

Database management Requirements

Overview

The overall requirement of the database is request and store data for both the trainee and the trainer, it's the part that unifies the system. The main things that the database will store user data for both trainee and trainer, behavioral data obtained from the trainee and analysis of the trainer. Additionally the report that will be generated accessed from the database itself.

Audience of component

The audience of the database is both the Trainee and Trainer however they will not have access to change the architecture of the database. That will be left up to the system architect. Who will only change the database if the requirements of the system is changed by the client.

Scope

To build the product we need a realtime database with cloud storage. The software that the team has decided to use is firebase. This platform is a good fit for the system as while it fulfills the basic requirements of a real time database system and cloud storage, it also provides an API for storing using user data.

Functionality one : Store Data

The storage of the database is broken into three components. Storage for user data for both trainees and trainers. This data is meant to be one time entered data, and is stored in the system. The system will also generate an ID user for each trainer and trainee to use. After user data the main data that is stored is behavioral data mostly how the trainees interact with the system. The final data being stored is Trainer's review this data is in response to the trainee's data provided

User data

- Trainer and trainee name
- Trainer and trainee date of birth
- Trainer and trainee ID number
- Trainer and trainee password

Behavioural data

- Store Answers to different questions for each
- Store comments made by trainee for trainers
- Store information based on the highest score , mean score , the lowest score

Trainer

- Store comments on each trainee
- Assign and store grades for each trainee

Functionality two : Request Data

The Request requirements is broken into two components. The First component is trainer's request. This is data that trainers request to evaluate the trainees and the modules themselves. The second component is verification request that is requested when a user of the system signs in.

Trainer's Request

- Access comments on each trainee
- Access the information on different scores
- Access score for each trainee

Verification request

- Access the password and ID on sign in to check if it is correct

Trainee Features Requirements

Overview

The overall requirement of the trainee feature is to build a gaming platform with Virtual Reality as a training system for the trainee to play. It will be a serious game that would educate the player and provide entertainment at the same time. There are three main features of the game, the level of difficulty, the grading system, and the individual profile and training plan.

Audience of component

The audience of the component would be the trainee which is the game player. The trainee is the user who is in the process of training to be a professional therapist of autism spectrum. They will be playing the game with a VR headset.

Scope

The game will be building with a game development engine. The team has decided to use Unity as the development platform. Unity has Virtual Reality support and 3D mode which satisfy the needs. It uses C# to implement additional component, which also helps the data generation during gaming.

Functionality one : Level of Difficulty

In the game, the trainee would be educated with the knowledge and the information of autism spectrum. The game will first start off with introduction of autism. After the introduction, it will start the actual 'lesson' in a gamified way. It would start with a simple level that helps them get familiar with the game and starting learning terms, terminology, etc. of autism. As the trainee passes each level of the game, the question asked, the information provided, and the decision making in situations will be more and more difficult.

Autistic behavioral analysis

- Symptom analysis
- Sign analysis

Answering questions and decision making

- Questioning the types of symptoms and signs
- Decision making on what treatment should be used
- Decision making on what action require when a specific symptom happen

Functionality two : Grading System

There will be a grading system that would help determine the trainee's progress and how is she or he doing in the game. It would provide feedback to the players as they are answering questions and making decisions. It would comment on each answer to provide suggestions if their answers were incorrect. It would provide hint if player has difficulty making the right decision.

Grading

- The accuracy
- Pass or fail
- Display score

Feedback

- Comments and suggestion
- Hint

Functionality three : Individual profile and Training plan

The trainee will have access to their individual profile and training plan. The training plan is assigned to the trainee by the trainer. The trainee create hers or his own profile in the beginning of the game and throughout the game.

Individual profile

- Trainee's name
- Trainee's date of birth
- Trainee's ID number and password
- Trainee's progress
- Trainee's score on each level

Training plan

- Current level's information and materials
- Past level's information and materials
- Future level's information and materials
- Expected completion date on each level

Trainer Features Requirements

Overview

The purpose of the Trainer Features are to give the specialists in the field a platform to help others. They will be able to interact with the trainees at The Scott Center for Autism Treatment. The application will give the trainer access to trainee information, such as module scores, topics that were missed, and feedback from the trainee(s).

Audience of component

The main audience for this component is the trainer. The trainer is someone who is a specialist in the field of Autism. They will be the main person that will be available to help the trainee become familiar with symptoms and terminology in the field.

Scope

This section will describe the different functionalities for the trainer and all that the functionalities entail.

Functionality one : Individual Profile

The trainer will be able to see information about the trainee(s) that he/she is in charge of.

Individual profile

- Trainer's name
- Trainer's username and password
- Name(s) of trainee(s) assigned to the trainer
- Access to trainee information

Functionality two : Trainee Grade Comparison

The trainer will be able to see the final overall scores for each trainee. They will also be able to see the feedback from the trainee and can give feedback to the trainee.

Module Grades

- Shows mean score for each module
- Shows highest score
- Shows lowest score
- Scores from each trainee

Feedback Section

- Can see questions from trainee(s)
- Can give tips on how to approach a topic
- Can see the most frequently missed topics

Functionality three : Trainee Information Access

The trainer will be able to see all information about his/her trainee(s).

Trainee Information

- Name of trainee will be seen
- Trainee Plan can be seen and adjusted
- Progress of each module done by the trainee