Software Requirements Specification

for

BrainBoost, E-learning management System

Version 1.0 approved

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1. Introduction

An e-learning management system (LMS) named BrainBoost is a software application that enables the delivery, management, and tracking of online educational courses and training programs. E-Learning is the use of electronic technology to access educational content outside of a conventional school environment, it refers to an entirely online course or program. Our project will be defined as an online teaching business, with features such as course management, user progress tracking, and tools for analyzing student performance and progress. The fundamental goal of this project is to give people of all ages, the opportunity to acquire new skills through the resources they will be exposed to. It offers an great quality at zero cost.

1.1 Purpose

Our project will be identified as an online teaching business, with features such as course administration, user progress monitoring, and tools for evaluating student performance and progress The ultimate e-learning management website that provides a comprehensive platform for learners and educators to enhance their skills and knowledge. BrainBoost is designed to cater to the needs of students, professionals, and educators who are looking for a reliable and easy-to-use e-learning platform.

1.2 Document Conventions

Document type: All BrainBoost-related documents, including user manuals, FAQs, and lessons, are available in digital format on our website.

Document titles: Document titles are straightforward and descriptive, expressing the document's substance and purpose. Font and formatting: We use a legible font and consistent formatting throughout our documents to ensure readability and clarity.

Images and diagrams: We use images and diagrams to illustrate concepts and processes and make the content more engaging and understandable.

Terminology: We use clear and concise language and avoid technical jargon as much as possible.

By following these document conventions, we ensure that our users have a consistent and user-friendly experience when accessing and using our e-learning management tool.

1.3 Intended Audience and Reading Suggestions

BrainBoost is an e-learning management platform aimed at a wide range of users, including students looking to better their academic performance or learn new skills in a specific sector. Professionals who wish to further their careers or keep up with the newest industry developments. BrainBoost provides courses that are tailored to your specific requirements and interests, whether you are a beginner or an expert learner.

1.4 Product Scope

The fundamental goal of this project is to provide people of all ages, particularly students, the opportunity to acquire new skills through the materials they will be exposed to.

BrainBoost gives access to a wide choice of courses and learning resources that are targeted to our unique needs. We believe in making high-quality education available to all students, regardless of location or background.

Our website has a user-friendly layout that makes it simple to explore and select the correct course for your interests and goals, and includes innovative features and tools that enable you to track your progress, and receive individualized feedback.

2. Overall Description

This project comes under the Web Based Application, and is developed with the help of HTML,CSS,MsSQL etc. BrainBoost is intended to provide learners with a smooth and interesting learning experience, allowing them to improve their knowledge and abilities from any location, at any time. Learners who use BrainBoost have access to a varied collection of online courses covering a wide range of subjects and disciplines. Whether you want to learn programming, business, design, or personal development, BrainBoost has a course for you. BrainBoost has a user-friendly design that allows for simple navigation and course enrollment. Learners may easily browse the course catalog, read extensive course descriptions, and enroll with a few mouse clicks.

2.1 Product Perspective

The BrainBoost platform targets learners of all ages, including students, professionals and lifelong learn ers. It is designed to host a variety of subjects and topics free of charge to meet the different educational needs of its users. The website is designed to provide users with an easy-to-use and intuitive learning experience. It provides a well integrated and visual interface that allows users to easily browse and access course materials.

2.2 Product Functions

Anyone who wishes to learn new skills can enroll in BrainBoost. The user must complete a registration form, which is completely free. When the user successfully registers, they will receive a UserID and Password to access the Learner Panel. After logging in, users can watch any course accessible in BrainBoost that meets their needs and can also edit their profile and change their password. The system administrator will upload new courses that will be available to everyone. Admin has the ability to delete or adjust user information. Admin can change course information and view the sales data.

2.3 User Classes and Characteristics

The program will be split into two sections, with one administrator having complete control and the other user having restricted control. Admin and User, engage with the system in various ways. The Admin will be able to add, remove, and alter the details of the user, courses, and lessons.

The User has the ability to change his own profile and insert a profile picture. He will be able to acquire admin-published courses. The program allows the user to view the lessons. The user can provide feedback. Feedback will help Admin to improve the quality of content or service.

2.4 Operating Environment

Device Compatibility: The website is compatible with a wide range of devices, including desktop computers, laptops, tablets and smartphones.

Maintenance and Regular Maintenance: Regular maintenance, maintenance and efficiency of the site ensures the smooth operation of the e-learning website. This includes monitoring server performance, addressing vulnerabilities, and applying updates to software products.

Browser Compatibility: The platform supports popular web browsers such as Google Chrome, Mozilla Firefox, Safari and Microsoft Edge.

Database Management System (DBMS): DBMS is used to store and manage information about user accounts, classes, curriculum and other related information.

2.5 Design and Implementation Constraints

BrainBoost is appropriate for students of all levels, including beginners, intermediate students, and professionals interested in learning new topics. It provides courses for students of various ability levels, allowing them to select courses that match their unique requirements and aspirations.

BrainBoost offers a basic user interface that is straightforward to use. It includes a contemporary and user-friendly layout with simple menus, clear explanations, and an easy-to-use dashboard. Students can simply follow classes, access course resources, and track their progress thanks to the UI.

Responsive Design: The website is built using responsive technology, which allows students to view lectures and course materials from a range of devices, including desktop computers, laptop computers, tablets, and smartphones.

Integration of Multimedia: BrainBoost incorporates multimedia components to improve learning.

Feedback: Students can discuss, exchange ideas, give advice and learn from each other's experiences.

Learning Resources: BrainBoost offers a variety of courses that can include lectures, readings, study materials, and supplementary materials.

3. External Interface Requirements

3.1 User Interfaces

User-friendly interface that is easy to navigate and use.

Home - This module contains all of the application's links, including Courses, Login, Sign Up, and Contact.

Courses - This module offers a listing of all of the courses available at BrainBoost.

Login - This module allows you to access the Student/Learner Panel.

Sign Up - Use this module to sign up for the Student/Learner Panel.

Feedback - This area contains feedback from registered students/learners.

Contact - Learners can use this part to contact the administrator/tutor with any questions.

USER

Profile - This module holds all of the information about the student/learner and allows the student to change their information.

Feedback - Using this module to provide feedback.

Change Password - Students can utilize this module to update their password.

Logout - Use this module to return to the Home Page.

ADMIN

Dashboard - This module provides an overview of the entire application.

Courses - This module includes all of the courses.

Education Session - Depending on the course id, this module contains all of the lessons.

Clients - This module provides information about all registered students.

Feedback - This module displays student feedback.

Change Password - This module allows the administrator to update the password.

Logout - Use this module to return to the Home Page.

3.2 Hardware Interfaces

Processor - 1.6 GHz or Faster Processor

RAM - 4GB

Disk Space - 10 GB of Available Hard Disk

Graphic - DirectX 9-Capable Video Card

Display - 1024 X 768 or Higher Resolution

3.3 Software Interfaces

The application will be built using HTML, CSS, and JavaScript on the front-end and PHP on the back-end. Code Editor will be used the Visual Studio Code. Framework/Library we will be using Bootstrap, JQuery, FontAwesome for responsive design and ease of use. Database will be implemented using MySQL for efficient data management. Learning resources will be organized in categories and stored in the MySQL database.. The application will be designed and modeled using StarUML to create diagrams, flowcharts, and UML models.

3.4 Communications Interfaces

Social media groups,conversations on platforms like Facebook or LinkedIn, provide extra chances for networking, exchanging information, and participating in community discussions.

Email Communication, E-learning systems frequently include email communication features that allow students to express messages directly to instructors or administrators.

Teaching and Assessment, An interactive communication system incorporate feedback.

4. System Features

4.1 User Login and Signup

4.1.1 Description and Priority

If a user is new to the website, he can join up and then login to view courses and create his own profile. It is a high priority since it is required for user access and identity.

4.1.2 Stimulus/Response Sequences

When a user selects the Get Started or Signup link, the system shows the registration form, which requires them to provide their complete name, a valid email address, and a password. When their registration is confirmed, they log in, and the system displays the login form, where they enter their email address and password, and the system validates the credentials. If the credentials are valid, the system authenticates the user and directs them to the user panel. When wrongly entered an error message pops up

4.1.3 Functional Requirements

REQ-1: The system validate the email format during the registration and display an error message if it is invalid

REQ-2: The system checks whether a previously registered email address has been entered and notifies with an error message in case of duplication

REQ-3: When users' credentials are wrong the system authenticates and outputs an error message

REQ-4: The system will redirect you to your user panel if you successfully log in

4.2 User Profile

4.2.1 Description and Priority

When a user logs onto the website, they may see the listed courses for free, update their profile image and password, and leave feedback. It is medium priority.

4.1.2 Stimulus/Response Sequences

When the user clicks on the My profile link, the system displays the profile image, allows him to change his password, provides feedback, and logs him out if he wants to return to the main page.

4.1.3 Functional Requirements

REQ-1: The system validate the email and the password authentication during the login and display an error message if it is invalid.
REQ-2: When clicking My Profile, the system will redirect you to your user panel.

REQ-3: The system allows you to change the password and the profile picture when all fields are filled.
REQ-4: The system allows you to write feedback when all fields are filled.

4.3 Admin Control Panel

4.3.1 Description and Priority

The system administrator will upload new courses that will be available to everyone. Admin has the ability to delete or modify student/learner information. Admin can change course information and is high priority

4.1.2 Stimulus/Response Sequences

The admin clicks the admin login button and enters his/her credentials. After successfully logging in, the system redirects to the control panel, where he may alter the courses and students, change the password, and log out to return to the main page.

4.1.3 Functional Requirements

REQ-1: The system shows all the listed information provided to the control panel.
REQ-2: The system the admin to modify the mentioned tasks..
REQ-3: The system will redirect admin to control panel if successfully log in.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The website should have a maximum response time of 3 seconds for page loading, navigation, and accessing course materials.

The platform should be able to handle at least 1000 concurrent users without a noticeable degradation in performance.

The website should utilize HTTPS encryption to ensure secure data transmission between users and the server.

The website should be compatible with major web browsers such as Google Chrome, Mozilla Firefox, and Safari. It should also support popular operating systems like Windows, macOS, iOS, and Android.

5.2 Safety Requirements

The website should implement secure user authentication methods, such as strong password policies, this helps prevent unauthorized access to user accounts and protects user data. The website should have mechanisms to ensure that the content provided by instructors or users is safe and appropriate.

5.3 Security Requirements

For ensuring confidentiality of sensitive information against potential threats such as eavesdropping or tampering while being transmitted between a user’s browser and server on the platform; it is crucial to utilize secure communication protocols like HTTPS. To protect sensitive user data like passwords , personal information & payment details from being intercepted by any unauthorised person ,it's essential that this type of data should always be encrypted while being transmitted or stored.

5.4 Software Quality Attributes

The website's top priority should be to ensure its reliability and high availability for its users. Being intuitive is a must for the platform as it makes navigation easy while allowing users to access course materials as well as interact with the interface. Fast response times and quick page loading are crucial elements of an optimally performing website, as such it should be ensured that access to course materials or submission of assignment is not delayed. It is essential that maintaining and updating the software is not a cumbersome process.

5.5 Business Rules

Registration Requirements: The process of registering on the BrainBoost platform involves creating individual login credentials like usernames and passwords while providing genuine email addresses. Access Control: Registration as well as authentication is essential for accessing course materials on our e-learning platform.

Appendix B: Analysis Models

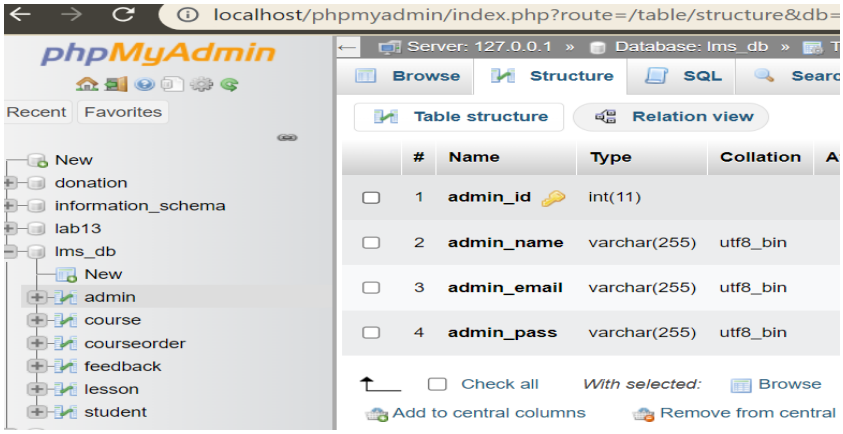

Fig1. phpMyAdmin Admin table

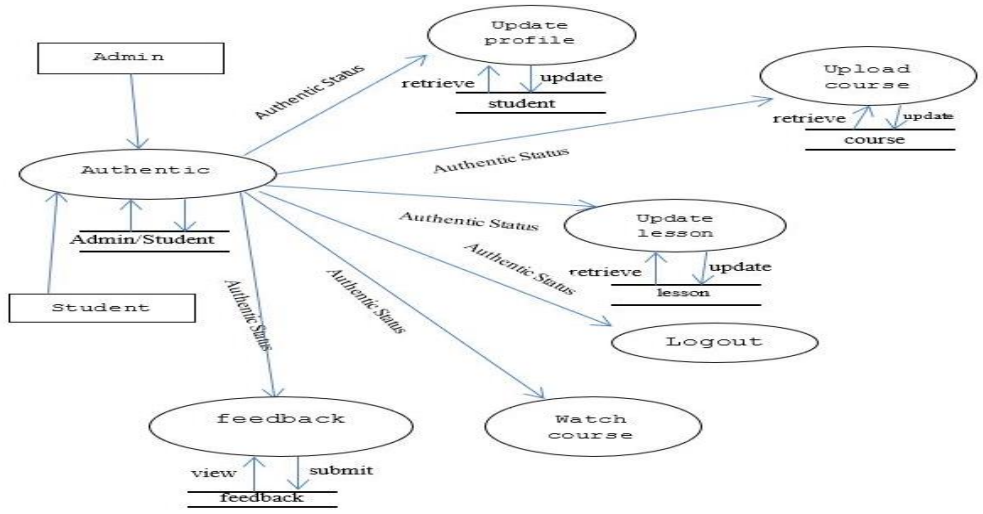

Fig2. 1 Level DFD

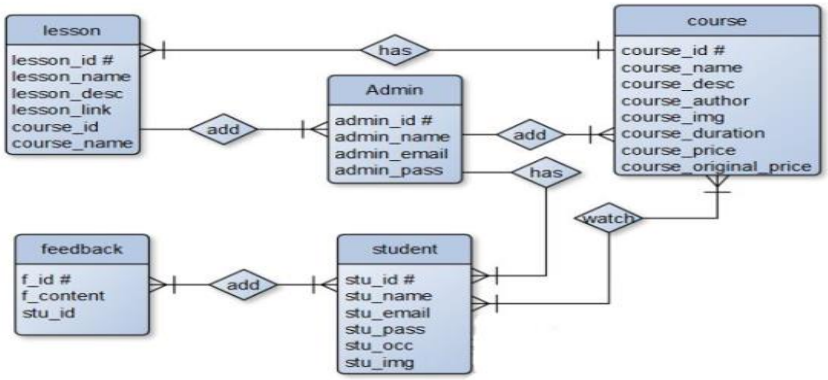

Fig3. ERD