2023

SOFTWARE REQUIREMENT SPECIFICATION [SRS] OF DyslexiaAid

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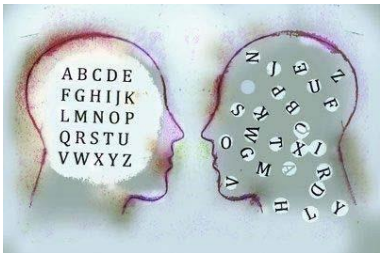
I. Introduction

Dyslexia is a learning disorder that affects reading, spelling, writing, and sometimes speaking [1]. It is a neurological disorder that is caused by a difference in the way the brain processes language. People with dyslexia have normal intelligence, but they may have difficulty connecting the letters they see to the sounds those letters make. This can make reading and writing difficult and frustrating.

Our educational software application is designed to address this need, providing dyslexic children with a supportive and engaging learning environment.



1.1 Purpose

DyslexiaAid is an educational software designed to support dyslexic children by providing an engaging and accessible learning environment. It incorporates features such as alphabet tracing with audio support, quizzes, and progress monitoring. The software utilizes technologies like text-to-speech and speech-to-text to assist with reading and writing challenges. It emphasizes user-friendly design, collaboration among teachers, doctors, and parents, and ensures data security through rigorous testing and quality assurance[2]. The goal is to enhance the educational experience and progress of dyslexic children.

1.2 Intended Audience and Intended Use

Intended Audience:

The intended audience for DyslexiaAid includes dyslexic children, teachers, parents, and doctors. Dyslexic children benefit from tailored educational content, while teachers guide their learning and monitor progress. Parents actively engage with progress reports, and doctors use the software for specialized advice on a child's development[3].

Intended Use:

DyslexiaAid aims to provide an interactive and supportive learning environment for dyslexic children, incorporating assistive technologies, fostering collaboration among stakeholders, and ensuring data security.

1.3 Scope

The scope of DyslexiaAid encompasses the development and implementation of an educational software application tailored to the unique needs of dyslexic children. Key components of the scope include:

- **Holistic Learning:** Comprehensive focus on reading, spelling, and writing skills.
- **Accessibility:** User-friendly design for effective engagement.
- **Technological Support:** Integration of assertive technologies (text-to-speech, speech-to-text).
- **Structured Learning:** Organized courses and lessons for a clear learning path.
- **Data Security:** Robust measures for confidentiality and safety.
- **User Roles:** Defined roles and permissions for effective participation.
- **Quizzes and Assessments:** Evaluation of understanding through various question formats.
- **Progress Monitoring:** Tools for parents, teachers, and doctors to monitor a child's progress.
- **Testing and Quality Assurance:** Rigorous testing for error-free performance.

1.4 Document Conventions

1	**Convention**	**Meaning**
2.	SRS	Software Requirements Specifications
3.	TTS	Text To Speech
4.	STT	Speech To Speech
5.	Bold	Sub heading points
6.	Italics	References
7.	Font: 16	Main Headings
6.	Font: 14	Sub-Headings
7.	Font: 12	Paragraph Writing

1.5 References

[1] Jane A. Miller
(2015). "Understanding Dyslexia: A Comprehensive Case Study Analysis."Doctoral dissertation, Department of Education, University of Cityville, Cityville, USA.

[2] Dylan C. Richards
(2017). "Effective Interventions for Adolescent Dyslexia: A Longitudinal Study."
Published in the Journal of Learning Disabilities, 42(3), 215-230.

[3] Ethan R. Chang
(2018). "Exploring Multisensory Approaches in Dyslexia Education: A Comparative Case Analysis."
Presented at the International Conference on Learning Disabilities, Sydney, Australia.

[5] https://www.behance.net/gallery/120570291/Kidzoo-App

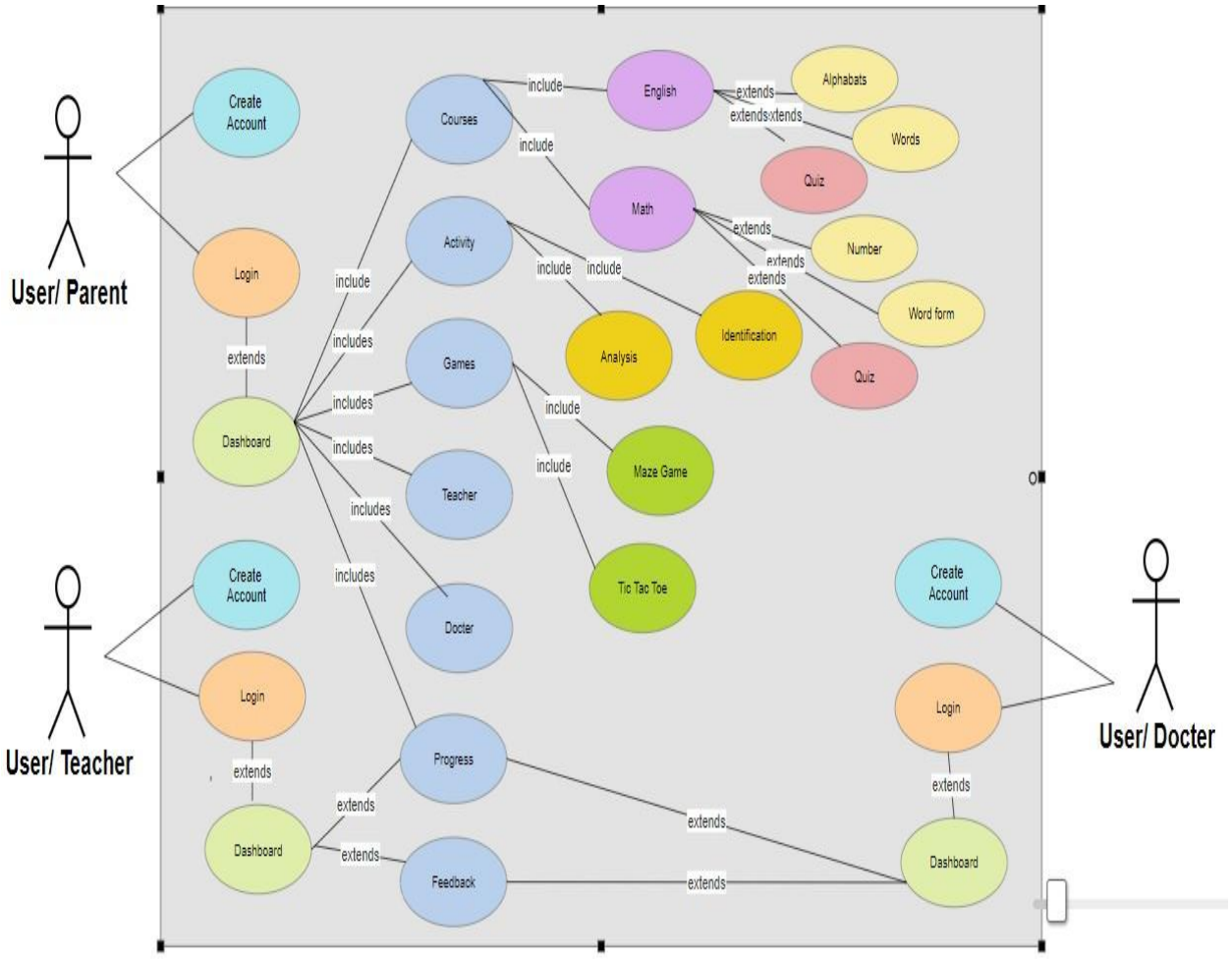
[6] https://www.youtube.com/watch?v=RaS2jRSphGY&t=1s

[7] https://dribbble.com/shots/15500536-Kids-Education-Mobile-Apps

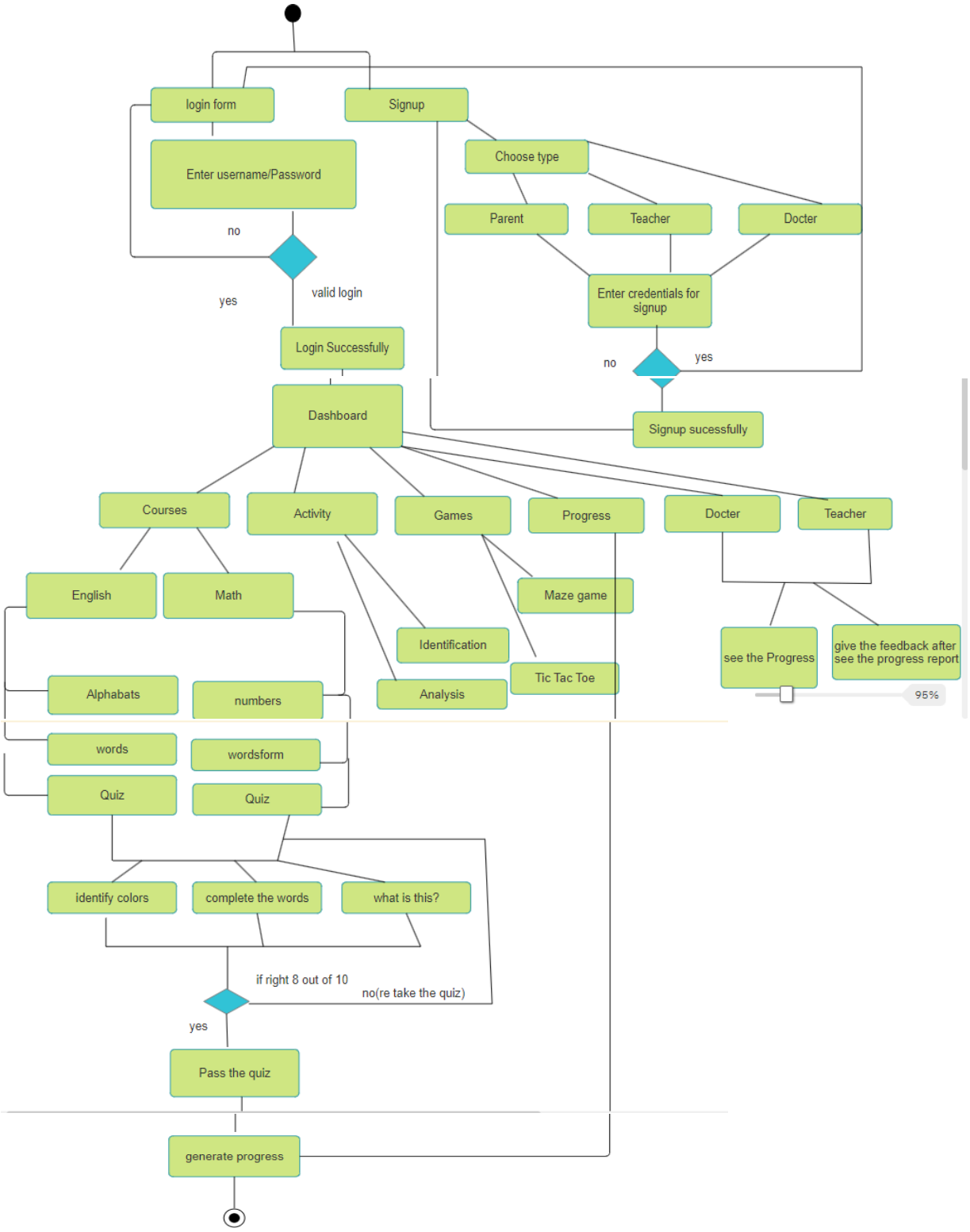
2 Overall Description

DyslexiaAid is an educational software designed for dyslexic children, teachers, parents, and doctors. It provides a comprehensive and user-friendly learning experience, incorporating assistive technologies, collaboration tools, and progress monitoring features. The software ensures data security, offers structured courses, and functions seamlessly online and offline, contributing to a supportive environment for dyslexic children's education.

2.1 Use Case Diagram



2.2 ActivityDiagram



3 System Features and Requirement

3.1 Functional Requirement:

I. User Registration and Authentication:

Actor: New User

Scenario:

- User accesses DyslexiaAid for the first time.
- User provides necessary information for registration.
- System validates information and creates a new user account.
- User logs in with registered credentials.

II. Alphabet Tracing with Audio Support:

Actor: Dyslexic Child

Scenario:

- Dyslexic child selects the alphabet tracing feature.
- System displays the selected alphabet for tracing.
- Child traces the alphabet on the screen with guidance from audio instructions.
- System provides feedback on tracing accuracy.

III. Quizzes:

Actor: Dyslexic Child

Scenario:

- Dyslexic child selects the quiz feature.
- System presents a set of multiple choice, true/false, or short answer questions.
- Child answers the questions, and the system provides immediate feedback.
- Results are stored for progress tracking.

IV. Course-Level Structure:

Actor: Dyslexic Child

Scenario:

- Dyslexic child navigates through the course structure.
- System displays lessons within a course.
- Child marks completion of each lesson, and progress is tracked.

V. Progress Monitoring Tools:

Actors: Parents, Teachers, Doctors

Scenario:

- Parents view progress reports and task completion statistics.
- Teachers monitor student progress and provide targeted guidance.
- Doctors analyze developmental data and offer specialized advice.

VI. Text-to-Speech (TTS):

Actor: Dyslexic Child

Scenario:

- Dyslexic child selects the TTS feature while reading.
- System converts written text into audible speech, aiding comprehension.

VII. Speech-to-Text (STT):

Actor: Dyslexic Child

Scenario:

- Dyslexic child selects the STT feature for writing.
- System converts spoken words into written text, assisting in writing tasks.

3.2 Non-Functional Requirement:

i **User-Friendly Design:**

The user interface must be designed with dyslexic accessibility in mind, incorporating suitable fonts, high contrast, and intuitive navigation to enhance user experience.

ii **Fast Response Times:**

The system should respond to user interactions promptly to maintain engagement, with response times kept within acceptable limits.

iii **Scalability:**

The software architecture should be designed to accommodate a growing user base and increasing data volume without compromising performance.

iv **Reliability:**

The software must exhibit high reliability, minimizing system downtimes, crashes, or errors during usage.

v **Data Backup:**

Regular automated data backups should be performed, and a robust recovery mechanism should be in place to safeguard against data loss.

vi **Testing and Quality Assurance:**

Rigorous testing practices, including unit testing, integration testing, and user acceptance testing, must be employed to ensure the software's functionality and performance.

vii **Documentation:**

Comprehensive documentation, including user manuals and technical documentation, should be provided to assist users, administrators, and developers.

viii **Training Support:**

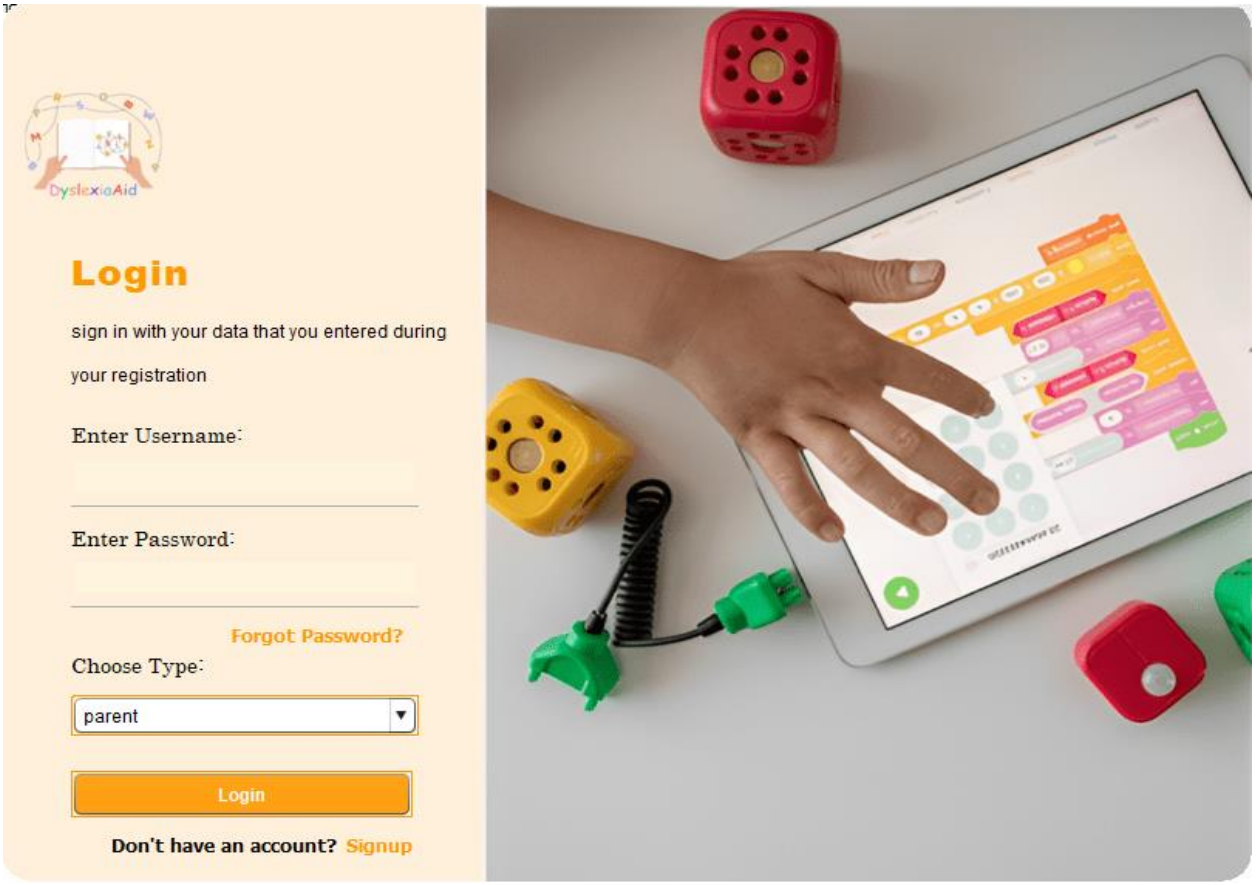
Support materials and resources, such as tutorials or guides, should be available to assist users, particularly teachers and parents, in effectively utilizing DyslexiaAid.

ix **Audit Trails:**

The system should maintain audit trails to log important events and actions, aiding in monitoring and troubleshooting.

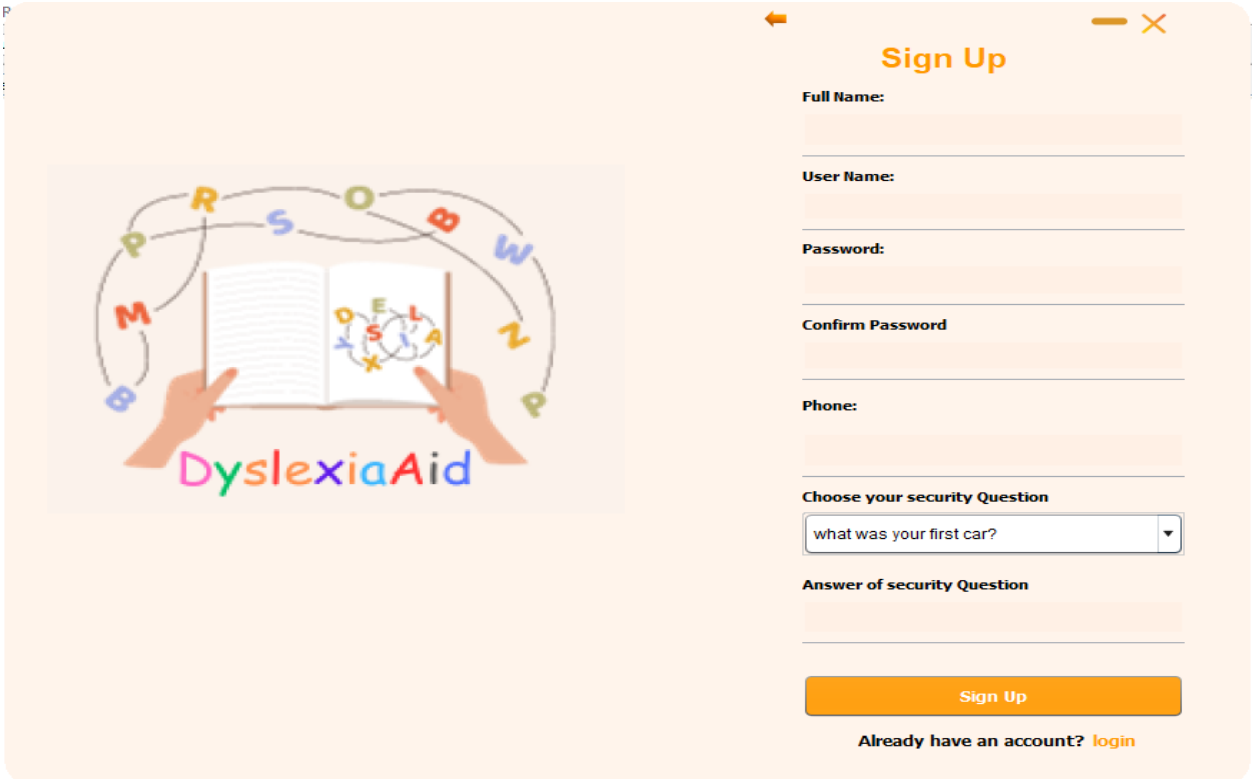
3.3 System Interfaces

1. Login Interface

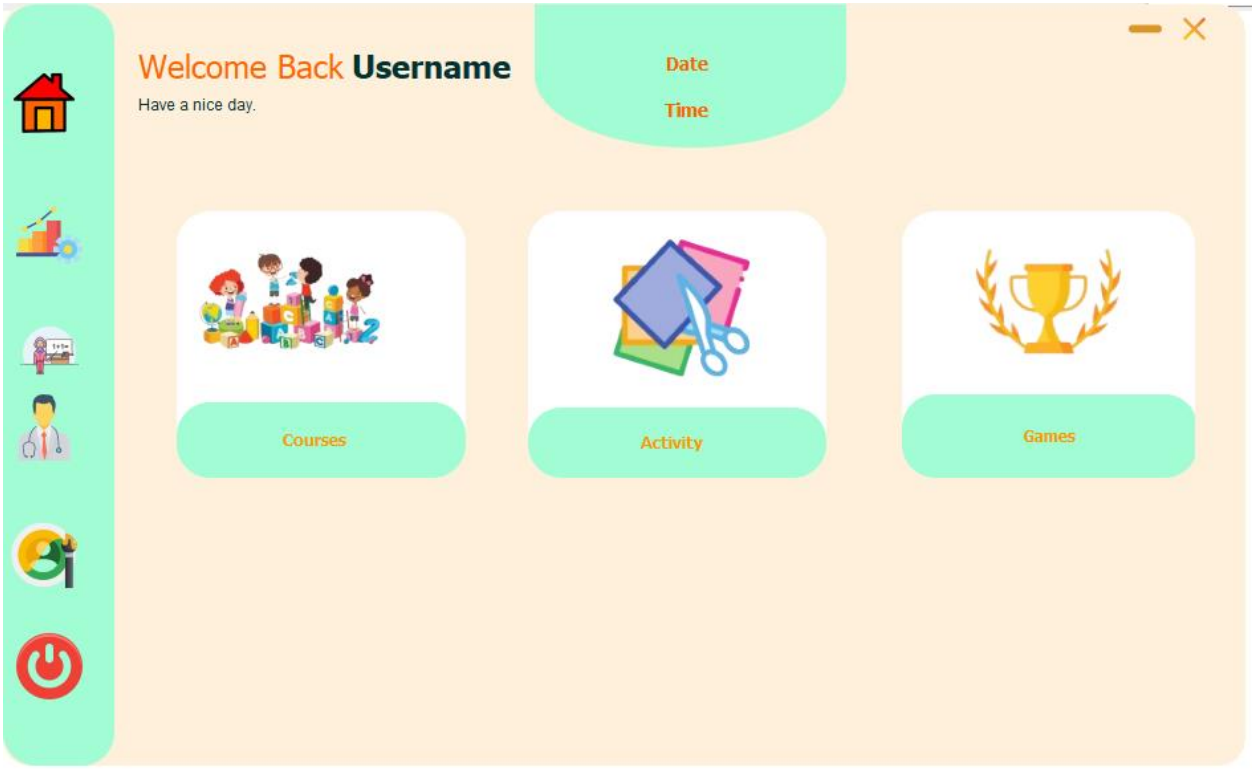


2. Choose Signup Type

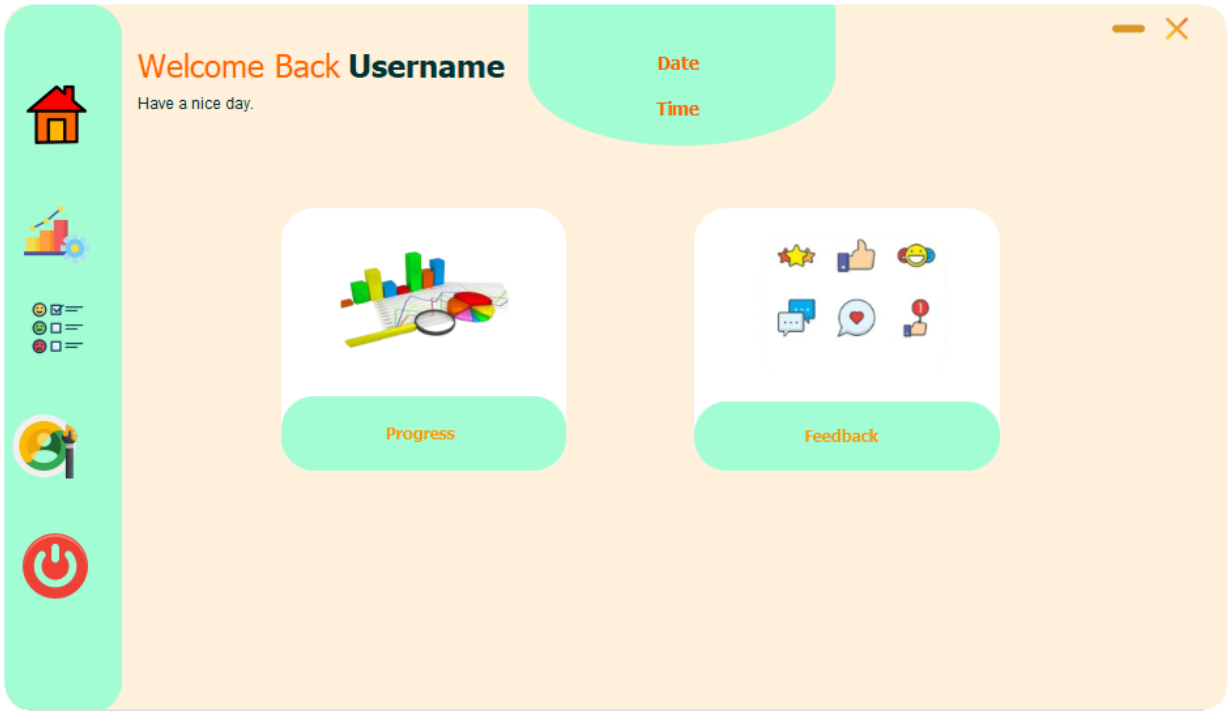
3. Signup Interface



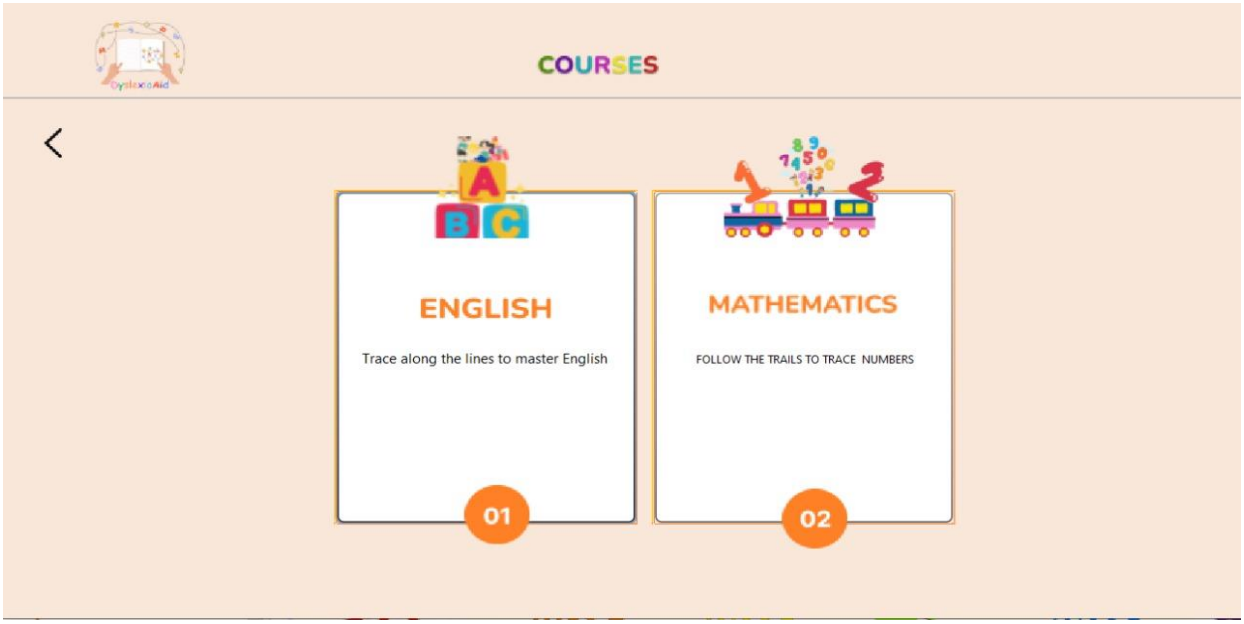
4. Parent Dashboard



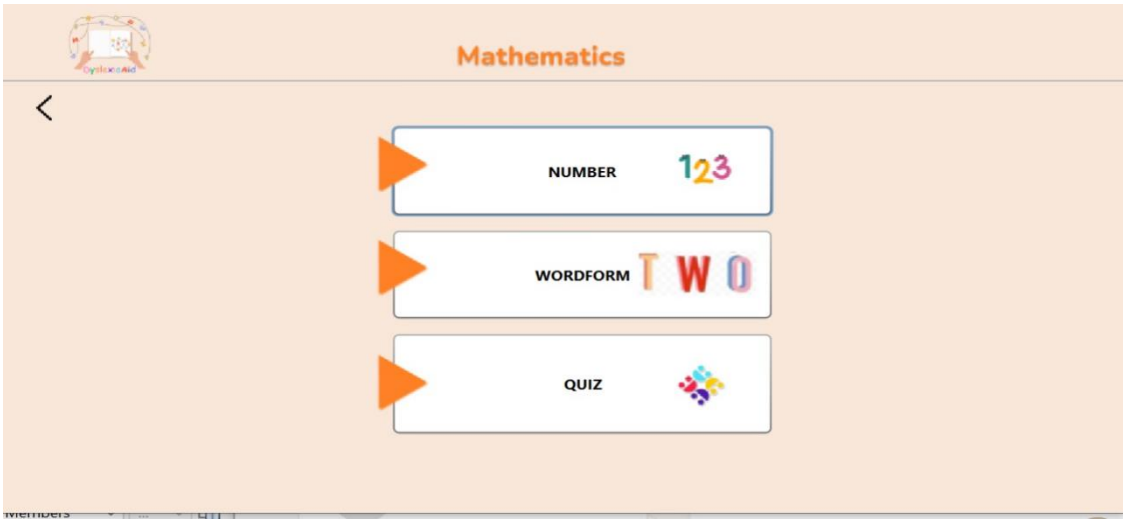
5. Teacher Dashboard and Docter Dashboard



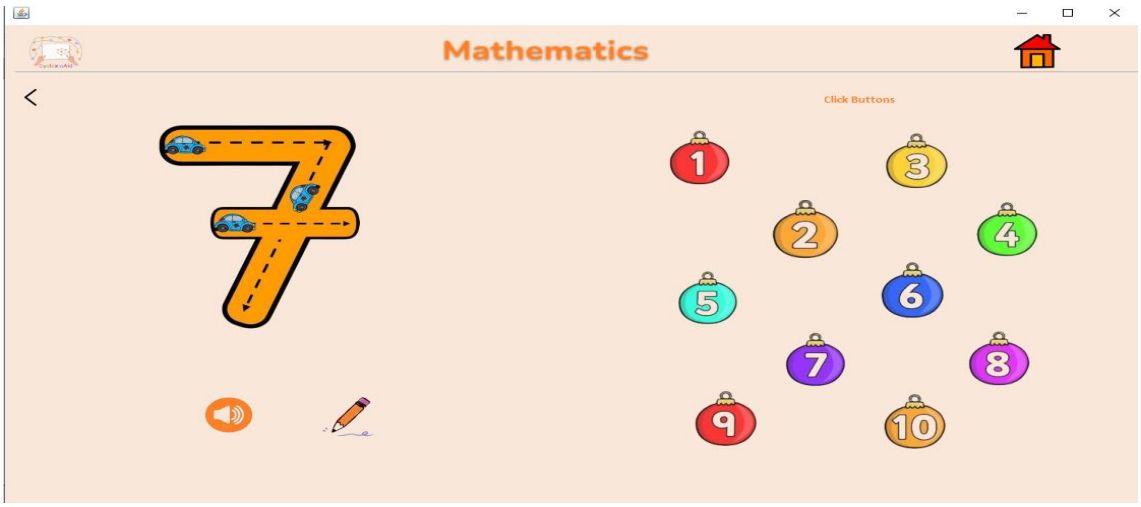
6. Courses Interface



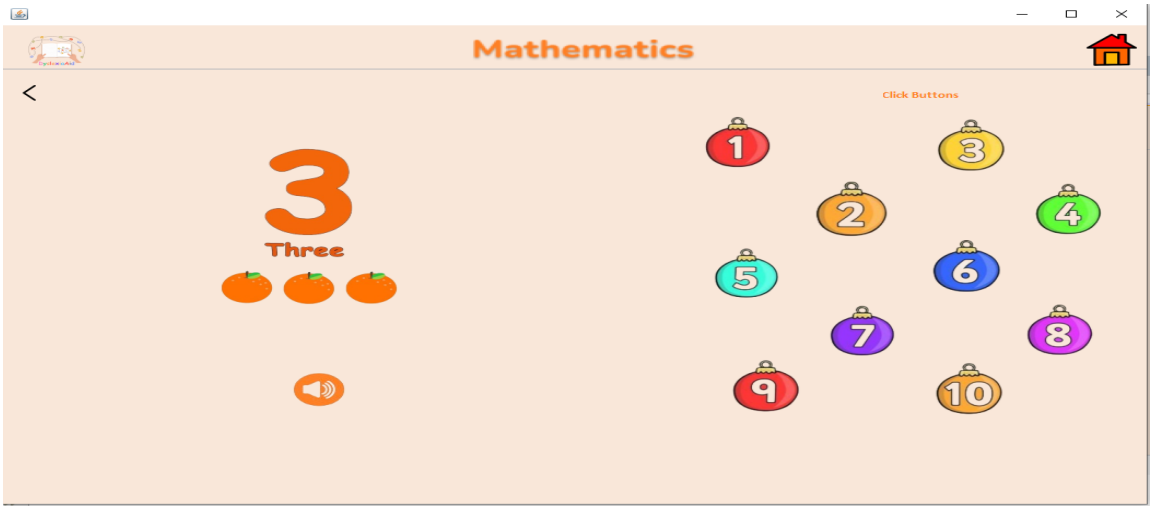
Math:



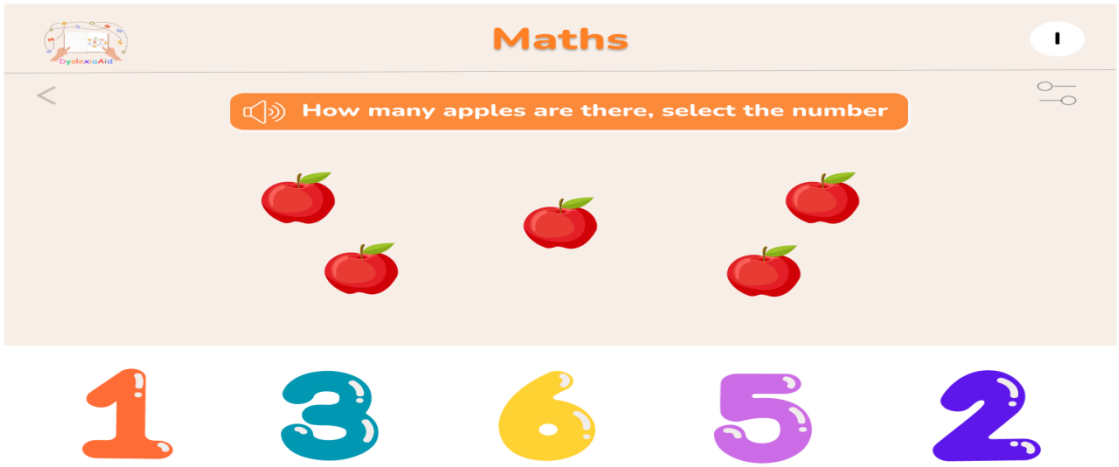
Numbers:

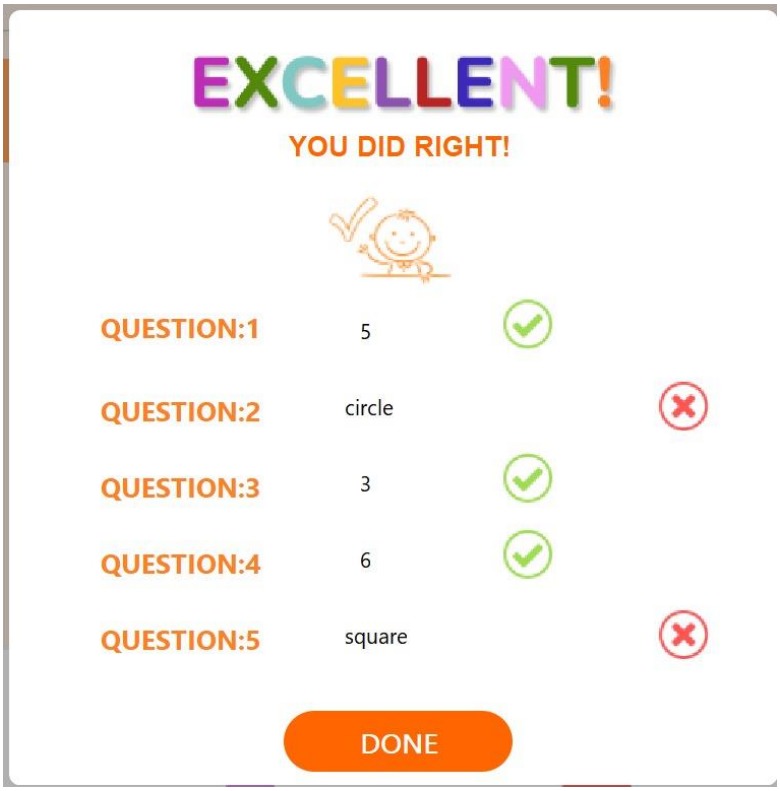


Wordform:

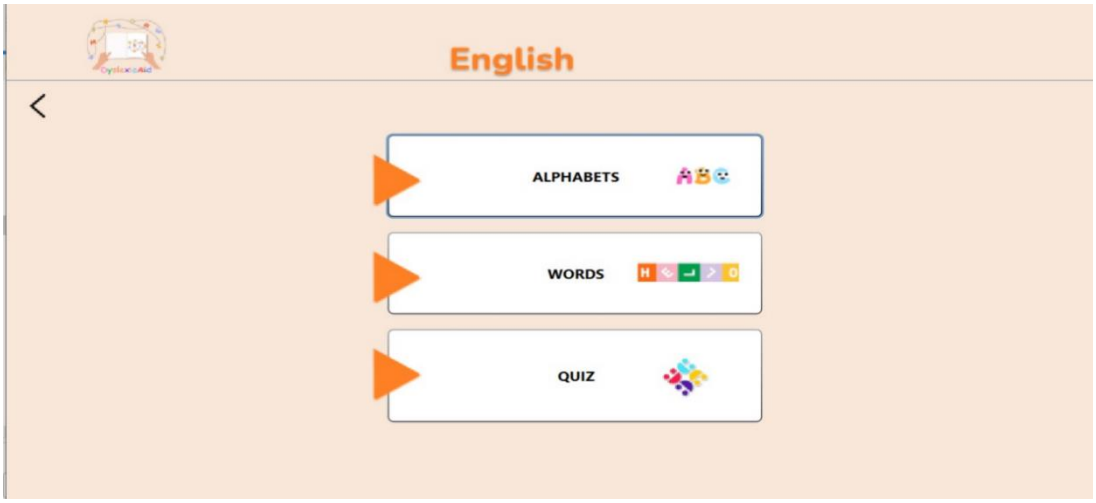


Quiz:
Counting apples:

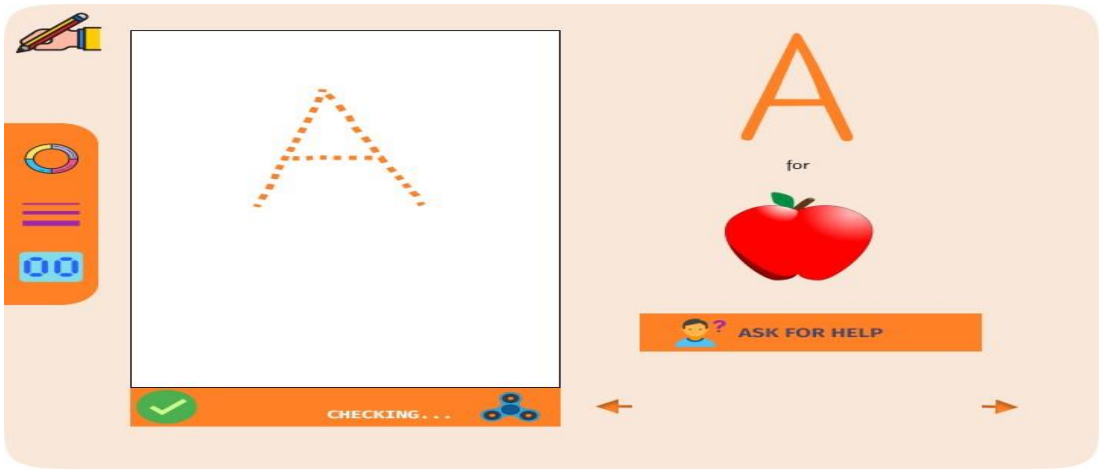


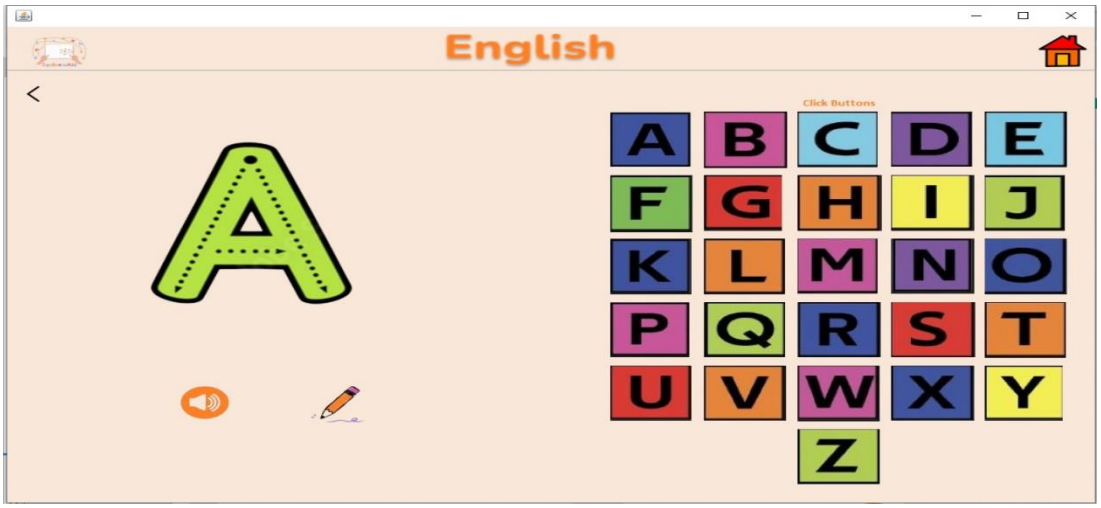


English:

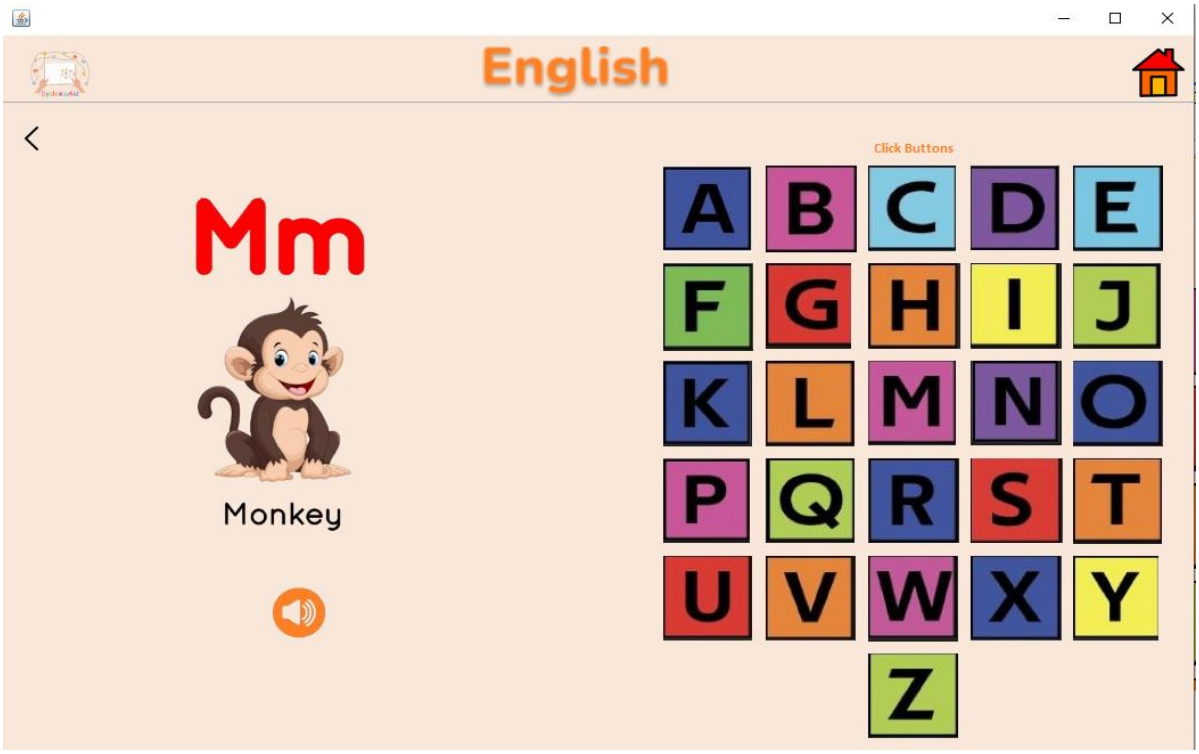


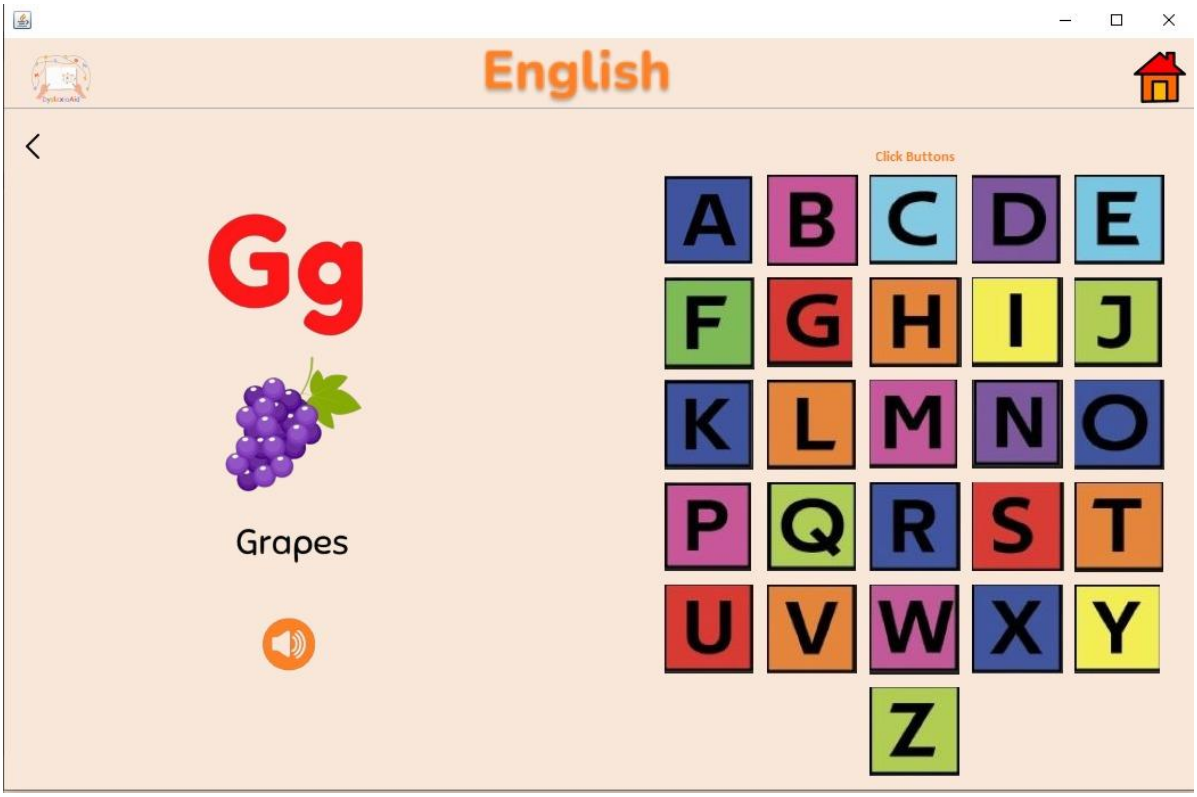
Alphabets:





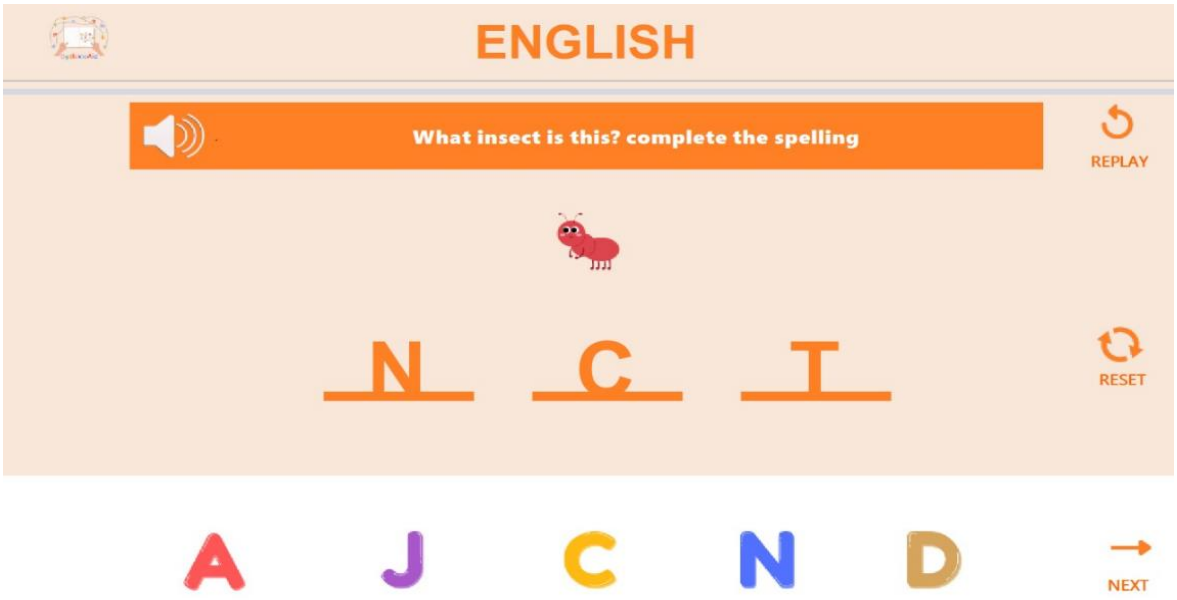
Words:

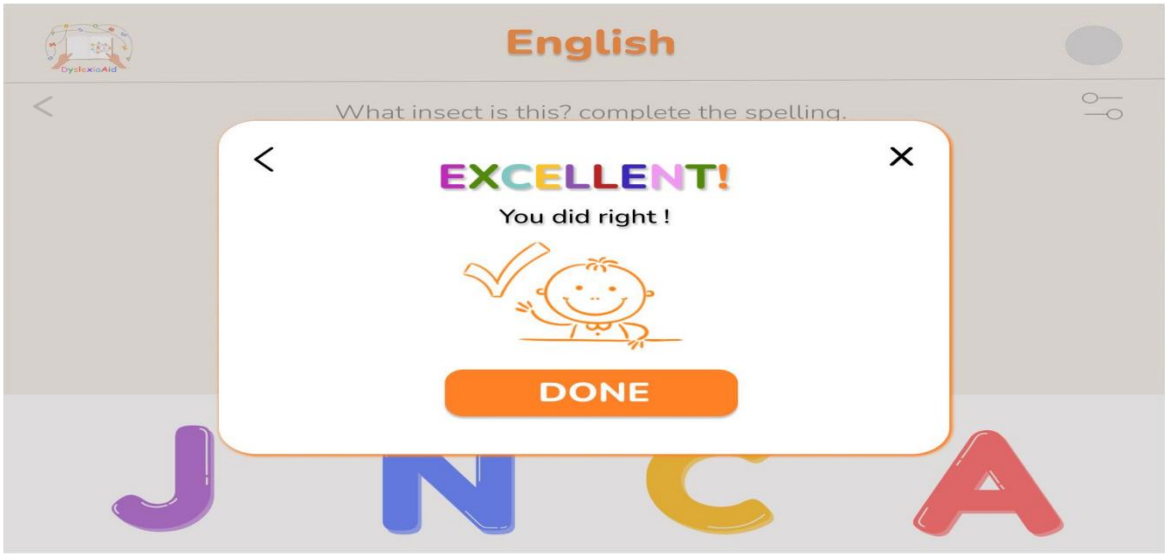

English
Click Buttons
Mm
Monkey
A B C D E
F G H I J
K L M N O
P Q R S T
U V W X Y
Z


English
Click Buttons
Gg
Grapes
A B C D E
F G H I J
K L M N O
P Q R S T
U V W X Y
Z

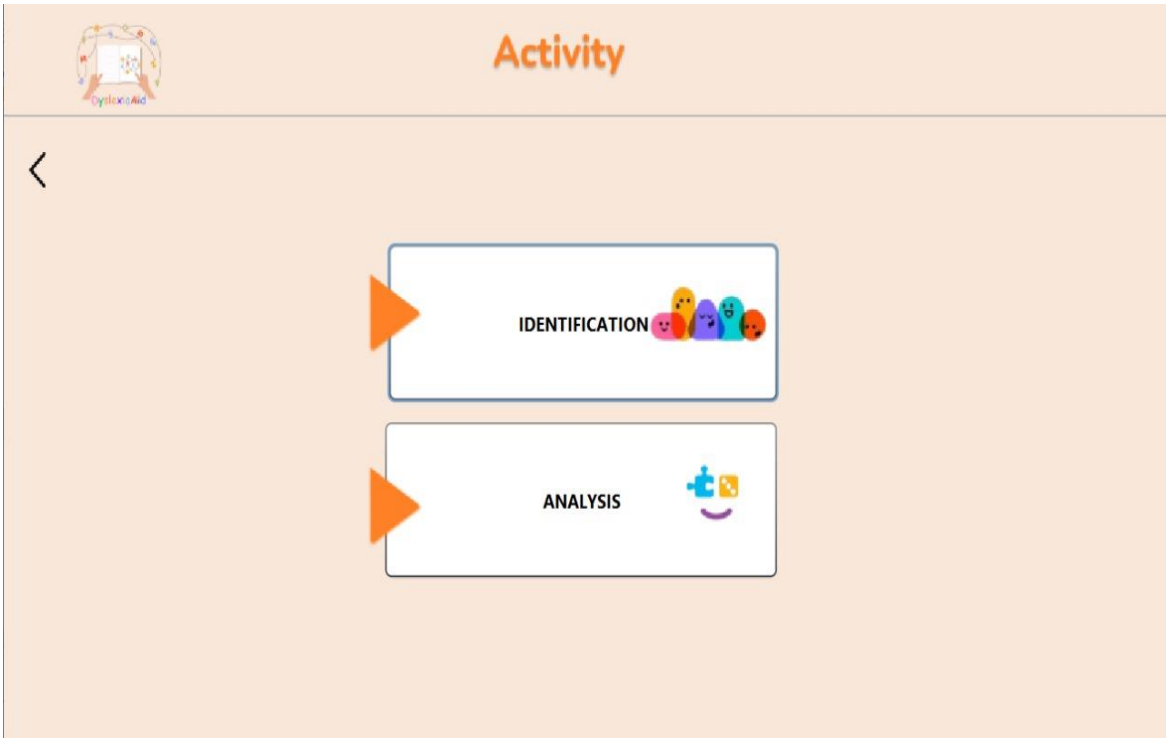
Quiz :

Complete animal name





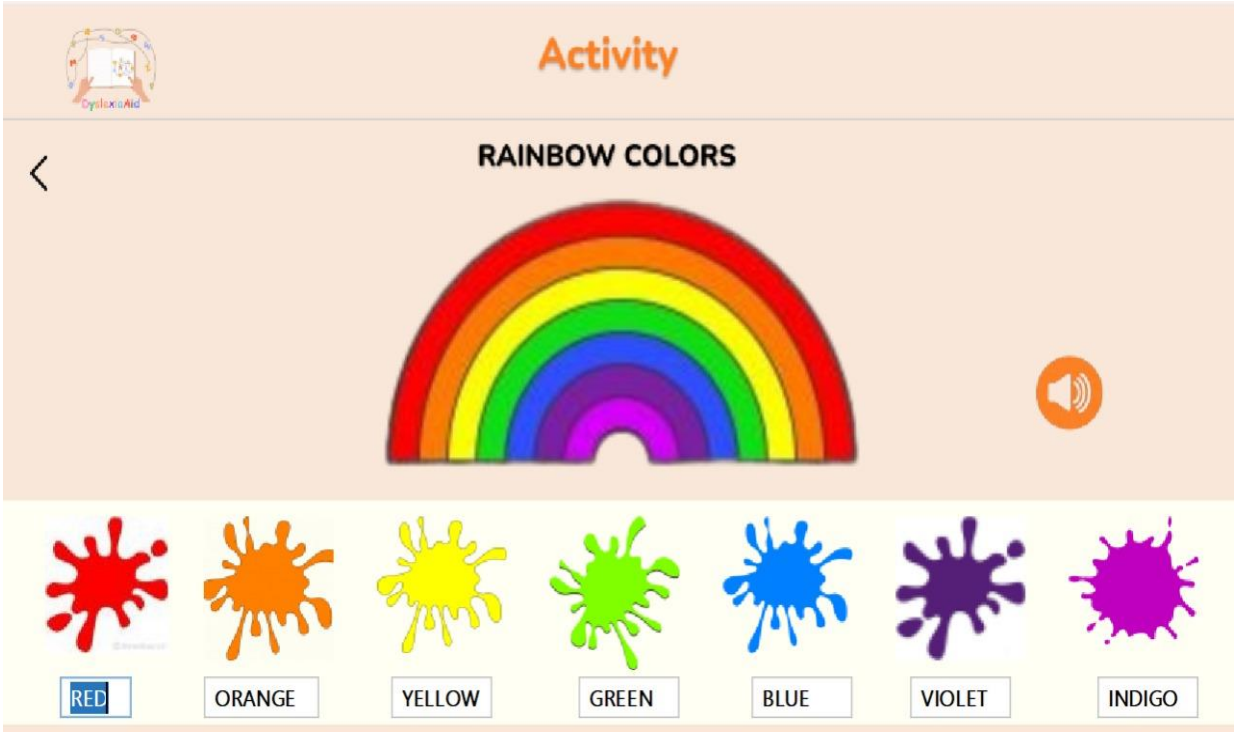
7. Activity Interface



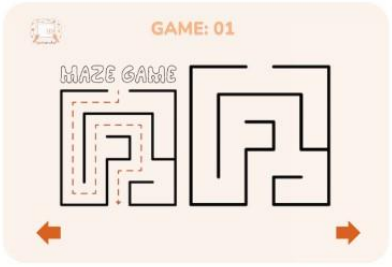
Identification

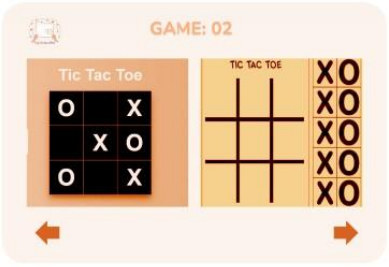
Activity
FRUITS
MANGO

Analysis

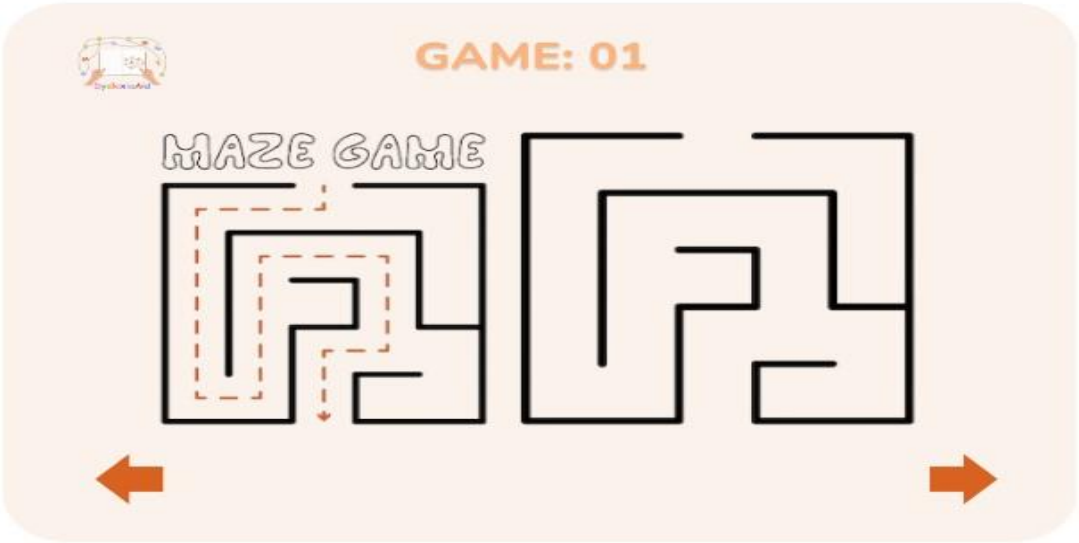

Activity
RAINBOW COLORS
RED
ORANGE
YELLOW
GREEN
BLUE
VIOLET
INDIGO

8. Game Interface

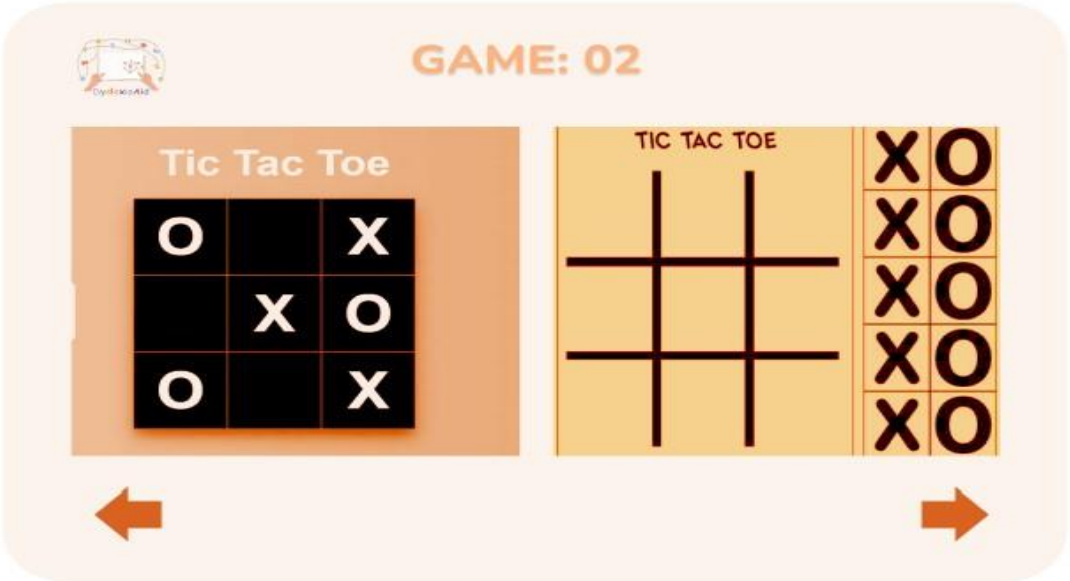




Game 1:

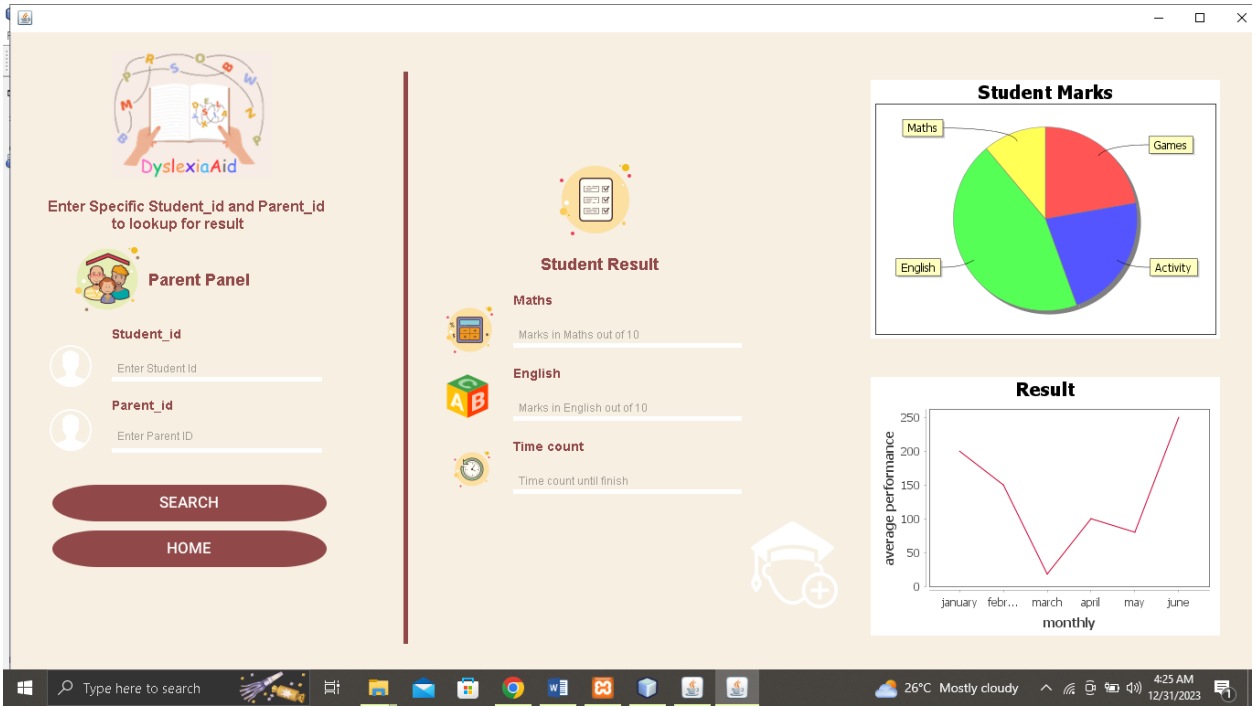


Game 2:

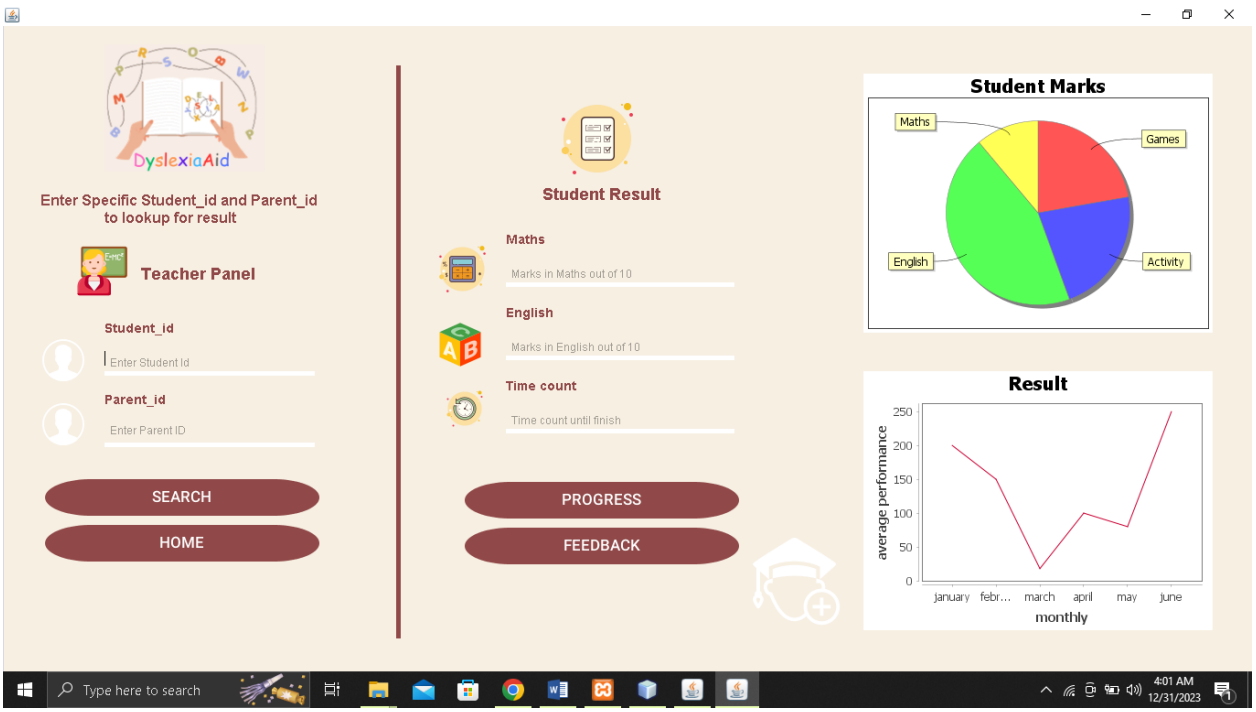


9. Progress Interface

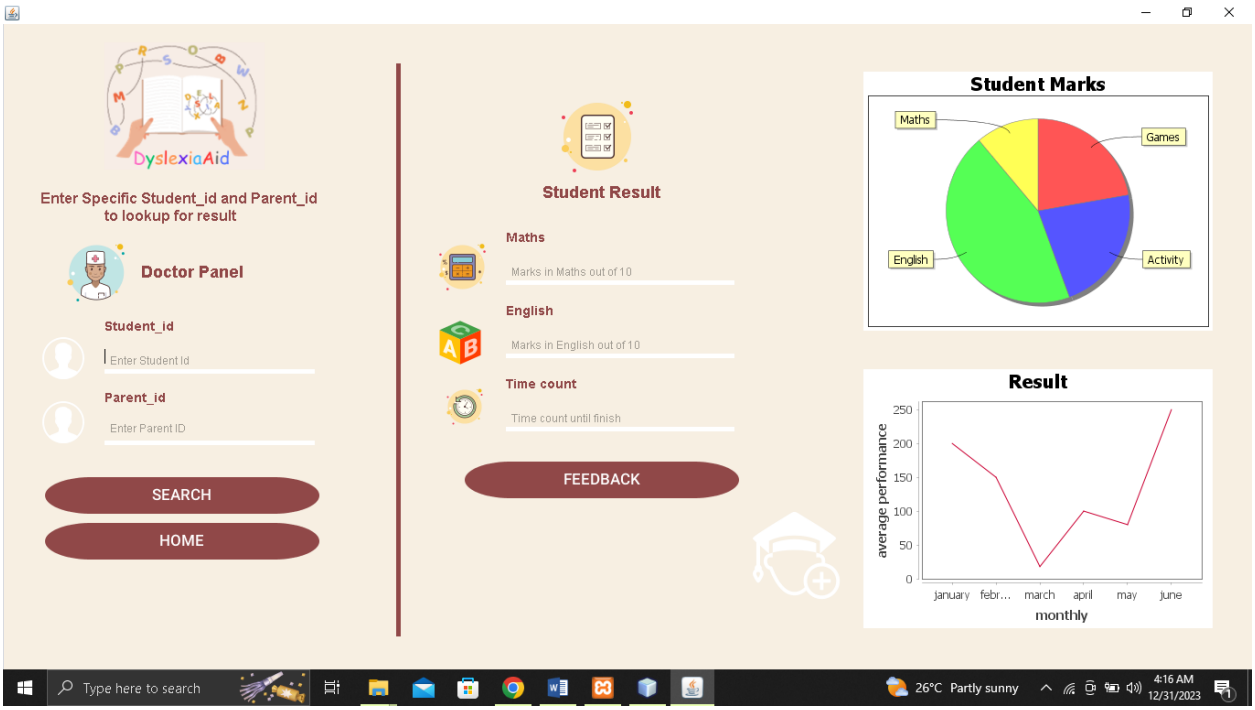
Parent panel:



Teacher Panel:



Docter Panel:



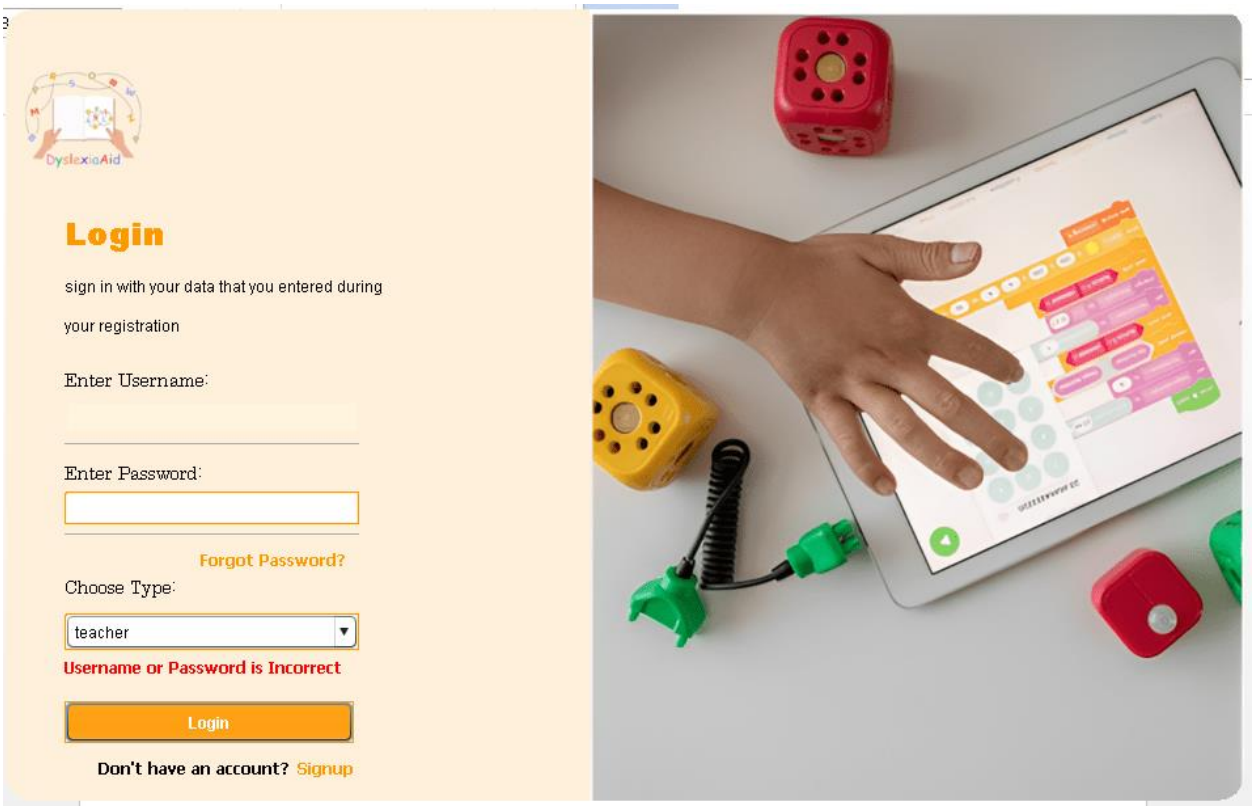
4 Risk Table

Risk Description	Likelihood(L)	*Impact(I)*	*Risk Level(L*I)*	*Mitigation Strategy*
System Downtime	low	high	Low-medium	Implement redundant servers and a robust backup system.
Low User Adoption	medium	medium	medium	Conduct user training programs and gather feedback for improvements.
Lack of User Engagement	medium	medium	medium	Introduce gamified elements, rewards, and interactive features.
Inadequate Testing	low	high	Low-medium	Implement rigorous testing procedures, including user acceptance testing.
Dependency on Third-Party Services	medium	medium	medium	Have backup plans and alternative providers for critical services.

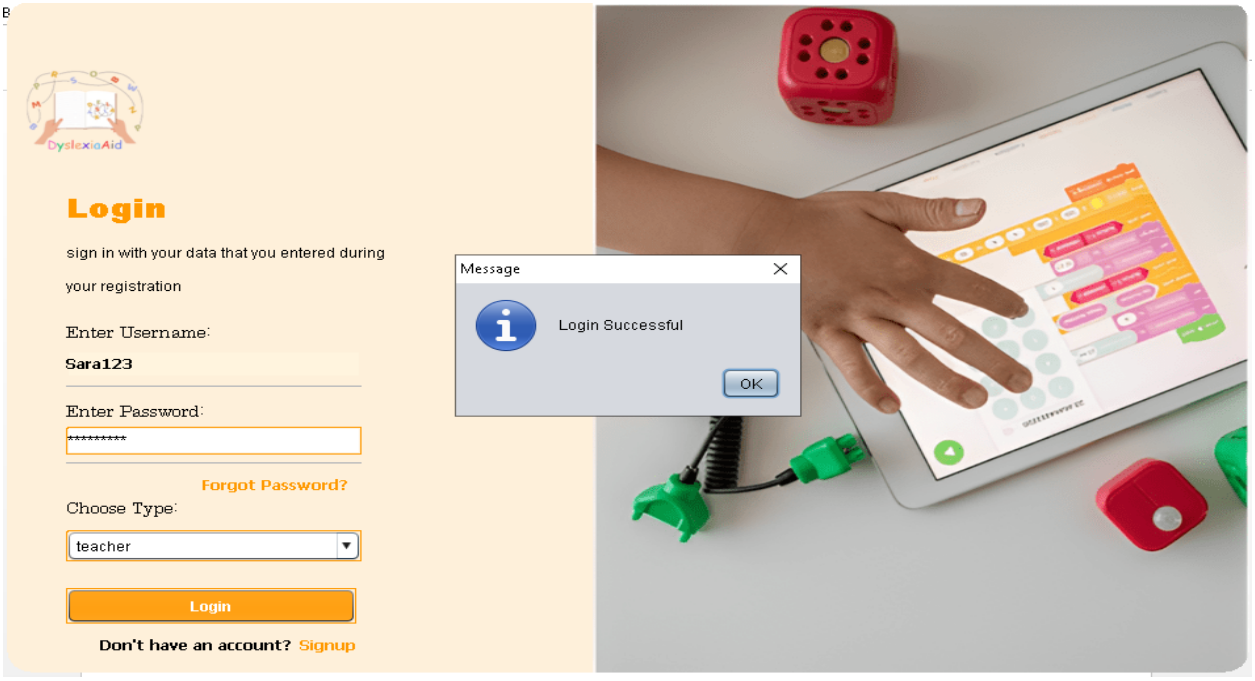
5 Test Cases

5.1 Test Case 1

- User Login: Failed [due to enter wrong information]



- User Login: Successful [due to enter right information]

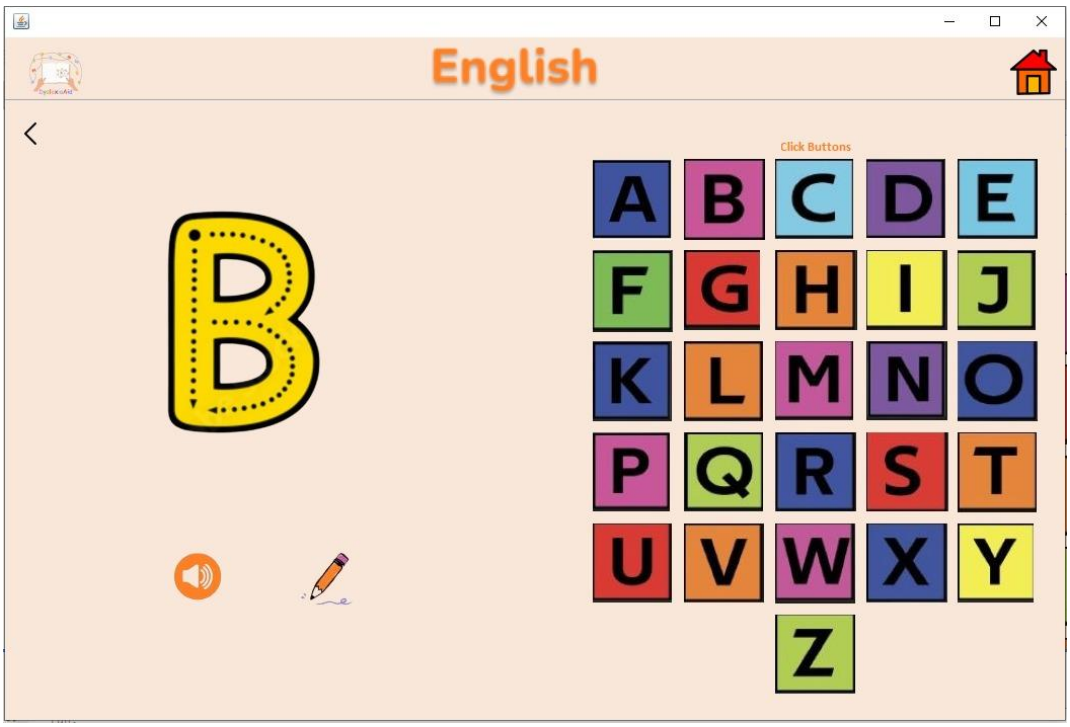


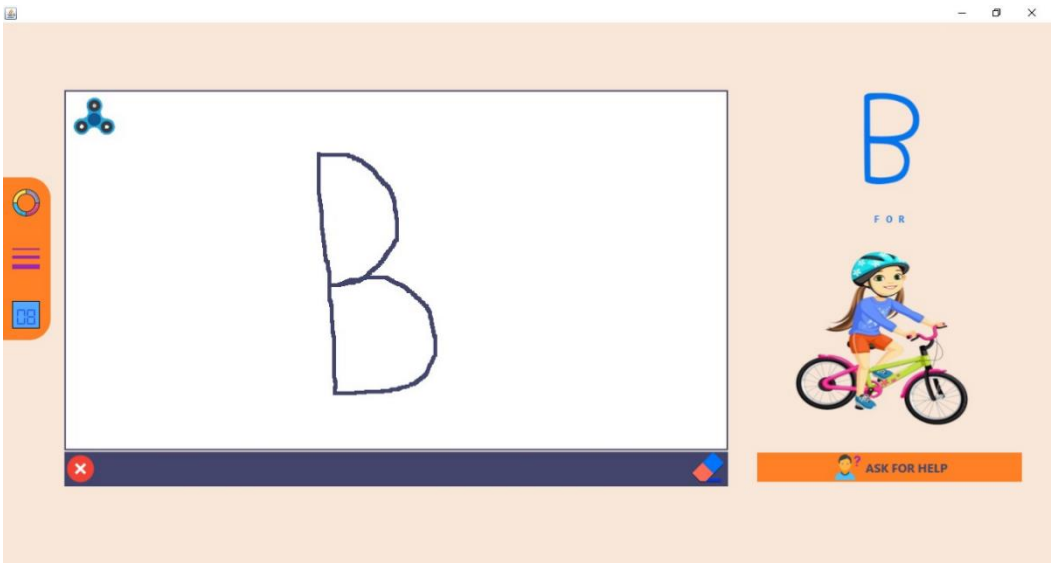
5.2 Test Case 2

- User Signup: failed [due to enter less 8-digit password]

5.3 Test Case 3

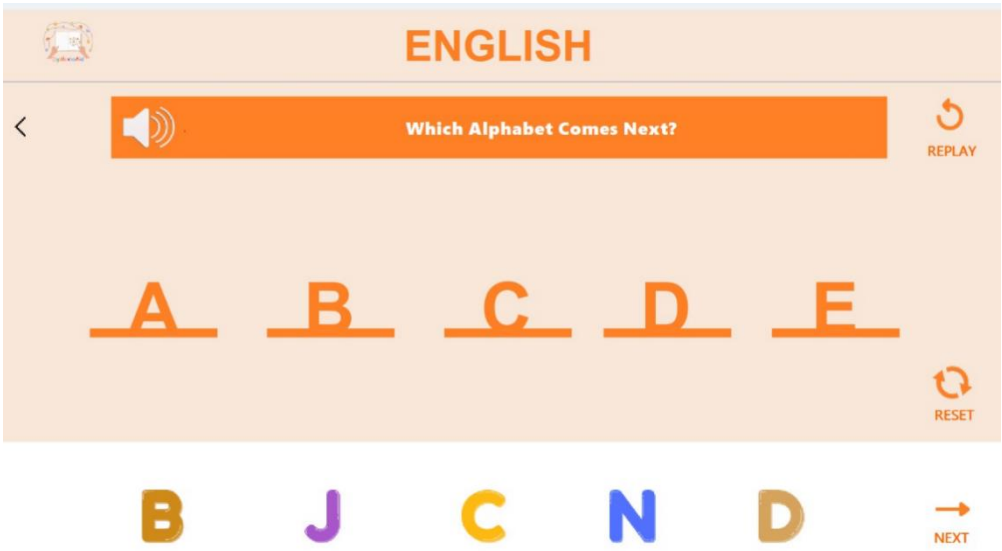
- Tracing: Successful [if he/she identify right]

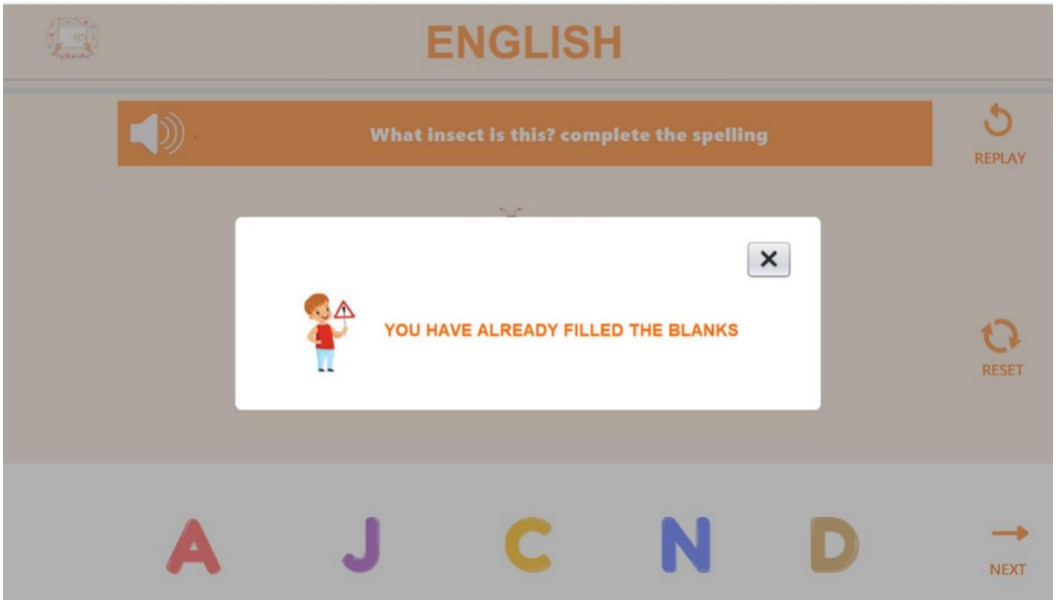




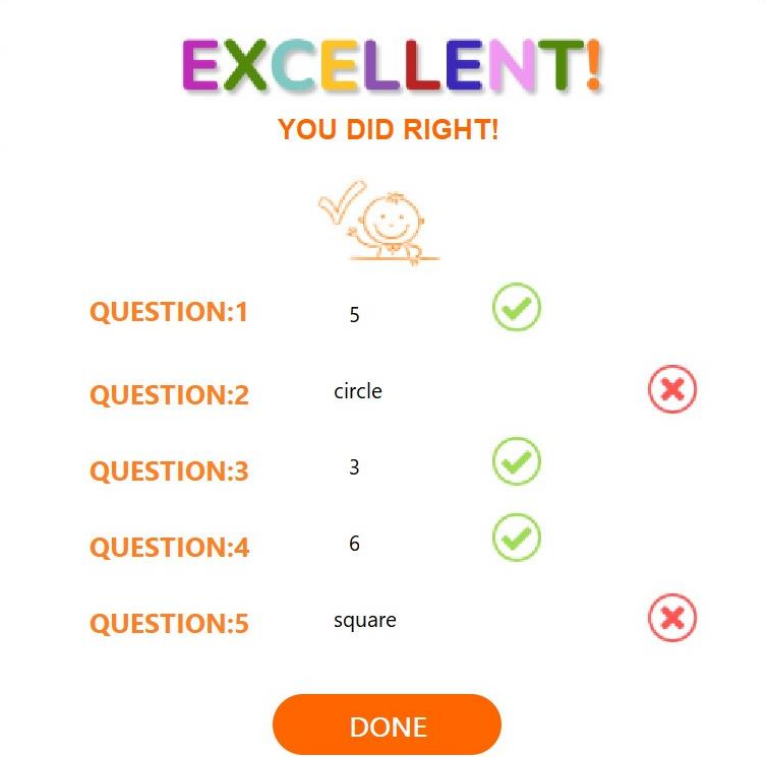
5.4 Test Case 4

- Complete the Spelling: if the blank filled display message you have already fill the blanks



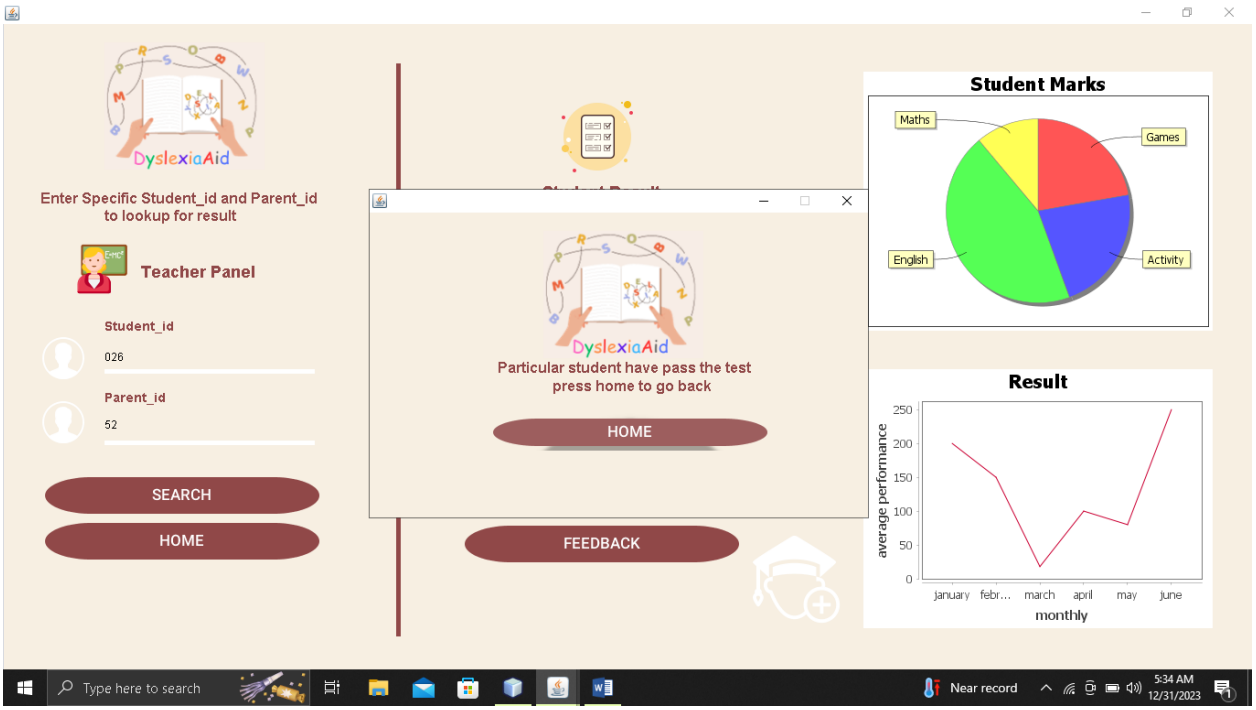


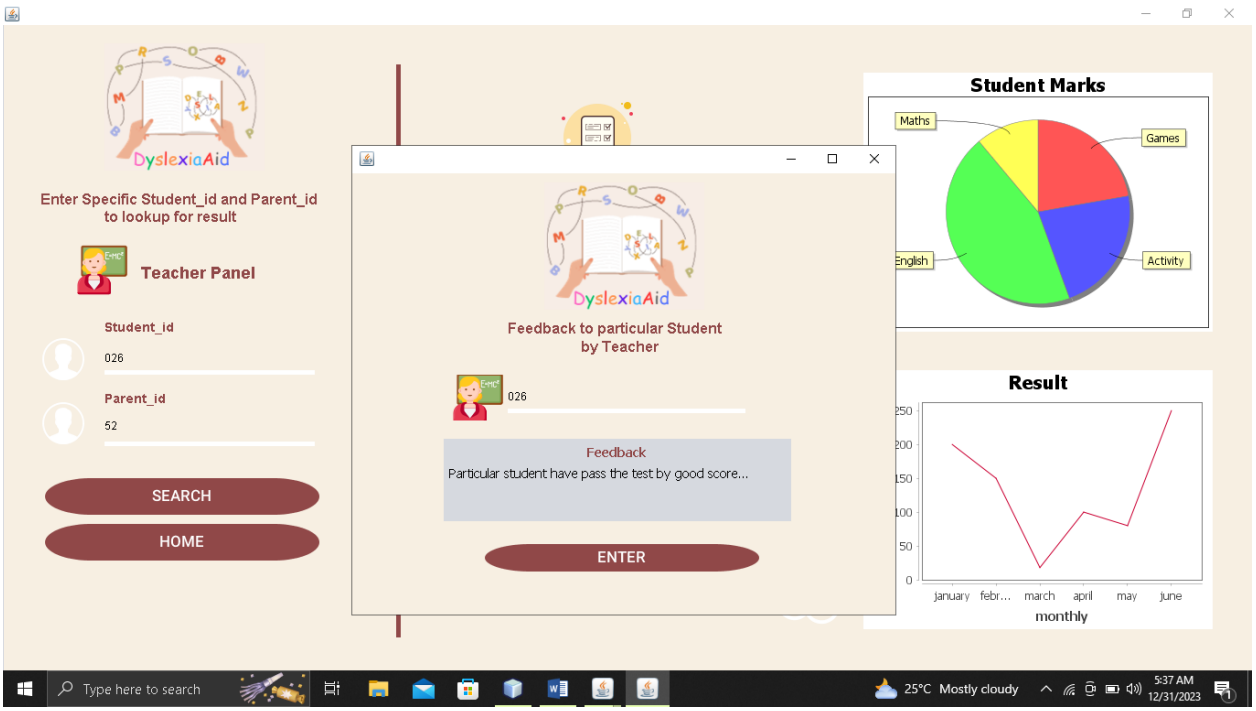
- Quiz completion: display the result which shows right and wrong answers

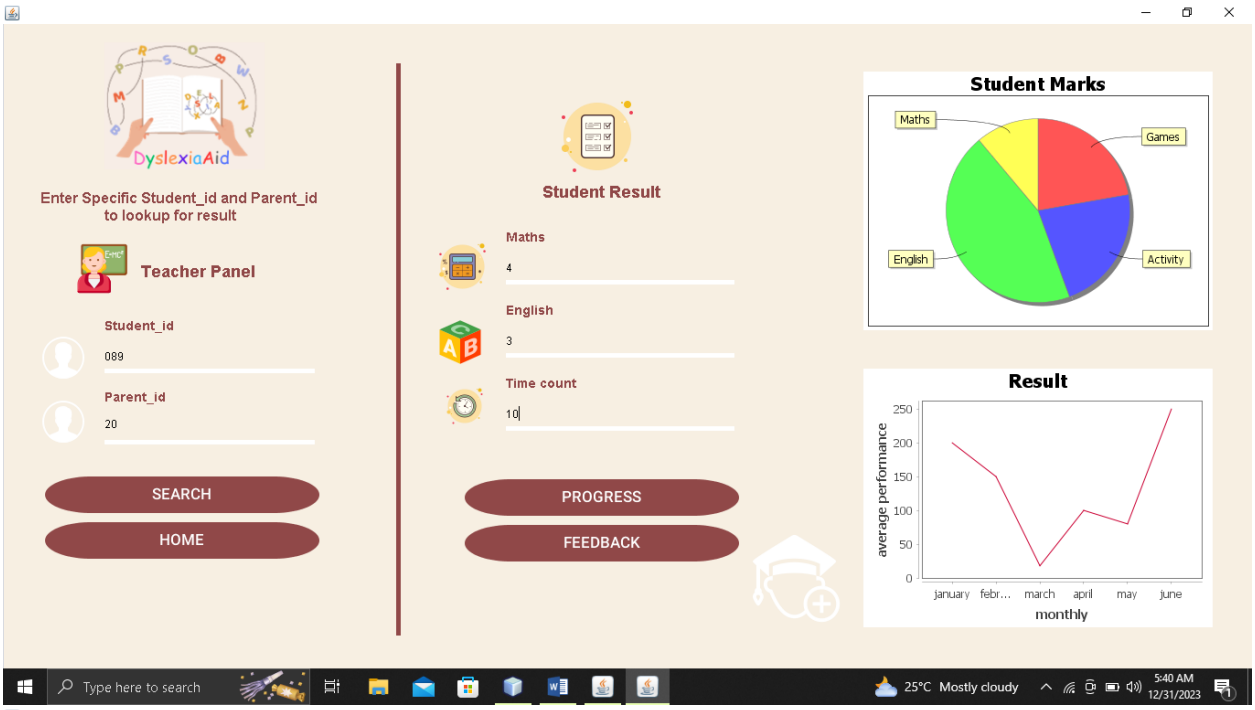


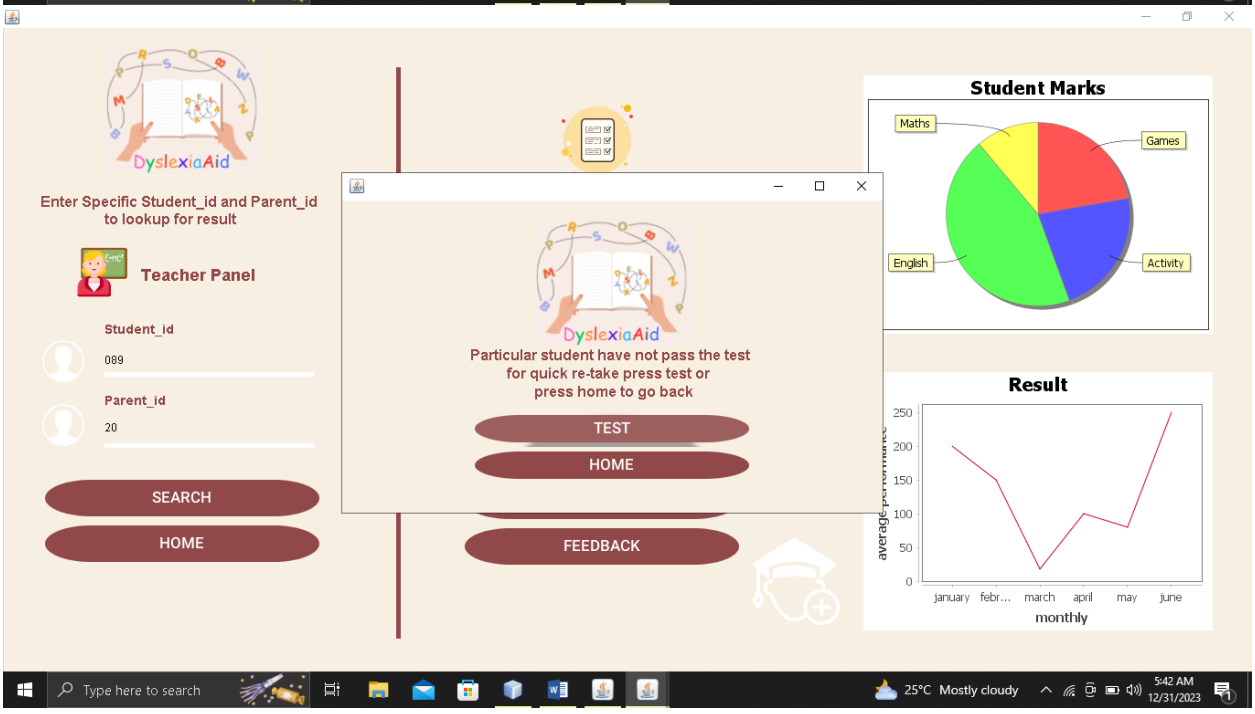
5.5 Test Case 5

- progress Generate: if he/she pass the quiz then show particular student pass the quiz otherwise show retake the quiz and also Teacher give the feedback according to the student progress.


DyslexiaAid
Enter Specific Student_id and Parent_id to lookup for result
Teacher Panel
Student_id
026
Parent_id
52
SEARCH
HOME
DyslexiaAid
Particular student have pass the test press home to go back
HOME
FEEDBACK
Student Marks
Maths
Games
English
Activity
Result
average performance
250
200
150
100
50
0
january
febr...
march
april
may
june
monthly
Type here to search
Near record
5:34 AM
12/31/2023


DyslexiaAid
Enter Specific Student_id and Parent_id to lookup for result
Teacher Panel
Student_id
026
Parent_id
52
SEARCH
HOME
DyslexiaAid
Feedback to particular Student by Teacher
026
Feedback
Particular student have pass the test by good score...
ENTER
Student Marks
Maths
Games
English
Activity
Result
250
200
150
100
50
0
january
febr...
march
april
may
june
monthly
Type here to search
25°C Mostly cloudy
5:37 AM
12/31/2023


DyslexiaAid
Enter Specific Student_id and Parent_id to lookup for result
Teacher Panel
Student_id
089
Parent_id
20
SEARCH
HOME
Student Result
Maths
4
English
3
Time count
10
PROGRESS
FEEDBACK
Student Marks
Maths
Games
English
Activity
Result
average performance
250
200
150
100
50
0
january
febr...
march
april
may
june
monthly
Type here to search
25°C Mostly cloudy
5:40 AM
12/31/2023


DyslexiaAid
Enter Specific Student_id and Parent_id to lookup for result
Teacher Panel
Student_id
089
Parent_id
20
SEARCH
HOME
DyslexiaAid
Particular student have not pass the test for quick re-take press test or press home to go back
TEST
HOME
FEEDBACK
Student Marks
Maths
Games
English
Activity
Result
250
200
150
100
50
0
january
febr...
march
april
may
june
monthly
Type here to search
25°C Mostly cloudy
5:42 AM
12/31/2023