving of data.

Chapter 4

Other Non-Functional Requirements

4.1   Performance Requirements

Since StudyEase is an interactive tool, therefore the major performance requirement is low response time.

1. When Clicking on the elements of the Homepage, the system should not take more than 4 sec to load.

2. After submitting the quiz, score should be added into the My Quizzes section instantaneously.

3. After selecting the download option of the notes, system should not take more than 6 sec to start the download.

4. While registering or logging in, user should not wait for more than 5 sec.

5. While viewing the notes, maximum system can load it in 10 sec subject to the internet speed.

4.2   Safety and Security Requirements

Safety

1. Any Computer hazards that leads to the destruction of the database then the website can be down at that moment.

2. If the pdf file notes is corrupted, the download option of the website can malfunctioned.

 Security

1. The password of the account of the user should be encrypted and secured.

2. The data of the My Quizzes section should be encrypted in the database as this is the confidential data of the user.

3. The correct option of the MCQ should be encrypted in the database.

4.3 Software Quality Attributes

4.3.1 Adaptability

There can be a change in the information stored in the database.

4.3.2 Availability

The system is up and running for most of the time and server is not down for more than a few minutes to avoid inconvenience of the clients.

4.3.3 Correctness

The checking of the Quiz must be correct in order to calculate the correct score.

4.3.4 Flexibility

If need arises in the future, software can be modified to change the requirements.

4.3.5 Interoperability

The data is transferred from the database to the web server and vice versa. This way data is transferred from one part of the system to another.

4.3.6 Maintainability

Software can be easily repaired if a fault occurs.

4.3.7   Portability

Software can be easily installed on devices and would run smoothly according to the requirement.

4.3.8   Reliability

No matter how many users access it, system must give the correct results.

4.3.9   Reuseability

Current version can be used in the future versions with more functionality added.

4.3.10   Robustness

Software must have checks to ensure that valid data items are entered.

4.3.11   Testability

All the requirements are fulfilled, response time is low, and all functions are working perfectly.

4.3.12   Useability

Interface of the software must be easy to use. It would not be complex since students have a view, so interface should be simple.