Full Stack Development

Introduction:

Front Stack Development is defined as a software development process of developing frontend (client-side) and backend (server-side) portions of a web application. It is a process of designing an interactive interface for the user, applying server-side logic and managing the database to make smooth communication between both sides of the application. A developer with knowledge of Full Stack Development understands the whole architecture of the software so that it will be a cost-efficient, fast and dynamic solution for business needs too.

Key Role of Full Stack Development:

- Designing and developing UI/UX using front-end development tools like HTML, CSS, and JS.
- Managing back-end logic with programming languages like Python, PHP, Java, etc.
- Management of Database using SQL or NoSQL to save data and retrieve it at the time of use.
- Manage APIs to link front-end and back-end.
- Manage server using platforms with cloud access.
- Help to maintain security and scalability to give the best performance.

Technologies related to Full Stack Development:

- *Front-end Technologies:*
  - HTML: It refers to Hyper Text Markup Language. It is used to design the structure of the webpage by connecting different webpages to make a website. It creates a basic framework model for representing a text document with tags and finally converts it into a webpage.
  - CSS: CSS refers to Cascading Style Sheet, which is a normal designing language that is used to give style to HTML document to present in a different format. It is written joining with HTML tag or can also be written independently by linking with HTML file.
  - JavaScript: JavaScript is a scripting language that creates a user-interactive, dynamic website with animation. It enhances the interface and functionality of the website by embedding with HTML document.

- Back-end Technologies:

  It is defined as the development of a server-side application with a focus on “How the Website works?”. It is responsible for managing the database of the website using queries and APIs. Backend technologies use some libraries, frameworks and languages.
  List of programming languages used for back-end development:
  PHP, C++, Java, Python, Node.js.
  List of frameworks used for backend development is:
  Django, Express, Rails, Laravel, Spring, etc.

➢ Database:

A database is a collection of data that is interrelated with each other. We can insert, update, retrieve and delete data from the database. We can view details, generate reports and graphs connecting with the database.

- Oracle: Oracle Database is a multi-model database, which is also known as RDBMS (Relational Database Management System). It is developed by Oracle Corporation. It is used in large-scale industry to handle big data.
- MongoDB: MongoDB is a NoSQL database that stores data flexibly in a document format. It is an open-source database system based on storing data in collections in a flexible structure not in rows and columns.
- SQL: SQL is a Structured Query Language which is designed to create databases, tables, insert, update, delete and provide control of data accessing users.
- MySQL: It is an open source Relational Database Management System that is free to use. We can create a table to store data in a database.

Example:

A sample website using PHP to get logged in after checking the correct user credentials:

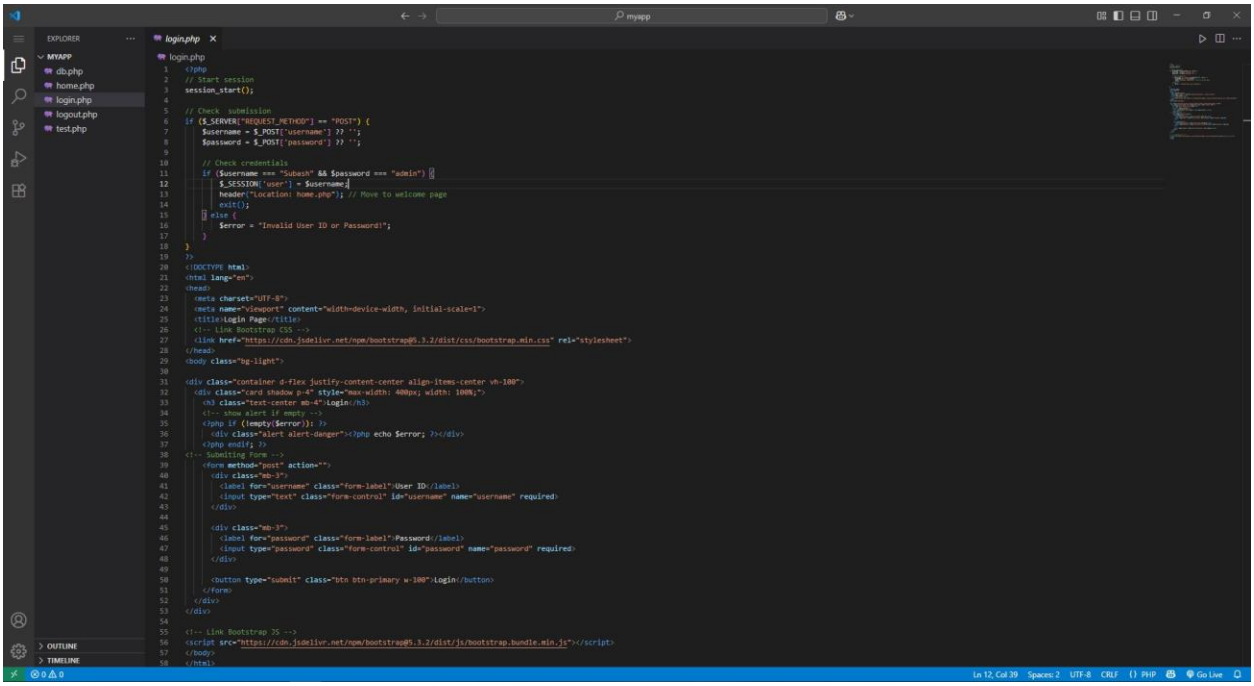

Figure 1: Screenshot of PHP code

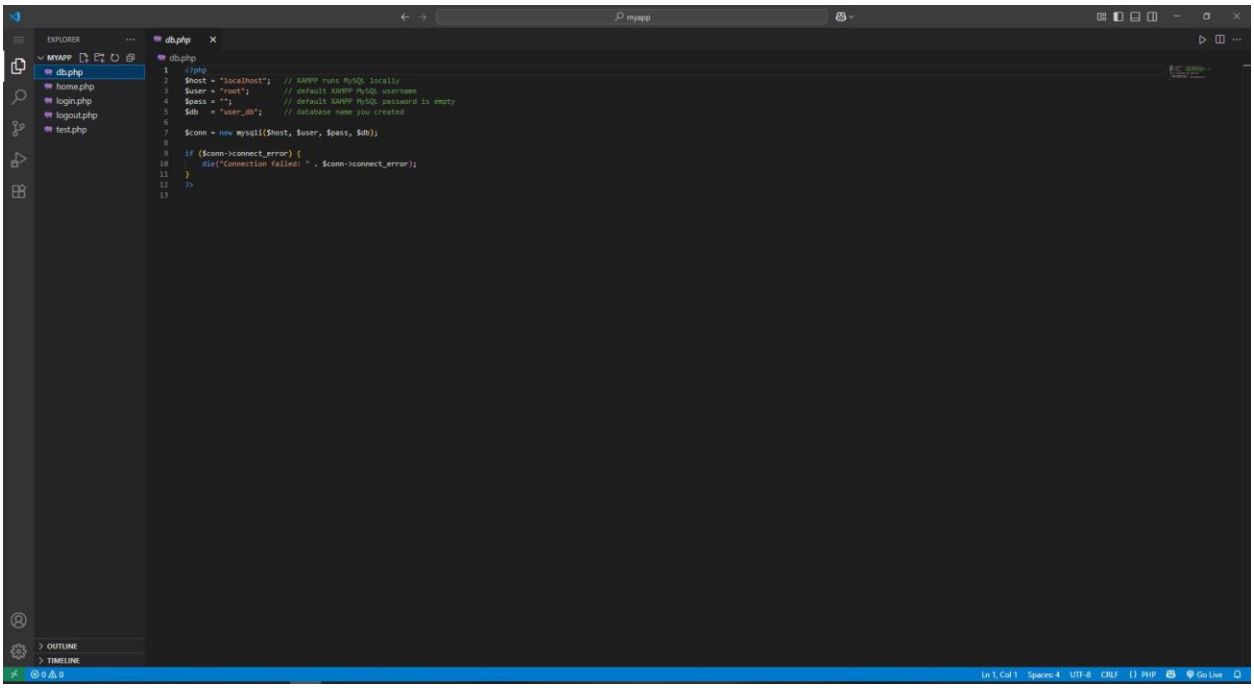

Figure 2: Screenshot of PHP code

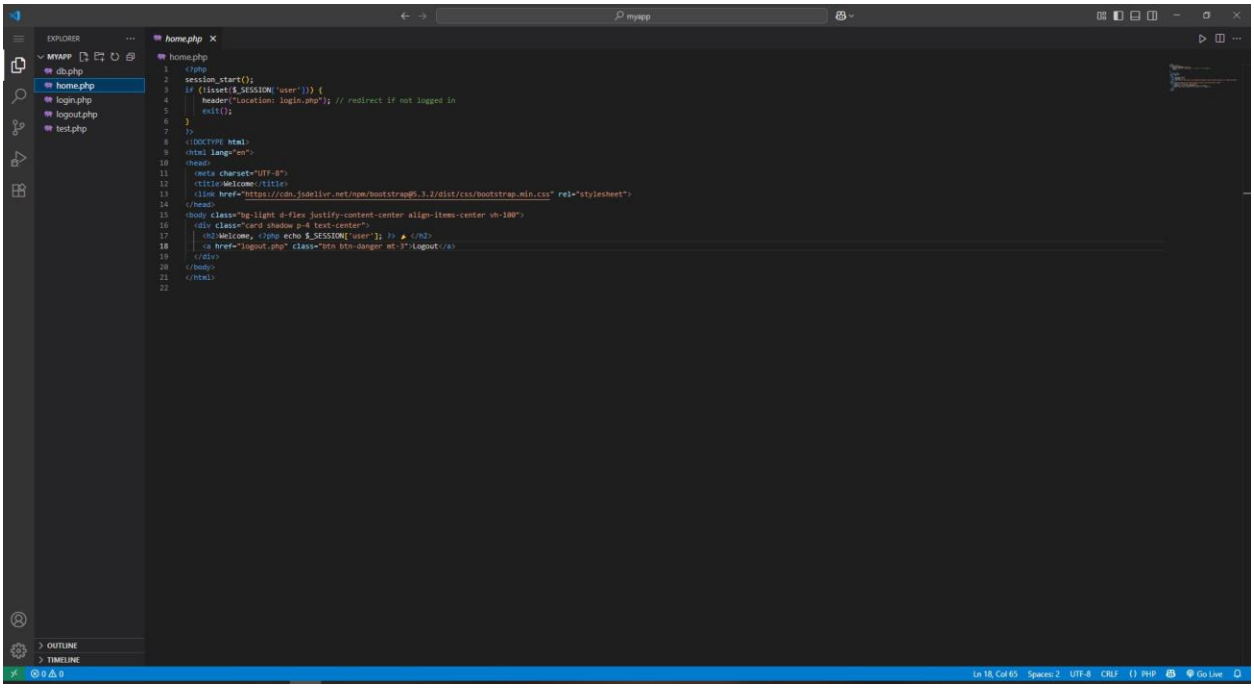

Figure 3: Screenshot of PHP code

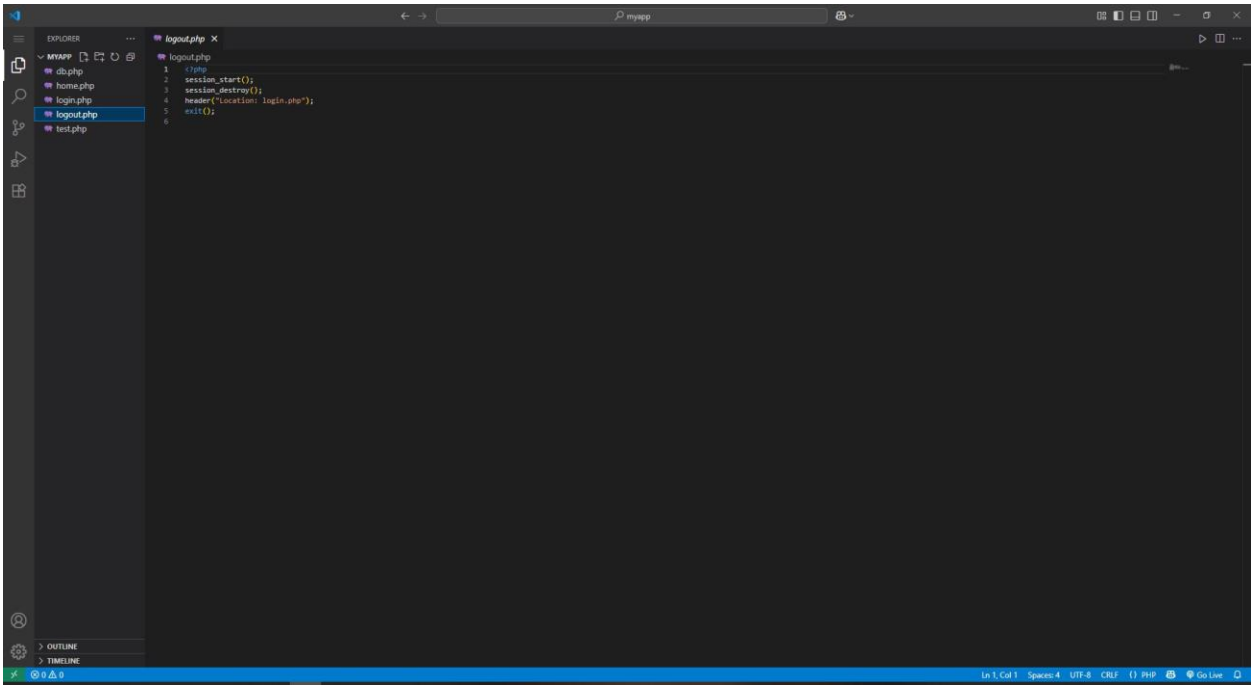

Figure 4: Screenshot of PHP code

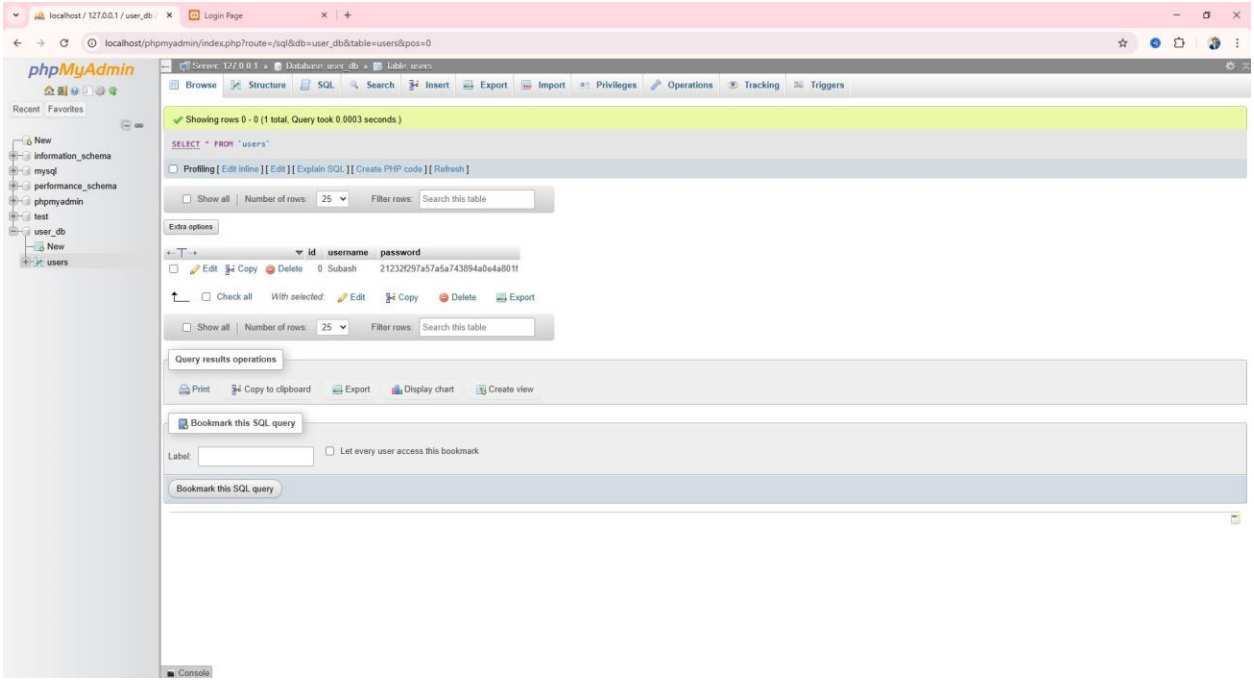

Figure 5: Screenshot of the database in phpmyadmin

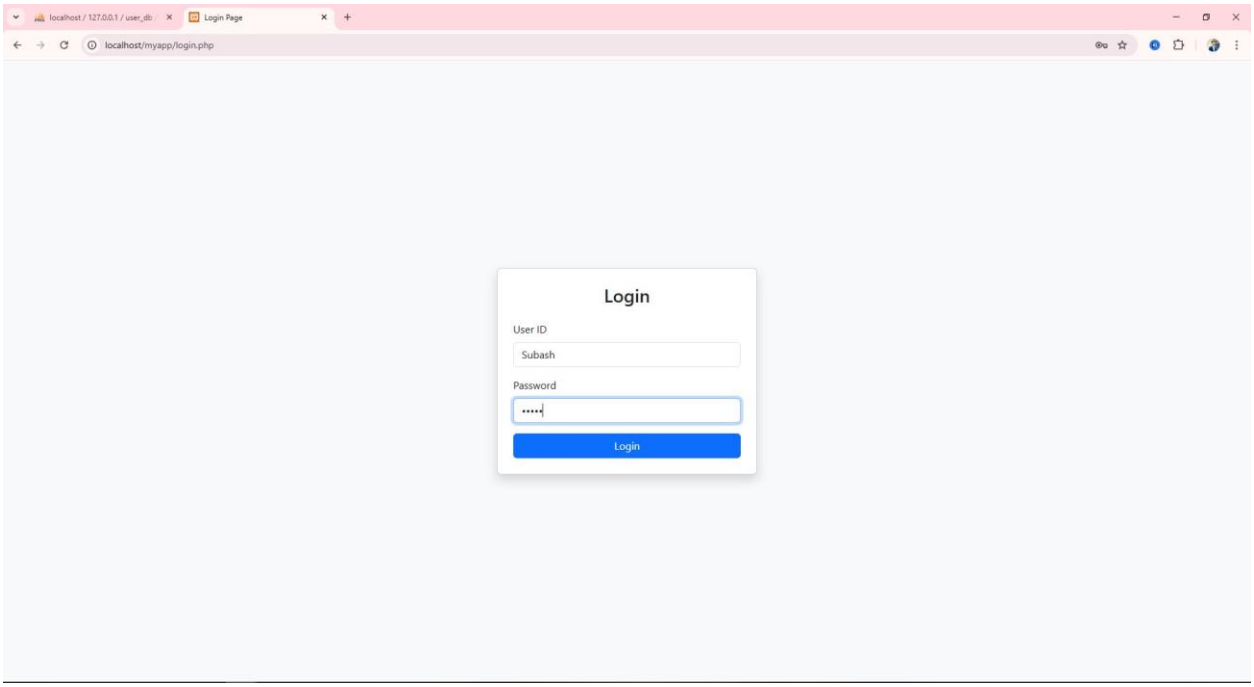

Figure 6: Screenshot of login page as Output Screen

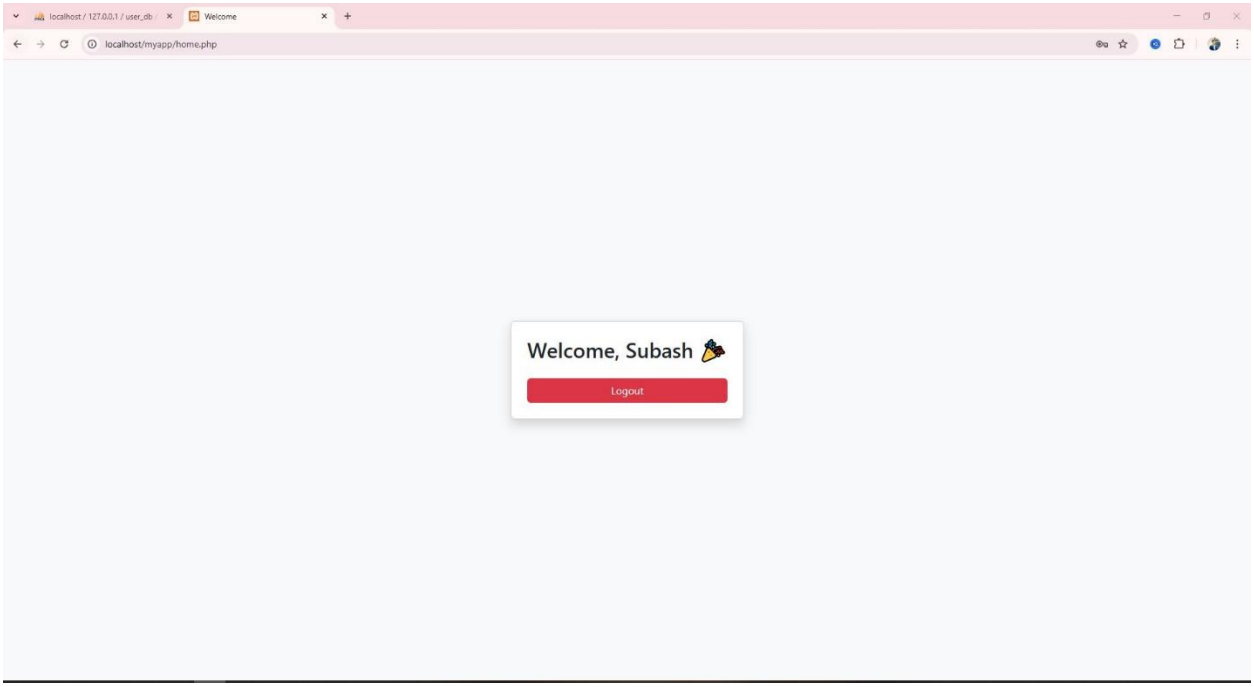

Figure 7: Screenshot of Index page of output screen