

**Sukkur IBA University**

**Software Design Specification (SDS)**

For

**3D Brain-TAMP**

**(Development of 3D Brain through Taxonomy, Anatomy, Morphology, and Physiology)**

Version 1.5

|  |  |
| --- | --- |
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| ***Submission Date*** | February 2, 2023 |

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# Introduction of Design Document

The following is an introduction to the Software Design Specification (SDS) for the Final Year Project (FYP) entitled "3D Android Tutorial App using Unity." The app aims to provide a comprehensive and interactive learning experience for students studying the four perspectives of Taxonomy, Anatomy, Morphology, and Physiology. The purpose of this SDS is to outline the design of the app, including the architecture, user interface, and functionalities. The SDS will provide a clear understanding of the project's requirements and the technical solutions used to meet those requirements. This document will be used as a reference throughout the development process to ensure that the app is developed in accordance with the specified design.

# Entity Relationship Diagram (ERD)

An ERD (Entity Relationship Diagram) is a type of diagram used to represent the relationships between different entities in a system, such as customers, products, orders, or transactions. ERDs are used to design and document the structure of a database and show the relationships between different tables and their attributes. They help in designing and maintaining databases and provide a visual representation of the relationships between different entities.

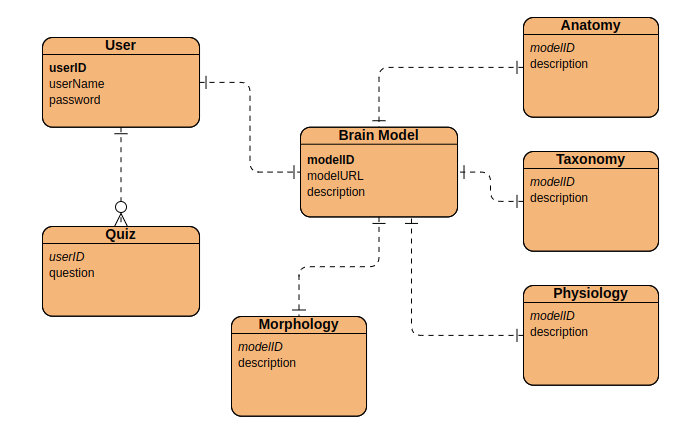


Figure 1: ER Diagram of the system

# Sequence Diagrams

Sequence diagrams are a type of UML diagram used to visualize interactions between objects and components of a system. They show the flow of messages between components, and can also indicate the state of each component. They are useful for designing and documenting complex systems and can help identify potential issues with system architecture or functionality.

## Sign Up

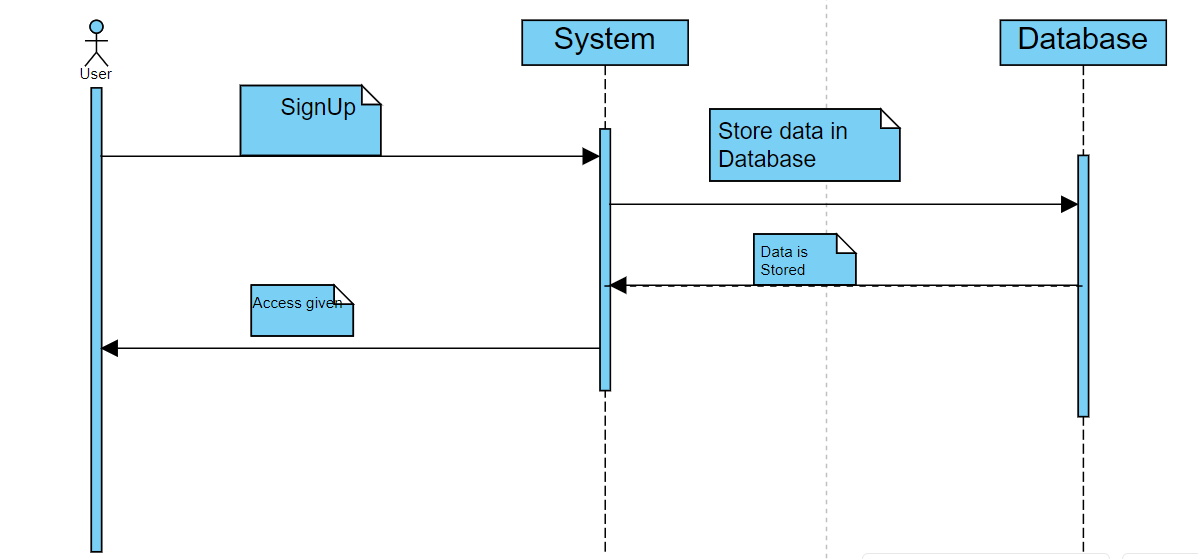


Figure 2 : Sequence Diagram for Sign Up

## Login

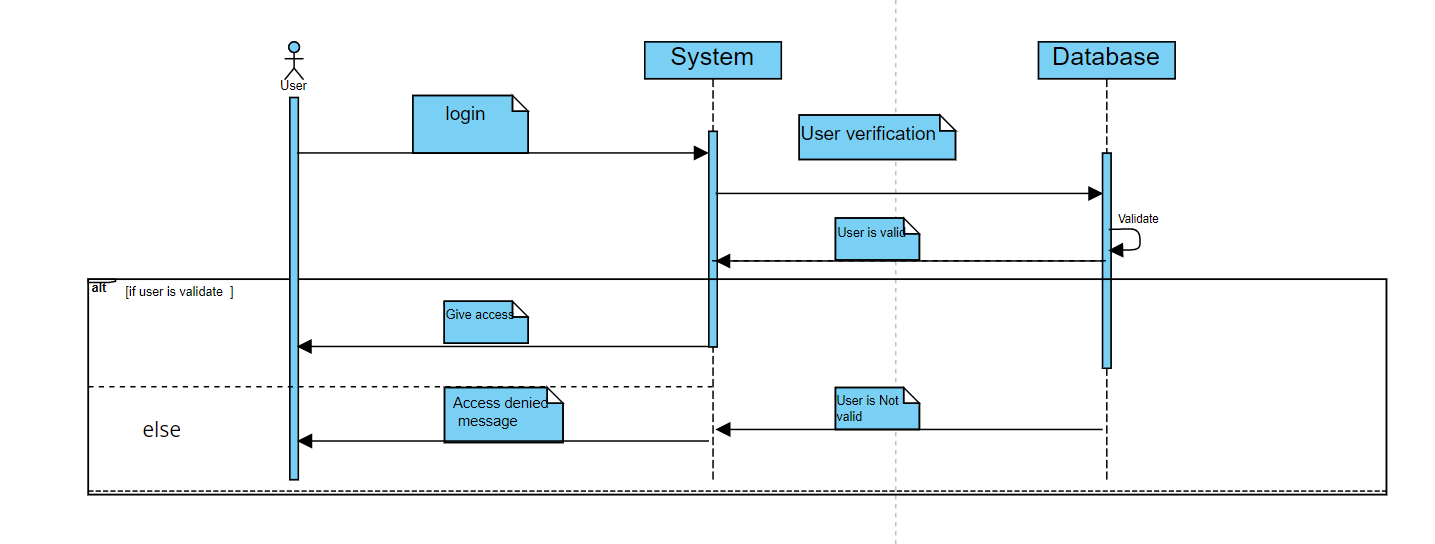


Figure 3: Sequence Diagram for Login

## View Brain Model

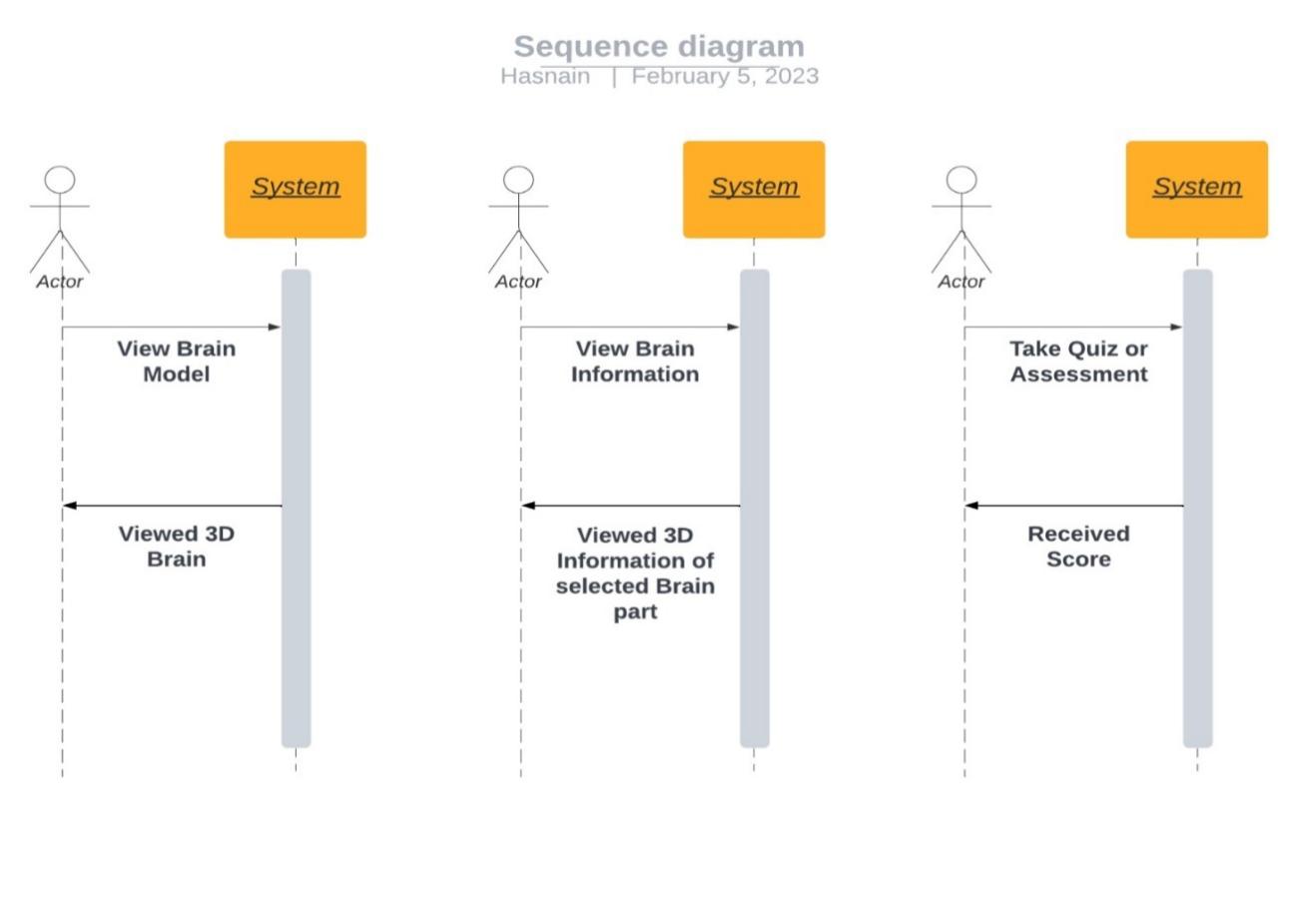


Figure 4: Sequence Diagram for View Brain Model

## View Brain Information

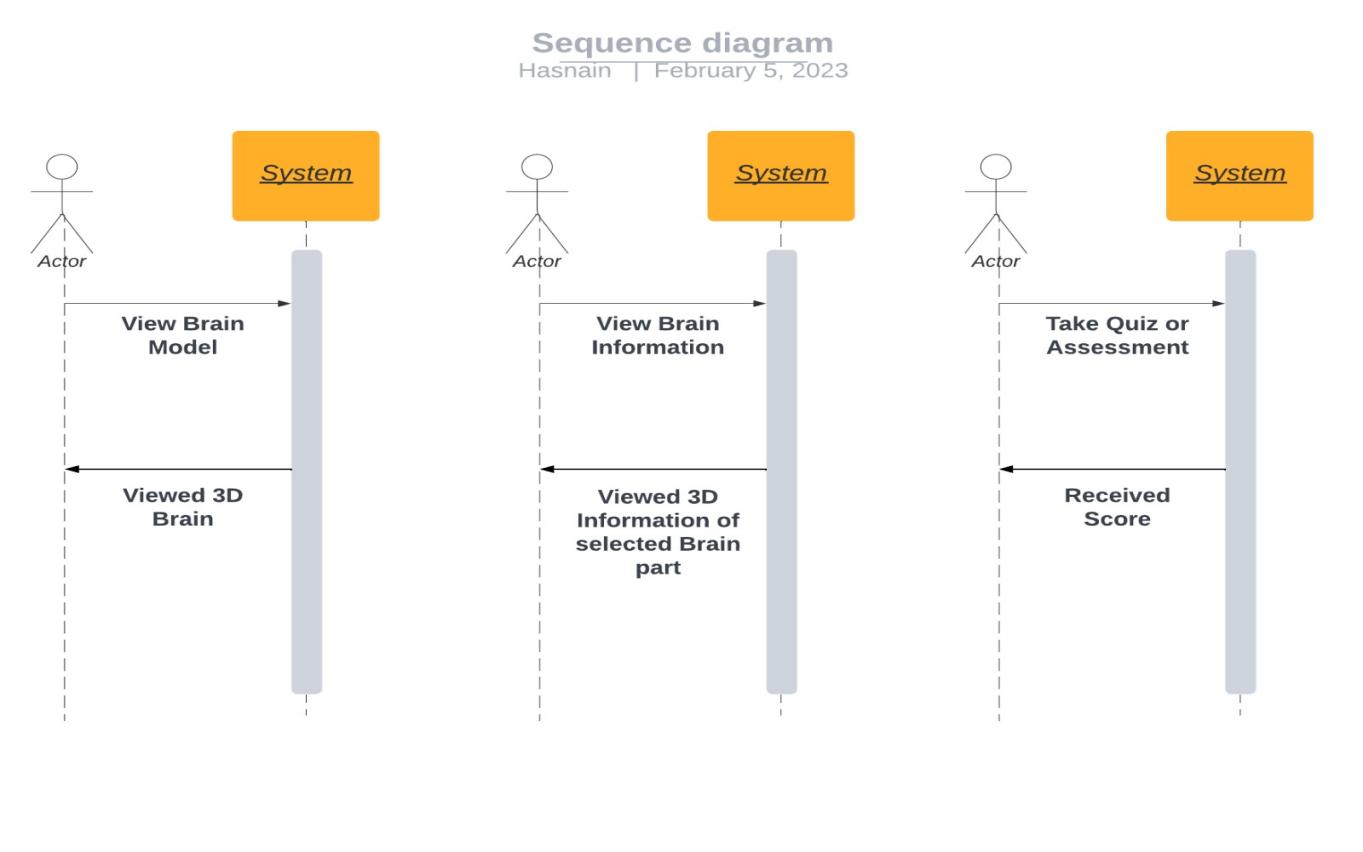


Figure 5: Sequence Diagram for View Brain Information

## Take Quiz/Assessment

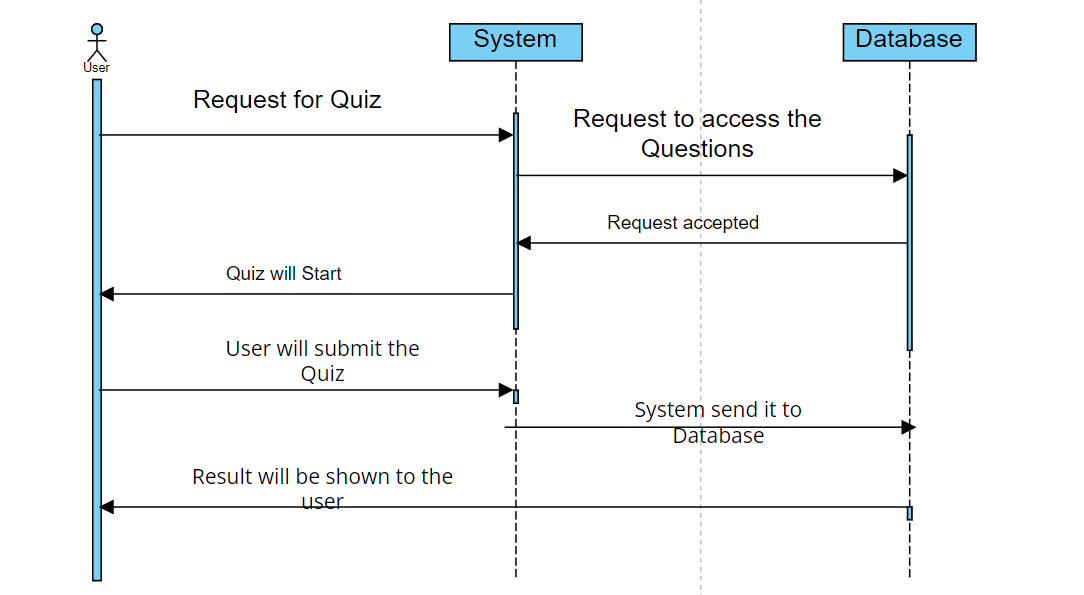
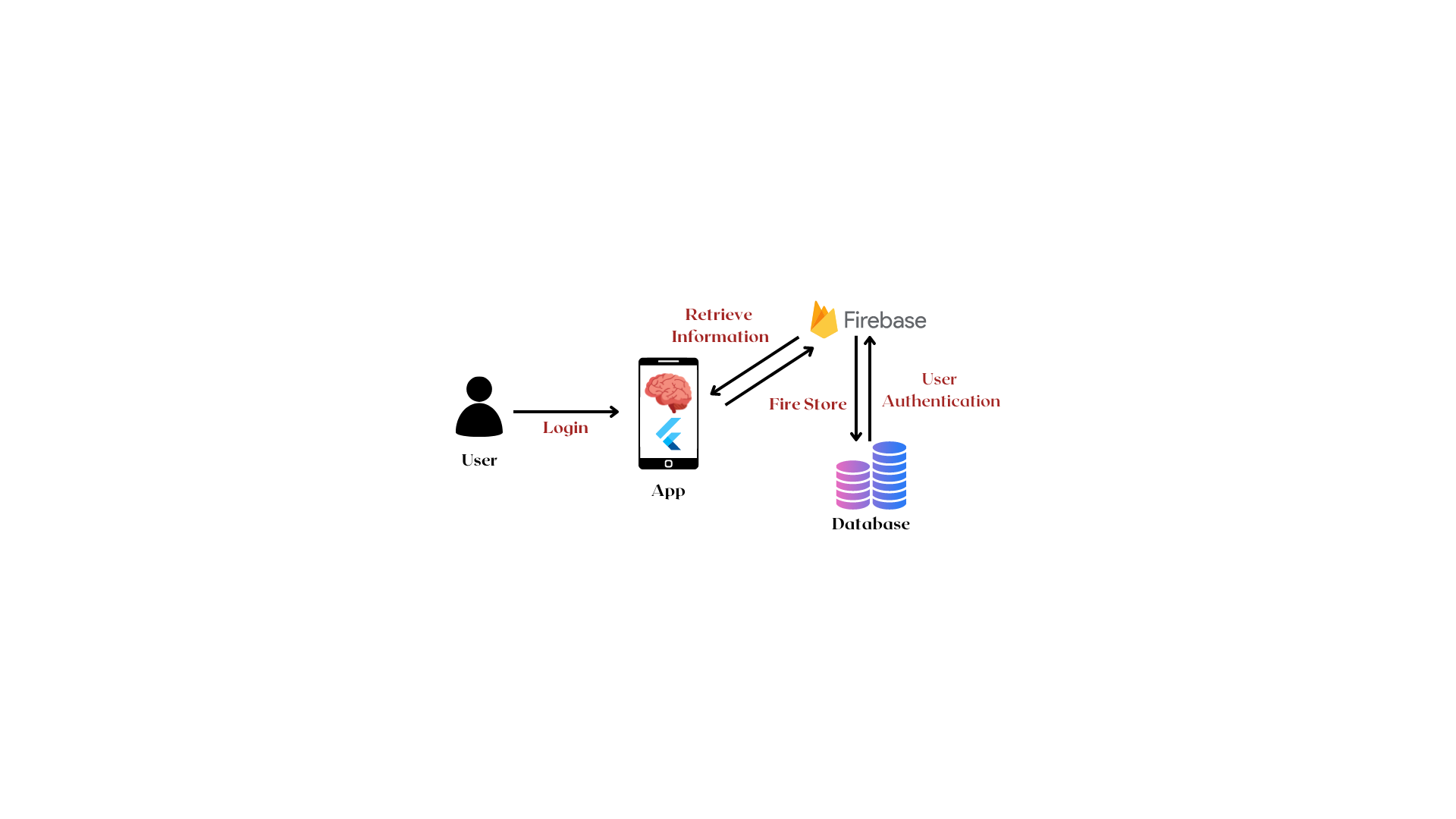


Figure 6: Sequence Diagram for Take Quiz/Assessment

# Architecture Design Diagram

Architecture design is the process of creating a high-level plan or blueprint for a system or application, which outlines the overall structure, components, interactions, and behaviour of the system. It aims to ensure that the system is scalable, maintainable, and meets the requirements of stakeholders. This process involves multiple stages, including analysis, design, implementation, testing, and maintenance, and may use various architectural patterns.

Figure 7: System Architecture



# Database Diagram

A database diagram is a visual representation of the structure of a database that shows tables, columns, relationships, and constraints between them. It is used to document the logical and physical design of a database and can help with database development, maintenance, and troubleshooting. Database diagrams can be created using various tools and are an important part of database design and management.

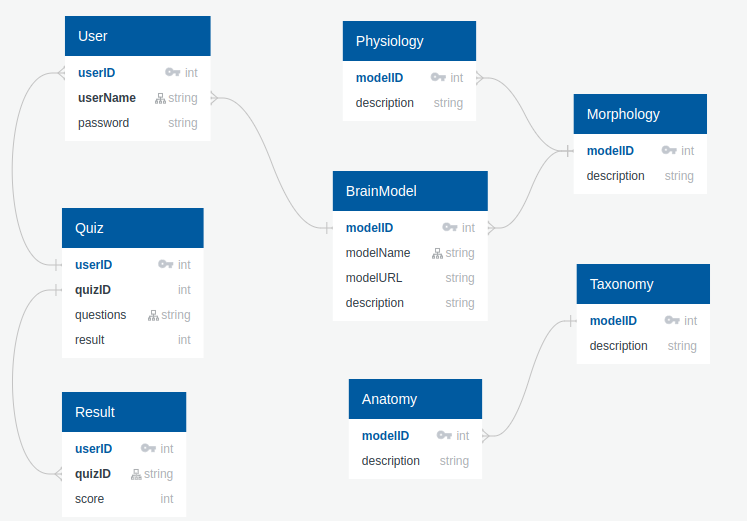


Figure 8: Database Diagram

# Class Diagram

A class diagram is a type of UML diagram that represents the structure and behaviour of a system by showing the classes, attributes, methods, and relationships between different objects or components. Class diagrams are used to visualize the overall structure of a system, and are particularly useful for designing and documenting object-oriented software systems. They provide a high-level view of the system's architecture and can help identify potential design flaws or issues.

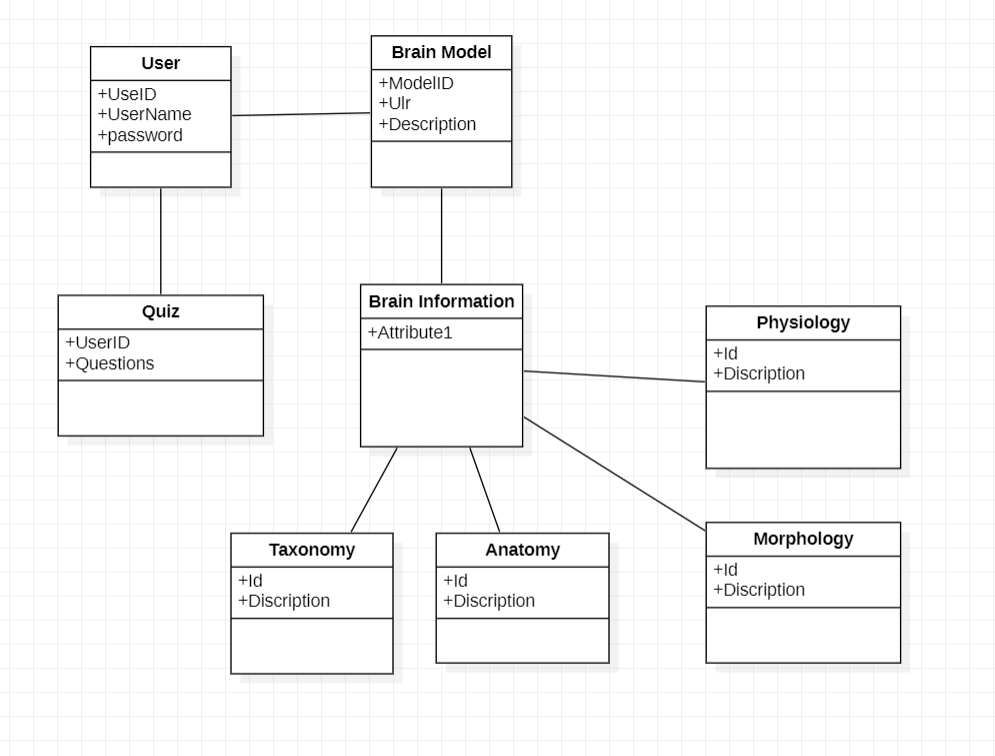


Figure 9: Class Diagram

# Interface Design

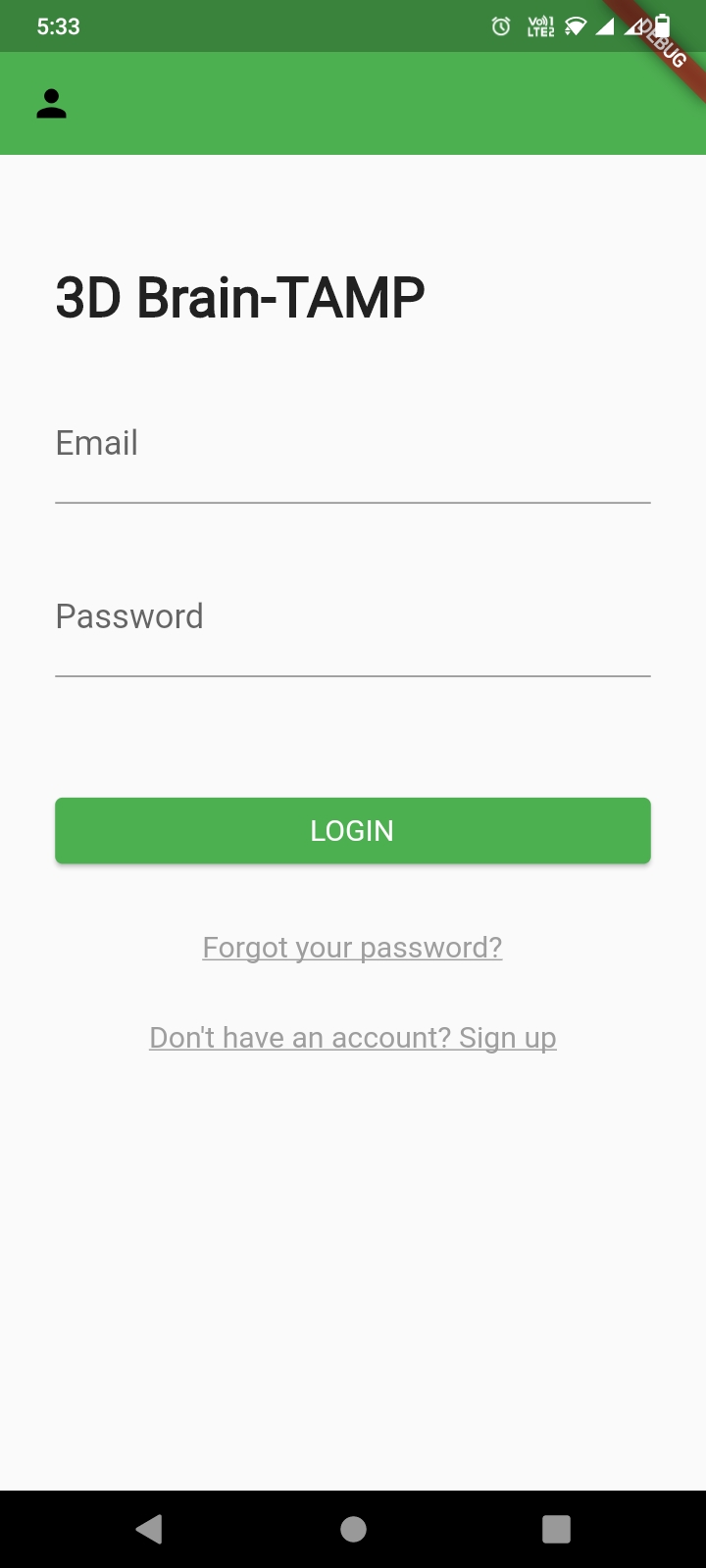


Figure 10 Brain Unpacked: Login page

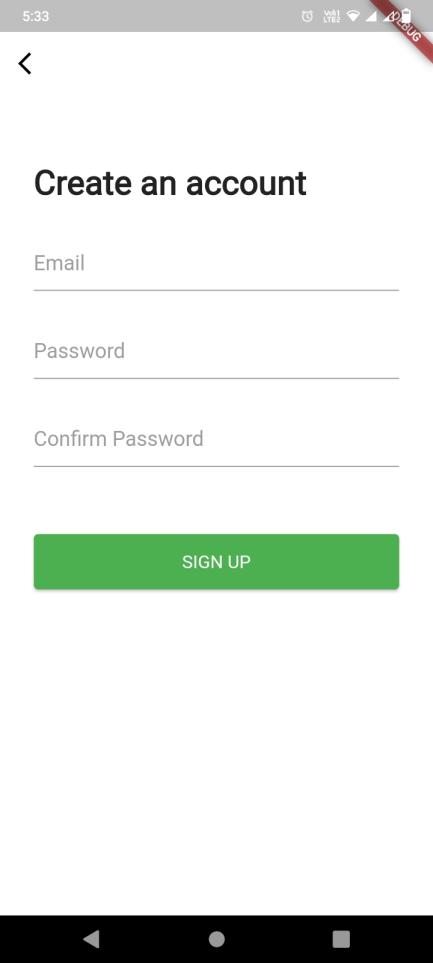


Figure 11 Brain Unpacked: Sign Up Page

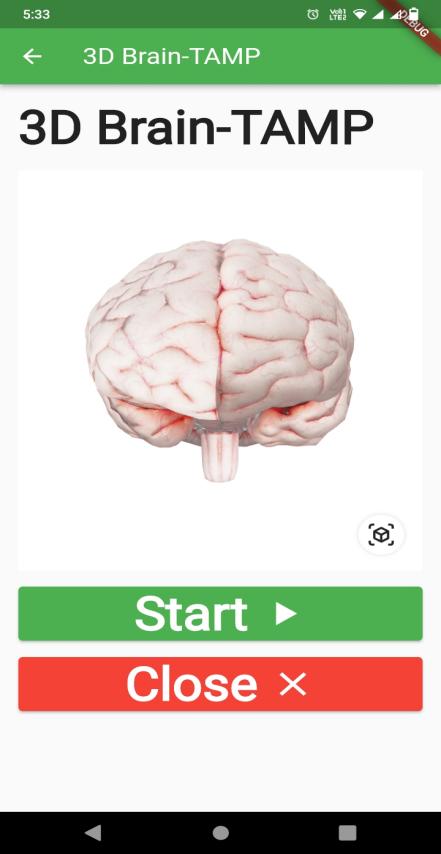


Figure 12 Brain Unpacked: Home Page

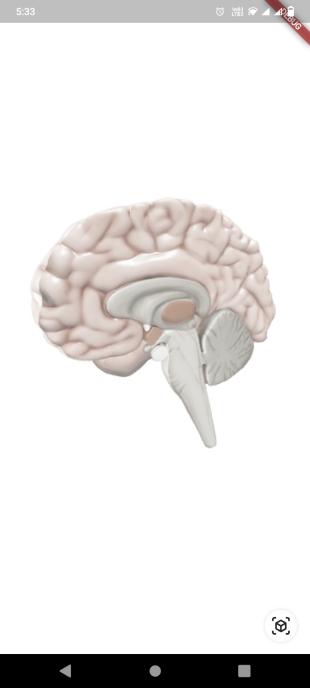


Figure 13 Brain Unpacked: Brain Lobes (Sample)

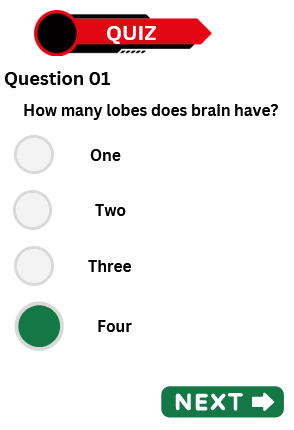


Figure 14 Brain Unpacked: Quiz Questions (Sample)

# Test Cases

Test cases are a set of instructions or procedures designed to verify the functionality or performance of a system or application. They are used to ensure that the system meets the requirements and expectations of the stakeholders, and that it works correctly under various conditions and scenarios. Test cases are typically created based on the system specifications and can include different types of tests, such as unit tests, integration tests, functional tests, and performance tests.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SR No.** | **Test Case** | **Steps** | **Test Data** | **Expected Outcome** |
| **T1** | Checking user login with valid data | 1. Go to App 2. Enter UserID 3. Enter Password 4. Click Login | userID = 053-19-0015 Password = pass123 | Users should log in to an application |
| **T2** | Checking user login with invalid data | 1. Go to App 2. Enter UserID 3. Enter Password 4. Click Login | userID = 053-aa15 Password = pass123 | Software should show an error message |
| **T3** | View brain model | 1. Go to menu 2. Click on View brain model such as forebrain in anatomy | Select the Point | * The system should show the brain part. * If the point is not functioning then the system must show its previous position |
| **T4** | Take Quiz | 1. Login to system 2. Go to menu 3. Click on take quiz | Provide the questions for quiz  And then submit the form. | The system should successfully post the user’s result |