AYUDAR

A PROJECT REPORT

submitted By

DIVYA MARIYAM ELDO
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to

the APJ Abdul Kalam Technological University
in partial fullfilment of the requirements for the award of the degree

of

Master of Computer Applications

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Declaration

I undersigned hereby declare that the project report Ayudar- An application to screen child's learning disabilities, submitted for partial fulfilment of the requirements for the award of degree of Master of Computer Applications of the APJ Abdul Kalam Technological University, Kerala is a bonafide work done by me under supervision of Dr.Sabitha S. This submission represents my ideas in my own words and where ideas or words of others have been included. I have adequately and accurately cited and referenced the original sources. I also declare that I have adhered to ethics of academic honesty and integrity as directed in the guidelines of the Institutional ethics committee of the college and have not misrepresented or fabricated any data or idea or fact or source in my submission. I understand that any violation of the above will be a cause for disciplinary action by the institute and/or the University and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been obtained. This report has not previously formed the basis for the award of any degree, diploma or similar title.

Place : Trivandrum

Date :

DIVYA MARIYAM ELDO

DEPARTMENT OF COMPUTER APPLICATIONS

COLLEGE OF ENGINEERING
TRIVANDRUM

CERTIFICATE

This is to certify that the report entitled **AYUDAR- An application to screen child's learning disabilities** submitted by **Divya Mariyam Eldo** to the APJ Abdul Kalam Technological University in partial fulfilment of the requirements for the award of the Degree of Master of Computer Applications is a bonafide record of the project work carried out by her under my guidance and supervision. This report in any form has not been submitted to any University or Institute for any purpose.

Project guide   Head of department

Mrs.Baby Syla.L   Associate Prof.Deepa S.S

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DIVYA MARIYAM ELDO

ABSTRACT

Ayudar [sanskrit term meaning "helping mind"] is a mobile application which can be used as an online screen test to detect learning disabilities in children and provide further assistance in their treatment. Children in the age of 6 and above have mainly three types of learning disability. They are Dyslexia-Disability to identify letters, Dyscalculia-Mathematical problem and Dysgraphia-Forming letters. Most of these disorders are characterized by troubles with social interactions and communication and by restricted and repetitive behaviour. Ayudar is a replacement for the preliminary test conducted prior to the diagnosis. Inappropriate social interaction, learning disability, intense interaction upon a limited number of things, depression, anxiety etc. are the main symptoms of child disability. The parents may find it difficult to find out disability in the earlier stage of their children, so this application will be helpful to overcome this difficulty. Disabilities are identified through surveys and games. Results of these games and surveys are then forwarded to a particular doctor, parents chose at the time of registration. They will assist the children by providing consultation tips, messages for better treatment. Hence the parents can identify learning disabilities in their children and can be diagnosed in the early stage itself..

Contents

List of Figures

Chapter 1

Introduction

Ayudar [sanskrit term meaning "helping mind"] is a mobile application which can be used as an online screen test to detect learning disabilities in children and provide further assistance in their treatment. Children of age above 6 have mainly three types of learning disability. They are Dyslexia – Disability to identify letters, Dyscalculia - Mathematical problem and Dysgraphia - Forming letters. Most of these disorders are characterized by troubles with social interaction and communication and by restricted and repetitive behavior. Inappropriate social interaction, learning disability, intense interact limited number of things, depression, anxiety etc. are the main symptoms of child disability. The parents may find difficult to find out disability in the earlier stage of their children.so this application will be helpful to overcome this difficulty. So the parents can identify learning disabilities in their children and can be diagnosed in the early stage itself.

Chapter 2

Literature Review

The term learning disabilities emerged from a need to identify and help children who repeatedly show poor scholastic performance, yet are not mentally retarded. Epidemiological research reveals that 3-6 percentage of school age children most likely to suffer from a learning disability. In the Indian context, prevalence rates are estimated to range between 9-39 percentage. Considering the high prevalence of SLD in Primary School Children, it is important that an effective tool be used for assessment of SLD. The NIMHANS Index for Specific Learning Disabilities was initially developed by Kapur, John, Rozario and Oommen in 1991 in the Department of Clinical Psychology, NIMHANS, Bangalore. This tool has been used in a number of studies to confirm the diagnosis of SLD and differentiate children with SLD and those without. The SLD index has been mainly used to confirm the diagnosis of SDDSS made by the clinical psychologist as per the ICD- 10 criteria to enable to children to get benefits offered by the State Government. Unlike Western achievement tests, where it is possible to arrive at a percentile point as well as derive age appropriate grades, the NIMHANS SLD index is a curriculum based assessment.This project is based on the above specified NIMHANS Index tool. NIMHANS Index for specific Learning Disabilities The NIMHANS index for Specific Learning Disabilities was developed in the Department of Clinical Psychology, NIMHANS, Bangalore. It was initially developed by Kapur, John, Rozario and Oommen in the year 1991 to screen children with SLD. The NIMHANS Index for Specific Learning Disabilities consists of tests of reading, writing, spelling and arithmetic abilities, to identify children with disabilities in these areas. It consists of two levels:

Level I: Consisting of tests of Attention, visual Discrimination, Visual Memory, Auditory Mem-

ory, Speech and Language, Visuo- motor skills and Writing Skills.

Level II: Consisting of tests of Attention, Language (Reading, writing, Comprehension), Spelling, Perceptual Motor Abilities, Memory and Arithmetic.

This tool has been used in several studies to compare the psychological characteristics of children having SLD and normal children. It has also been used for assessment of improvement after remediation. For the purpose of the present study, children whose performance was below (less than two standards) their expected grade were considered as having mild SLD. Those whose performance was much below (less than four standards) their expected grade were considered as having severe SLD. The study was conducted on a sample of 40 children selected from the Child and Adolescent Mental Health Unit, (CAMHU), NIMHANS after meeting the inclusion criteria of the study. Each child was individually assessed using MISIC and NIMHANS SLD index. The parents were also seen separately and administered the DPCL. Out of the 40 children tested, 35 children were confirmed as having Specific Learning Disability and five did not SLD as per the NIMHANS Index for SLD. There was significant correlation between teachers rating and clinical rating when compared with the presence of SLD. There was moderate association found between severities of SLD as assessed on the NIMHANS Index Specific Learning Disabilities with the Parental rating on the Learning Difficulties subscale of the DPCL. Here in this project we use set of surveys to detect the learning disabilities in children. Survey data are only as good as the responses that are derived; and in order for survey responses to be understood, we must have a good understanding of the cognitive processes that respondents go through in determining their response to different questions. The modules used often implies as a 'screener' for disability. Children with disabilities tend to be unseen, unheard and uncounted. Increasingly in recent years, when they have been counted, definitions of "disability" and "children with disabilities" that are used for collecting disability data have varied widely in the Asia-Pacific region. Taken togethher, data comparisons across countries are frequently unreliable. The Asia-Pacific region needs more accurate statistics on the population of children with diverse disabilities and on their socioeconomic status. The adequacy of disability statistics would enable policymaking to be evidence-based and support the realization of the rights of children with disabilities.

Chapter 3

Problem Definition

3.1 Purpose

Building a mobile application as a replacement to the preliminary test that takes place prior to the diagnosis. This application represents a screen test to detect the learning disabilities in children above the age of 6.And then the result is forwarded to the doctor for further treatment.

3.2 Problem Definition

Several learning apps are available today in Google Play Store which says that it can measure numerical and alphabetical learning disabilities of children. But they are not able to provide in their assistance of treatment. All existing learning app just offers games and problem identification only. All of these apps give certain alphabetical and numerical games to the children and evaluate the resultant score at the end. And all those score generated lost when they close the application. So the result of the games does not have a further use. There are no tools for further treatment from these games. So there is no future for these types of games.

1. No tools for problem identification.

2.There is no facility for further treatment.

3.3   Objective And Contribution

The proposed system is a mobile based application which can be accessed by users online. The users can register with their basic details and then provide the application to their children to perform the games. And also parents are given a survey to identify whether their children have anxiety and depression symptoms, communication problems as well as difficulties while doing mathematical operations. The games provided in the application are based on disabilities such as Dyslexia, Dyscalculia, Dysgraphia etc.The results of the games and the survey are then forwarded to a particular doctor they chose at the time of registration. They will assist the children to their nearby hospital for better treatment.

1. Privacy about their child disease.

3. The system is more user friendly.

4. Includes interactive games for children.

5. System can be accessed from anywhere.

3.3.1   Product Functions

- Child profile management

  Child Profile basically means the basic details about the children that are stored in the application at the time of registration. This module contains the name, age, address, and the basic details about the disability issues that are faced by the children. Different from other applications, the child profile is managed by the parents. The parents are the back end users of the application.

- Ability Tracker Using Surveys

  There is a section for each parent in the application where they have to answer some questions. These questions are for knowing the character and basic behaviour of the child. For example, whether he/she is interested in learning? Based on this survey, we can sum up parent's observations of the child.

- Games and Problems

  Basically there are three types of learning difficulties affecting children above age 6. Inorder to identify these difficulties,there are several games and problems, each to identify what difficulty the child has. There are a total of 5 games ,each having 10 questions .A score is

calculated on the basis of the child's performance and in the end of each game, we can see the total game score.

- Results Generator

  This module stores all game scores and survey results. These results are then passed to a doctor. The doctor analyze the results and finalize what type of disability the child has and also give advise regarding further treatments.

- Consultation Tips

  Consultation tips in this application are mainly on the basis of survey results and scores from games and problems. The scores are passed to the doctor. Then the Doctor after analyzing these results makes suggestion notes to the parent regarding which hospital to visit and treatments that may benefit the child.

3.3.2   Hardware Requirements

- Hardware capacity: 500GB(minimum)

- RAM : 8GB

- Processor : Intel core i3

- Display : 1366 * 768

3.3.3   Software Requirements

- Front end tool : Unity

- Scripting language : C

- Database : MongoDB

- Operating system : Windows

3.4   Functional requirements

Functional requirements represent the intended behavior of the system. This behavior may be expressed as services, tasks or functions that the specified system is required to perform.

In this project there exist two roles-"Parent" and "Doctor".Each actor has their own specific roles as follows:

- **Parent**: In Ayudar, parent is the user who operates the application for their children

  - Registering their children in the application

  - Completing Survey.

  - Make children play games.

  - Receiving consultant tips from the doctor.

- **Doctor**: Doctor is the user who analyse and decide whether the child has any kind of disability.

  - View Registered children.

  - View survey results.

  - View game results.

  - Analyze the results and give consultation tips to the parent.

Chapter 4

Methodology and System Design

4.1   Usecase Diagram

The parent and doctors need to register in the application before they use it. Parents can register their child in the application by filling the registration form. At the time of registration doctor can select a particular doctor. After that parent can login to the dashboard and there are mainly 2 things. Parent have to attend 6 different types of surveys regarding the basic behaviour of their child such as emotion and self control, mathematical ability, reading, writing etc. Also there are 5 different games available at the dashboard which can be used to measure alphabetical and numerical ability of the child such as small mathematical operations, word arrangement problems etc. The parent should make their children play these 5 games. After the survey and games are completed, entire result is passed into that particular doctor they selected at the time of registration. Then the doctor send his notes, consultation tips to the parent by analysing those results.
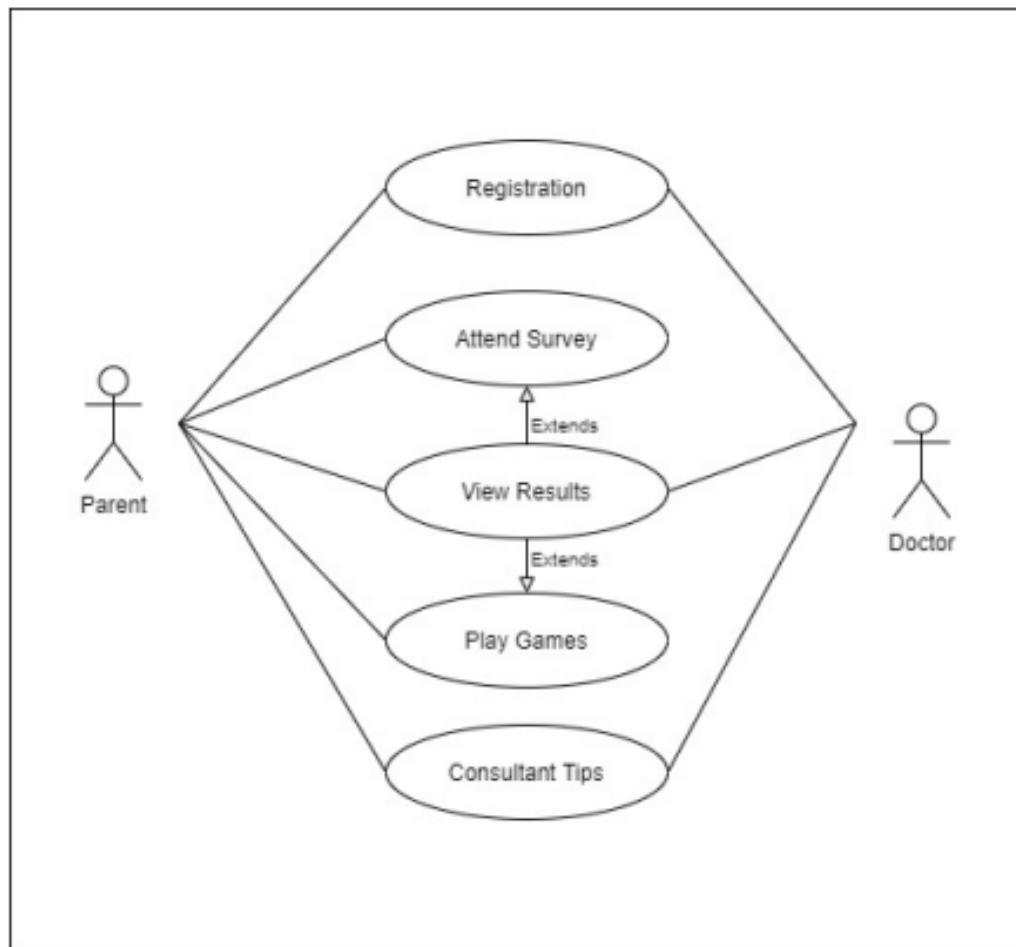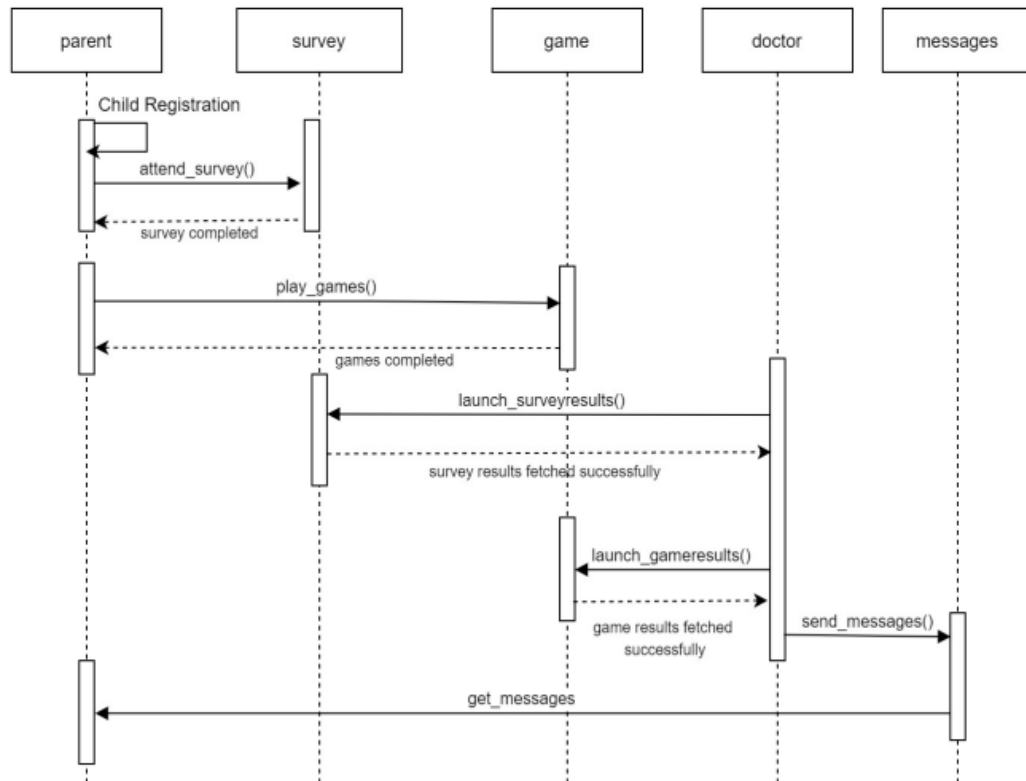
Figure 4.1: Usecase Model

4.2   Sequence Diagram

Figure 4.2:   Sequence Diagram

The parent register their child in the app by entering basic details.After that Parent have to attend 6 different types of surveys regarding the basic behaviour of their child such as emotion and self control, mathematical ability, reading, writing etc. Parent need to answer each questions by click on checkbox. There are 4 possible answers, Never, Rarely, Frequently, Sometimes. Also there are 5 different games available at the dashboard which can be used to measure alphabetical and numerical ability of the child such as small mathematical operations, word arrangement problems etc. The parent should make their children play these 5 games. After the survey and games are completed, doctor fetch all the survey and game results. Then the doctor send his notes to the parent from those results. Those message/consultation tips are displayed on the parent dashboard.
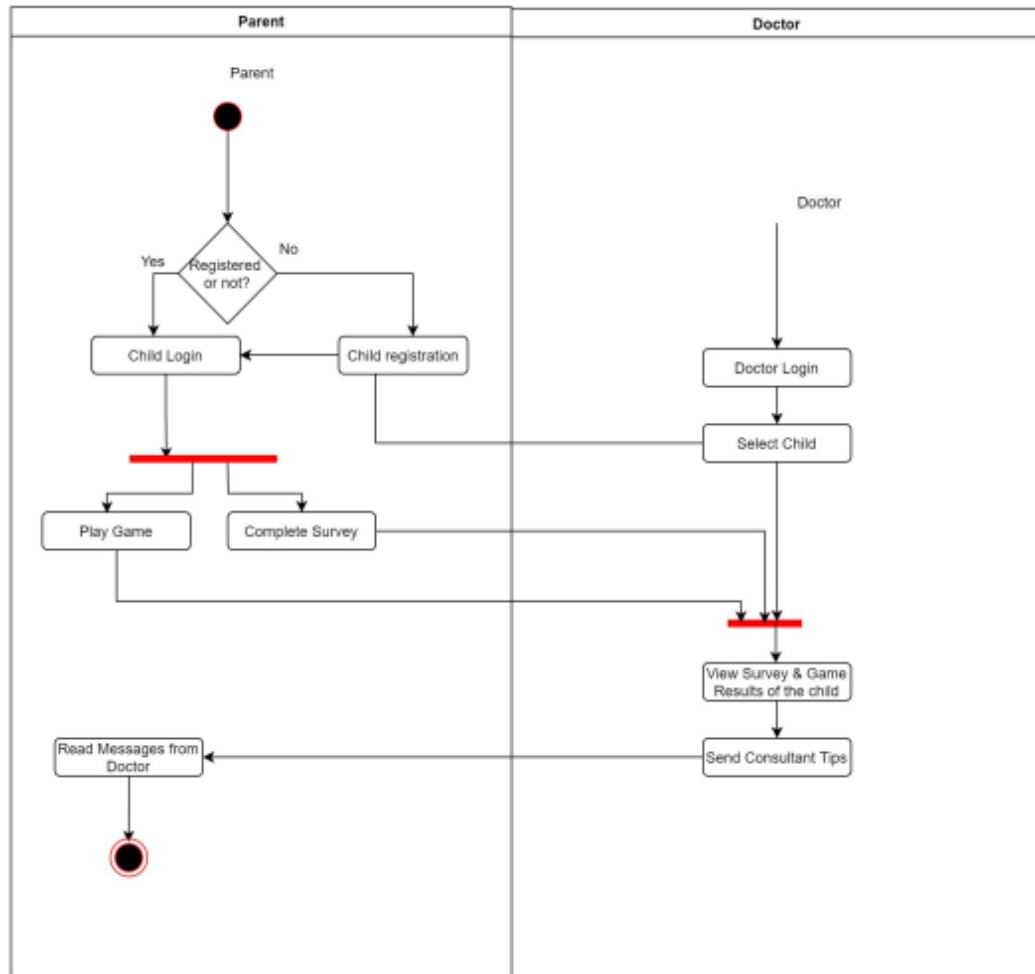
4.3 Activity Diagram

Figure 4.3: Overall Activity

The overall activity can be represented in the above figure. Parent register their children in the application. They chose a particular doctor at the time of registration. After the registration they can login to the application and parent need to complete 6 different surveys. The parent need to make their child play those 5 games. After both surveys and games are completed, the results are fetched by the doctor. The doctor then analyse the results and send consultation tips to the parent.
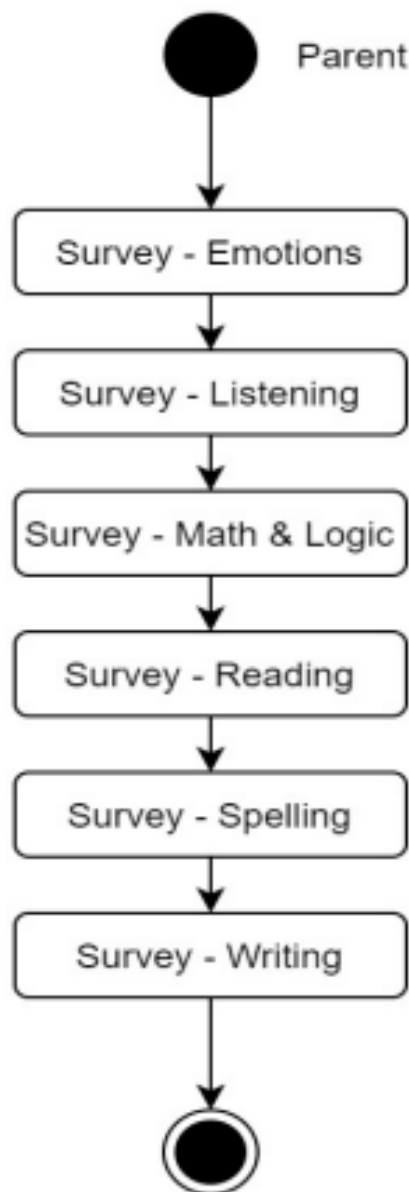
4.4 Activity-Attend survey

Figure 4.4: Activity-Attend survey

The parent need to complete 6 different types of surveys. They are Survey - Emotions, Survey - Listening, Survey - Math and Logic, Survey - Reading, Survey - Spelling, Survey - Writing. There are 4 possible answers for each question. They are Never, Rarely, Sometimes, Frequently. The parent need to answer by click on the corresponding checkbox.

These surveys should be done in the given sequential order.
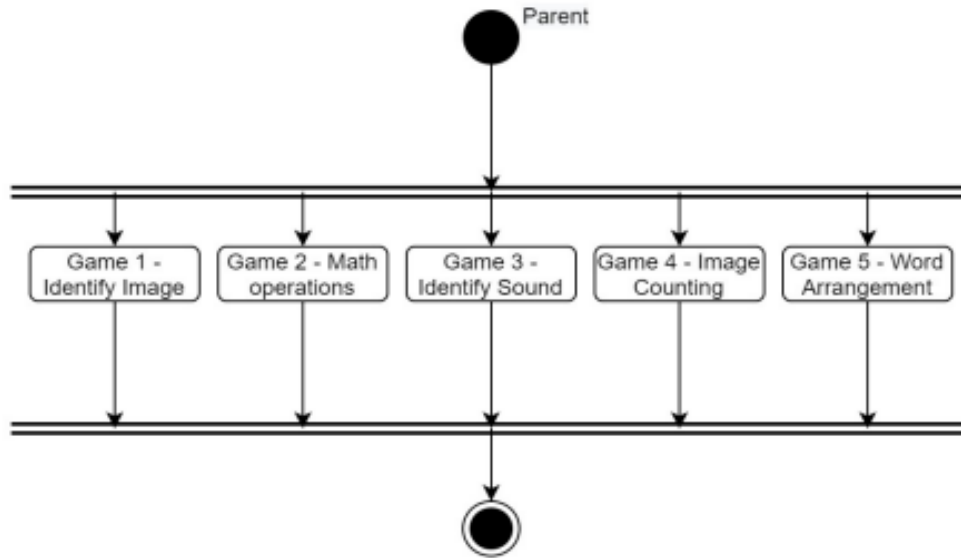
4.5   Activity-Play Games

Figure 4.5:   Activity-Play games

The parent need to make their children play the 5 games in this application. It can be answered by parent, but only according to what their child says. These games are able to measure the alphabetical and numerical ability of the child. There is no sequential order for playing these games. Any game can be played first/last. Game 1 is, there will be many images, and child need to select which object/animal/bird is that. Game 2 is some basic mathematical operations. Game 3 is, some sounds will be played and child need to recognize the source of the sound. Game 4 is Counting of Images. Game 5 is word arrangement. The child need to type the missing letter from those words.
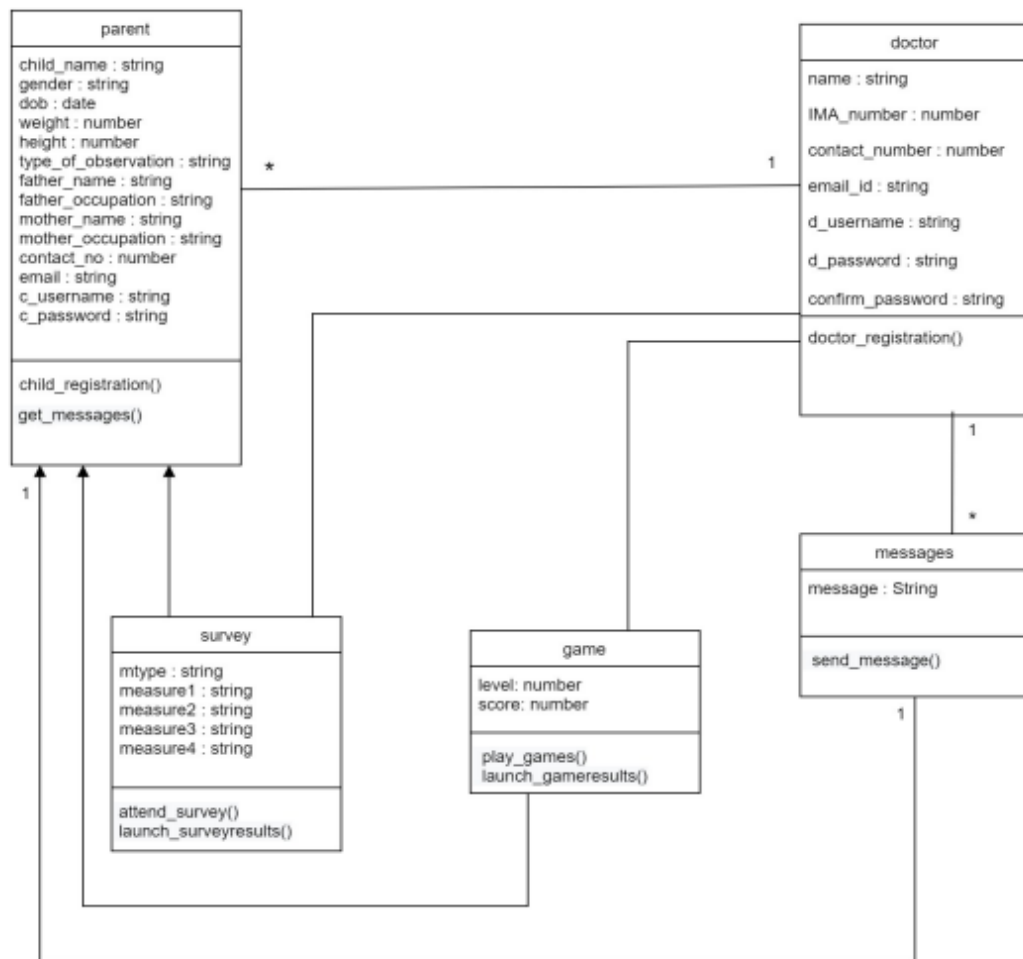
4.6 Class Diagram

Figure 4.6: Class Diagram-Classes,Attributes and their Relationships

4.7   MongoDB collections

Field	Type	Description
doctor_name	String	Name of doctor
ima_number	Number	IMA number of doctor
contact_number	Number	Contact Number
email_id	String	Email ID
d_username	String	Username od doctor
d_password	String	Password

Figure 4.7:   Design of DoctorRegistration Collection

Field	Type	Description
child_name	String	Name of doctor
gender	String	Gender of the child
dob	Date	Date of Birth of child
weight	Number	Weight of the child
height	Number	Height of the child
type_of_observation	String	Type of observation
father_name	String	Father's name
father_occupation	String	Father's Occupation
mother_name	String	Mother's name
mother_occupation	String	Mother Occupation
contact_number	Number	Contact Number of parent
ima_number	Number	IMA number of doctor from collection doctor_registration
c_username	String	Username
c_password	String	Password

Figure 4.8:   Design of ChildRegistration Collection

Field	Type	Description
c_username	String	Username of Child
measure_type	String	Type of Observation
measure1	String	Answer
measure2	String	Answer
measure3	String	Answer
measure4	String	Answer

Figure 4.9:   Design of SurveyMeasures Collection

Field	Type	Description
c_username	String	Username of Child
level_name	String	Game Level
score	Number	Total Score Gained

Figure 4.10:   Design of Gamescores Collection

Field	Type	Description
c_username	String	Username of Child
message	String	Consultation Tips

Figure 4.11:   Design of Messages Collection

4.8 Technologies used

4.8.1 Unity

Unity is a cross-platform game engine developed by Unity Technologies, first announced and released in June 2005 at Apple Inc. s Worldwide Developers Conference as an OS exclusive game engine. As of 2018, the engine has been extended to support 27 platforms. The engine can be used to create both three-dimensional and two-dimensional games as well as simulations for its many platforms. Several major versions of Unity have been released since its launch, with the latest stable version being Unity 2018.3, released on December 13, 2018.

- 2D: [Experimental] Added experimental API to support Sprite animation.

- 2D: [Experimental] Added the ability for you to add functionality for Sprite editing in the Sprite Editor Window.

- Android: Added a new interface, IPostGenerateGradleAndroidProject, with a callback that Unity calls after it generates the Android Gradle project, but before it builds it.

- Android: Added a new setting, Sustained Performance Mode, which sets a predictable, consistent level of device performance over longer periods of time without thermal throttling.

- Android: Added ARM64 (also known as AArch64) experimental support.

- Animation: Added Position Constraint, Rotation Constraint and Scale Constraint components.

- Also see" Constraint Creation" and" Constraint Activation" items.

- Animation: Added new Parent Constraint component.

- Multisource Animation

4.8.2 C# and its features

Unity is a native C++-based game engine. We write code in C, JavaScript (UnityScript) or, less frequently, Boo. We edit our code in Unity by double- clicking on a code

file in the project view, which opens the default cross- platform editor, MonoDevelop. We can configure Visual Studio as your editor. The first version was released in 2001. The most recent version is C 7.0, which was released in March 2017. C is a modern language. C's development team is led by Anders Hejlsberg, the creator of Delphi. The C in unity is regular C, just like we learn when studying for our MCPD. ... While we can use Visual Studio for editing and scanning for compile-time errors, you have to actually build run in the Unity IDE.

4.8.3   MongoDB

MongoDB is a cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON -like documents with schemata. MongoDB is developed by MongoDB Inc.and licensed under the Server Side Public License (SSPL).

− Adhoc queries

  MongoDB supports field, range query, and regular expression searches. Queries can return specific fields of documents and also include user- defined JavaScript functions. Queries can also be configured to return a random sample of results of a given size.

− Indexing

  Fields in a MongoDB document can be indexed with primary and secondary indices.

− Replication

  MongoDB provides high availability with replica sets.A replica set consists of two or more copies of the data. Each replica set member may act in the role of primary or secondary replica at any time. All writes and reads are done on the primary replica by default. Secondary replicas maintain a copy of the data of the primary using built-in replication. When a primary replica fails, the replica set automatically conducts an election process to determine which secondary should become the primary. Secondaries can optionally serve read operations, but that data is only eventually consistent by default.

− Load balancing

  MongoDB scales horizontally using sharding. The user chooses a shard key, which

determines how the data in a collection will be distributed. The data is split into ranges (based on the shard key) and distributed across multiple shards. (A shard is a master with one or more slaves.). Alternatively, the shard key can be hashed to map to a shard – enabling an even data distribution. MongoDB can run over multiple servers, balancing the load or duplicating data to keep the system up and running in case of hardware failure.

– File storage

MongoDB can be used as a file system, called GridFS, with load balancing and data replication features over multiple machines for storing files. This function, called grid file systemis included with MongoDB drivers. MongoDB exposes functions for file manipulation and content to developers. GridFS can be accessed using mongofiles utility or plugins for Nginx and lighttpd GridFS divides a file into parts, or chunks, and stores each of those chunks as a separate document. end

4.9   Implementation

4.9.1   Pseudocode-Child Registration

BEGIN

DECLARE username1, password1, password2, childName, childGender, dob, height, weight, observationType, fatherName, fatherOccupation, motherName, motherOccupation, contactNumber, email, doctorName

Entering the data into the fields using GameObject object type:

GameObject InputField = GameObject.Find("username")

username1=InputField.GetComponent.UnityEngine.UI.InputField().text

GameObject InputField2 = GameObject.Find("password")

password1=InputField2.GetComponentUnityEngine.UI.InputField().text

GameObject InputField3 = GameObject.Find("confirmPassword")

password2=InputField3.GetComponentUnityEngine.

UI.InputField().text

childName = GameObject.Find("childName").GetComponent.UnityEngine.UI.

InputField().text

Adding the form fields into the scene:

form.AddField("username", username1)

form.AddField("password", password1)

form.AddField("childName", childName)

IF www.isNetworkError ||www.isHttpError

Debug.Log(www.error)

ELSE

DisplayDialog("Success","Your Registration is Complete" , "Ok")

THEN SceneManager.LoadScene("login")

Debug.Log("Form upload complete!")

END IF

END

4.9.2   Pseudocode-Home Page

BEGIN

Loading the Parent Home page:

SceneManager.LoadScene("login")

Loading the Doctor Home page:

SceneManager.LoadScene("dr_login")

END

4.9.3   Pseudocode-Parent Home

BEGIN

Loading the help instructions:

SceneManager.LoadScene("helpMain")

Loading the surveys:

SceneManager.LoadScene("emotions")

Loading the Games:

SceneManager.LoadScene("level01")

SceneManager.LoadScene("level03")

END

4.9.4   Pseudocode-Surveys

BEGIN

DECLARE frustration,aches,resisting

UnityEngine.SceneManagement.SceneManager.LoadScene("parentHome")

Calling the function BackButton()

frustration = GameObject.Find("GameObject").GetComponent.UnityEngine.UI.

ToggleGroup().ActiveToggles().FirstOrDefault().GetComponentInChildren.text

aches = GameObject.Find("GameObject (1)").GetComponent.UnityEngine.UI.

ToggleGroup().ActiveToggles().FirstOrDefault().GetComponentI

Adding the entries to the Message collection:

form.AddField("username", session.userName)

form.AddField("type", "emotion")

form.AddField("frustration", frustration)

form.AddField("aches", aches)

IF (www.isNetworkError ||www.isHttpError)

Debug.Log(www.error)

ELSE

EditorUtility.DisplayDialog("Success", "Your Recordings has been saved", "Ok")   SceneManager.LoadScene("listening")

Debug.Log("username=" + frustration)

END IF

END

4.9.5 Pseudocode-Game Score Calculation

BEGIN

DECLARE imgscore=0,i=0,name

Add the images in Texture2D:

images.add("CAT")

images.add("elephant")

Add the options:

options.Add(new List ¡string¿ "DOG","CAT","SQUIRREL","RAT")

options.Add(new List ¡string¿ "ELEPHANT","DOG","FISH","SHARK")

myTexture=Resources.load("CAT") as Texture2D

Calculate the scores:

IF i <= images.count

int no = int.Parse(name)

IF (options[i][no - 1].ToLower() == images[i].ToLower().ToLower())

Debug.Log("corrrect")

imgscore = imgscore + 10

ELSE

Debug.Log("Wrong" + options[i][no - 1] + images[i])

i = i + 1;

END IF

END IF

IF(i <images.Count)

    myTexture = Resources.Load(images[i]) as Texture2D

    GameObject rawImage = GameObject.Find("RawImage")

    rawImage.GetComponent¡UnityEngine.UI.RawImage().texture = myTexture

    option_1.GetComponentInChildren<Text>().text = options[i][0]

    option_2.GetComponentInChildren<Text>().text = options[i][1]

END IF

Debug.Log("Game fininshed, Final score is " + imgscore);

END

Chapter 5

Testing

Software testing is a critical element of software quality assurance and represents ultimate review of specification, design and code generation. Once the source code has been generated the program should be executed before the customer gets it with the specific intend of finding and removing all errors, test must be conducted systematically and test must be designed using disciplined techniques.

5.1   Unit Testing

Unit testing is a level of software testing where individual units/ components of the software are tested. The purpose is to validate that each unit of the software performs as designed. In the proposed android application unit test is performed by tested individual components such as Registration,Home screen displays, 6 types of games, 6 types of surveys, sending messages etc separately and each module passes the test cases successfully. In each unit, its working is monitored so that it works safely and accurately. Thus we can monitor the working of each unit.

Unit Test Cases

Sl. No.	Procedure	Expected Result	Actual Result	Status
1.	Child Registration	Registration Successful	Child details gets saved and registered successfully	Pass
2.	Doctor Registration	Registration Successful	Doctor details gets saved and registered successfully	Pass
3.	Child/Parent Login	Login Successful	Seller logged in	Pass
4.	Doctor Login	Login Successful	Buyer logged in	Pass
5.	Play Game 1	Game 1 completed Successful	Game 1 completed Successfully	Pass
6.	Play Game 2	Game 2 completed Successful	Game 2 completed Successfully	Pass
7.	Play Game 3	Game 3 completed Successful	Game 3 completed Successfully	Pass
8.	Play Game 4	Game 4 completed Successful	Game 4 completed Successfully	Pass
9.	Play Game 5	Game 5 completed Successful	Game 5 completed Successfully	Pass
10.	Attend Surveys	Surveys Completed	Surveys Completed Successfully	Pass
11.	View Results	View Survey and Game Results	Survey and Game Results fetched successfully	Pass
12.	View Child Details	Child details fetched successfully	Child details fetched successfully	Pass
13.	Send Message to parent	Message sent successfully	Message sent successfully	Pass

Figure 5.1: Unit test cases and results

5.2 Integration Testing

Integration Test Cases

Test ID	Procedure	Test Case Description	Expected Result	Actual Result	Status
1.	Integrating login and registration module	Newer user can take part in system by use of the one-time registration process. And they can login to the system by use of the provided credentials.	Login and registration modules must work properly	Successful working of Login and Registration modules	Pass
2.	Integrating Survey and Results Module	Should possible to display all surveys results of that particular user.	Surveys results modules work properly	Successful working of Survey and Results modules	Pass
3.	Integrating Games and Results Module	Should possible to display all game results of that particular user..	Games result modules must work properly.	Successful working of Games and Results modules	Pass

Figure 5.2: Integration test cases and results

5.3 System Testing

System testing of software or hardware is testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. System testing falls within the scope of black-box testing, and as such, should require no knowledge of the inner design of the code or logic. As a rule, system testing takes, as its input, all of the "integrated" software components that have passed integration testing and also the software system itself integrated with any applicable hardware system(s). The purpose of integration testing is to detect any inconsistencies between the software units that are integrated together (called assemblages) or between any of the assemblages and the hardware. System testing is a more limited type of testing; it seeks to detect defects both within the "inter-assemblages" and also within the system as a whole.

Chapter 6

Results and Discussion

The end result as per this project is to present a screening test for children to measure their learning disabilities with a set of surveys regarding math and logic,writing proficiency,reading proficiency,emotions etc and five games checking the same.

1. Integrating Login and Registration

   – One-time registration.

   – Child and doctor details gets saved and registered successfully.

   – Child and doctor logged successfully.

2. Integrating surveys and results

   – Successful working of surveys and results.

   – Forwarding the results to the doctor.

3. Integrating games and results

   – Successful working of surveys and results.

   – Forwarding the results to the doctor.

Figure 6.1:   Home Page

Figure 6.2:   Parent login

Figure 6.3: Child registration

Figure 6.4: Doctor registration

Figure 6.5: Parent home
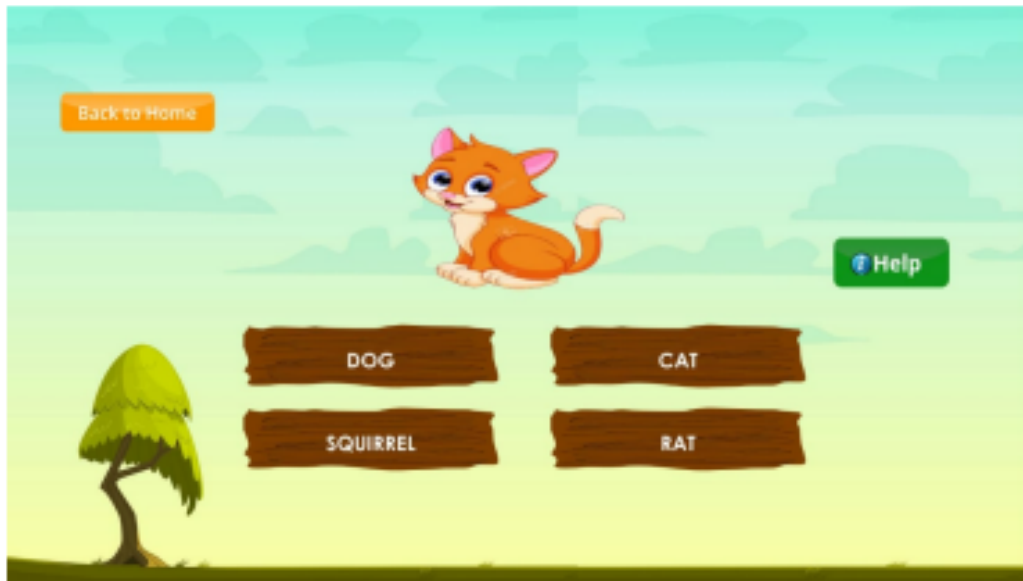

Figure 6.6: Sample Survey
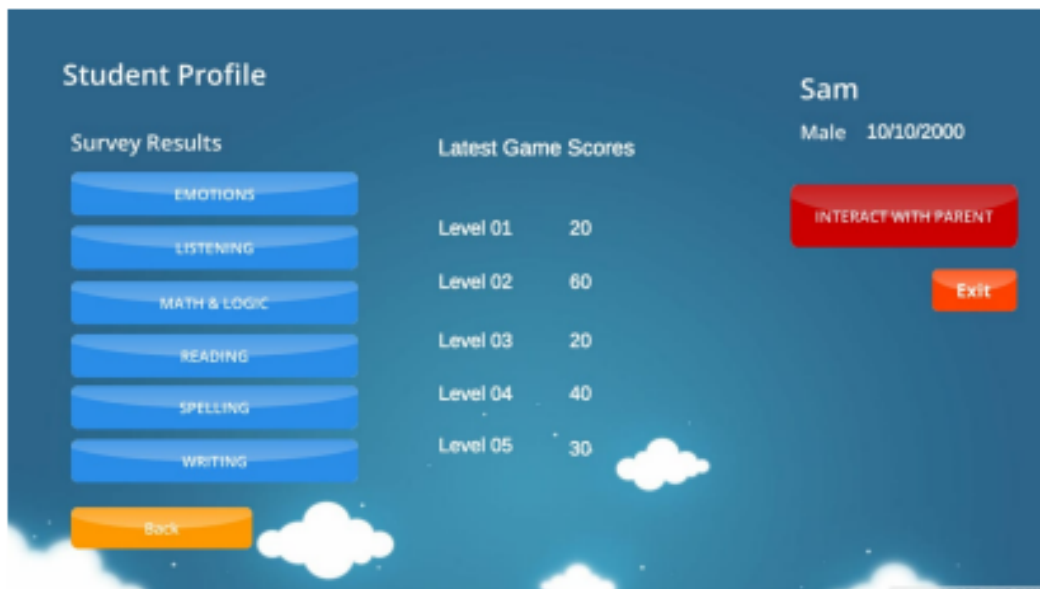
Figure 6.7: Sample game

Figure 6.8: View Results-Doctor home

Chapter 7

Conclusion and Future Work

7.1   Conclusion

Ayudar is a mobile application which can be used to detect learning disabilities in children and provide further assistance in their treatment. The parents may find difficult to find out disability in the earlier stage of their children.so this application will be helpful to overcome this difficulty. So the parents can identify learning disabilities in their children and can be diagnosed in the early stage itself. The proposed system is a mobile based system which can be accessed by user from anywhere around the world. The users can register with basic personal details about them and then provide the application for their children to perform the games. And also parents are given a survey to identify whether their children have anxiety and depression syndromes, communication problems as well as problems while doing mathematical operations. The games provided in the application are based on disabilities such as Dyslexia, Dyscalculia, Dysgraphia etc.. The results of the games and the survey are then forwarded into a particular doctor they chose at the time of registration. They will assist the children to their nearby hospital for better treatment.

7.2 Future Work

With the help of Ayudar App, parents can easily detect whether their child has any kind of learning disability or not. Also it is very helpful to doctors as it is more user friendly and more effective than traditional questionnaires that were used for learning disability screening of children. In this Covid 19 pandemic situation, it is important to maintain social distancing and as well as stay at home. Since this application is online, it can be accessed form anywhere in the world without an actual interaction. So this application has a great scope in the current scenario. As a future work we can include more dynamic and more interactive games in the application. We can add random games which will change the problems by time and that's how we can implement a continuous development for the child in the future. The doctors can even checks the disabilities of the children by allotting time slot for each child and make them conduct surveys and games accordingly. The application can even include many more modules on behalf of the further treatment.

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