Progress Presentation 1

D-care

Personalized Application for Dementia Patients in Cognitive Rehabilitation with Continuous Monitoring

Research Group Details

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- Group Members

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Manamendra M.G.	IT17119504
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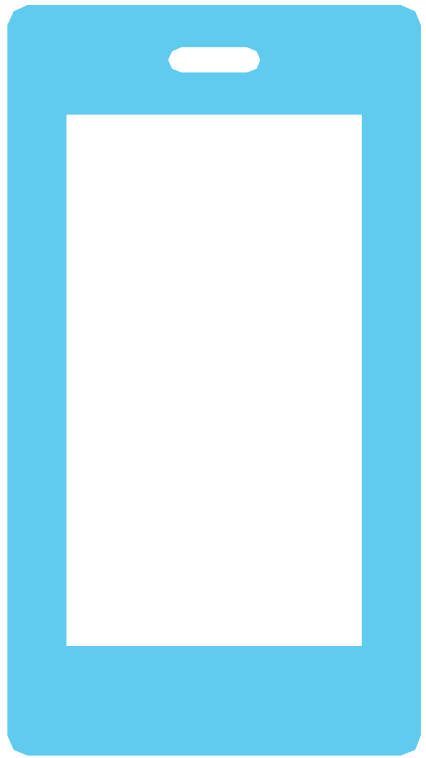
Introduction to D-Care

- **What is Dementia?**
  - **Dementia** is a general term for loss of memory, language, problem-solving and other thinking abilities that are severe enough to interfere with daily life.
- **Why we implement this?**
  - Current prevalence of dementia.
  - There are no customized software solutions, based on user behaviour.
  - Can’t be cured by medicines.
- **Solution**
  - Develop personalized application consists of games and activates for cognitive rehabilitation.
  - Games are mainly focusing the Frontal lobe and Temporal lobe from the cerebral cortex.
- **Objective**
  - Decrease the mild and moderate stages of Dementia patients
  - Make the life easier for both patients and caregivers



Rathnayaka M.H.K.R.
IT16067370

Mobile Game to improve Attention and Concentration.

Objective of the Component

- Develop a mobile game for Dementia patients to improve Attention and Concentration and make their life little easier.
  - Improve the ability to Focus on one thing at a time.
  - Controlling the focus of attention.

Progress up to now

Initiation

- Feasibility study
- Requirement Gathering

Design

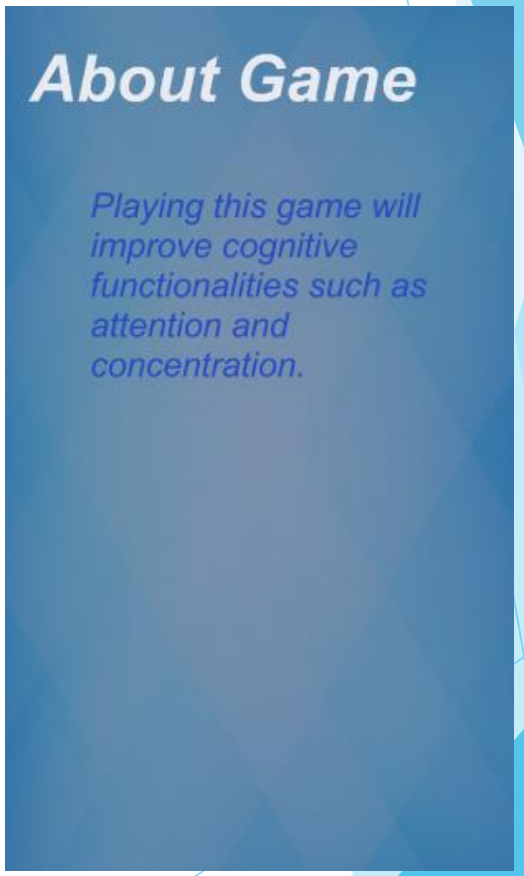
- Sketch out the Game
- Designed the Interfaces
- Dsigned the database

Implementation

- Implement Game Level1
  - Core layer of game
  - Finish with final touches
- Implement Game Level2
- Implement Game Level 3
- Adding Score
- Implement other supportive pages

Screenshots of Interfaces

Screenshots of Interfaces



Screenshots of Second Level and Third Level

To Do

Implementing the algorithm

- Develop the algorithm
- Review the algorithm
- Refine the algorithm with more details

Integrate the Algorithm with game

Mobile Game to improve Executive Functions.

Watawala W.K.C.R

IT17096126

Objective of the component

- Help dementia patients to improve (aspects of executive functions) :
  - Small calculations skills
  - Time management skills
  - Ability of problem solving

Progress up to now

Initiation

Designing

- Sketch the game
- Interfaces and database

Implementation

- Basic structure of the game.
- Scoring system and timer settings
- Levels of the game (There are 4 levels in this game and with the addition of features, the game becomes more difficult by level)
- Additional required pages (Instructions, show levels and home page for the game)

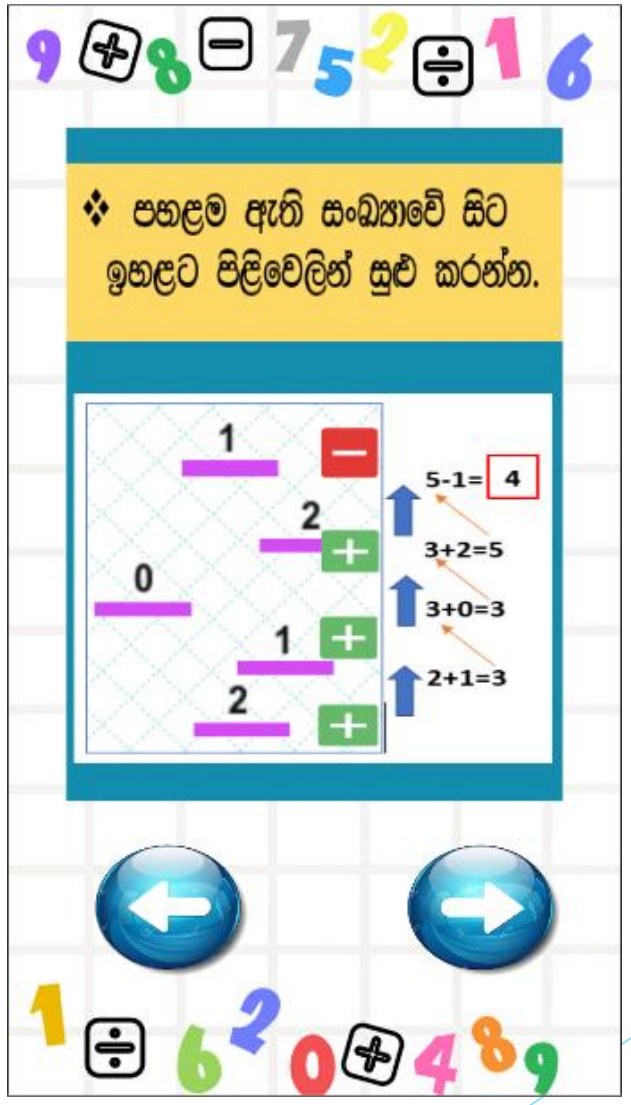
Evidence - Screenshots of interfaces

Home page of the game

Structure of the levels

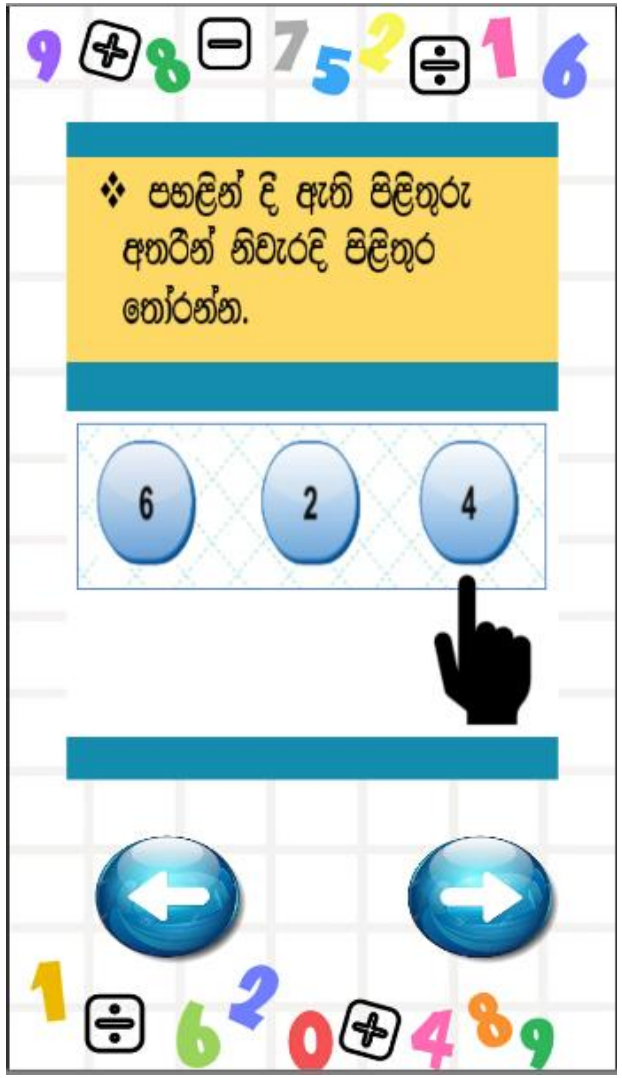
Evidence - Screenshots of interfaces

Instruction 1



Instruction 2

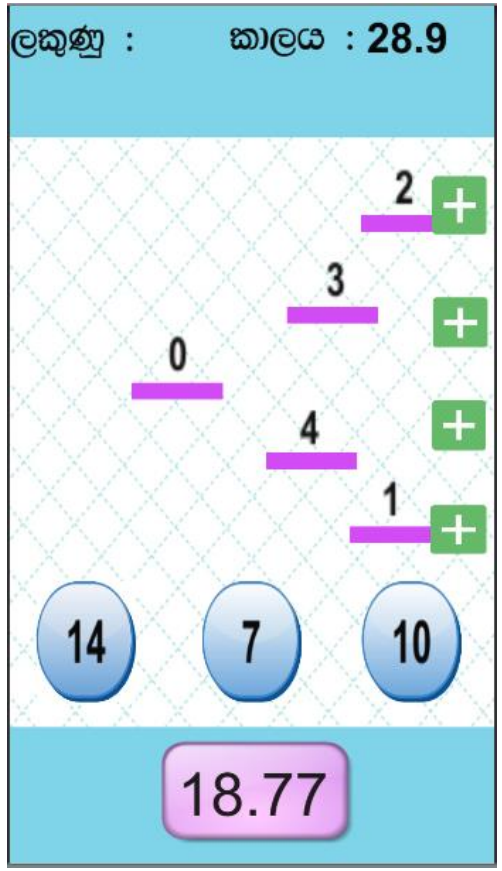
Evidence - Screenshots of interfaces



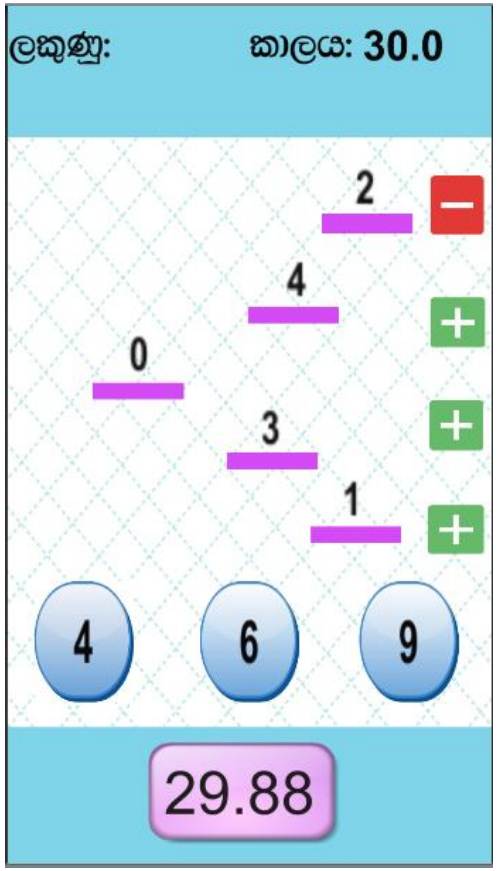
Instruction 3

Instruction 4

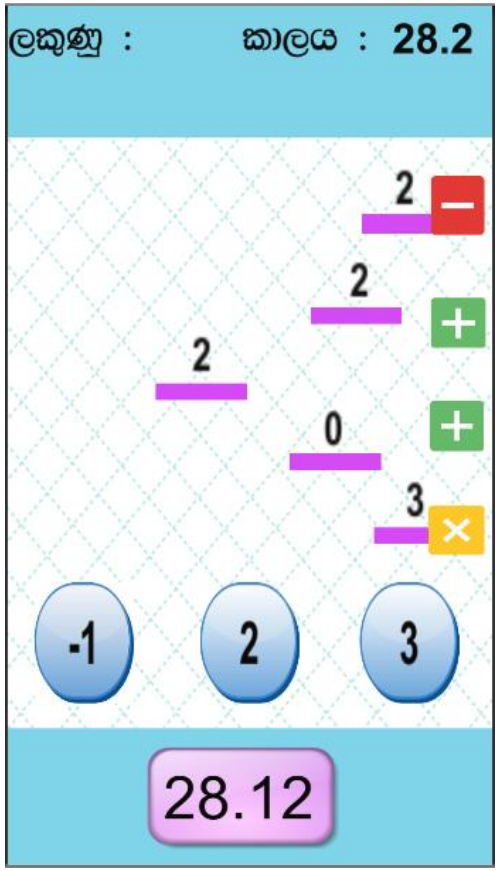
Evidence - Screenshots of interfaces



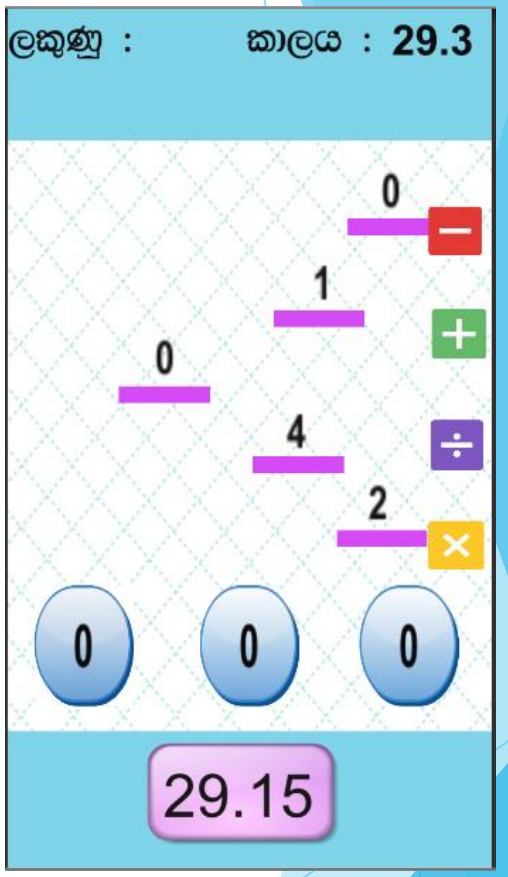
Level 1



Level 2

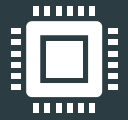


Level 3



Level 4

To do



Complete the implementation of Machine Learning algorithm and integrate it with the game.

Connect to the database.

Complete the implementation of saving game levels and unlocking game levels.

Mobile Game to improve Language

Manamendra M.G.

IT17119504

Objective of the Language Component

- Develop a mobile game for Dementia patients to improve the Language skills.
  - Identify the given pictures correctly.
  - Improve the ability of building up words.
  - Improve the comprehension skills.
  - Improve the speaking ability.

Progress up to now

Initiation

- Feasibility study on research topic
- Requirements Gathering

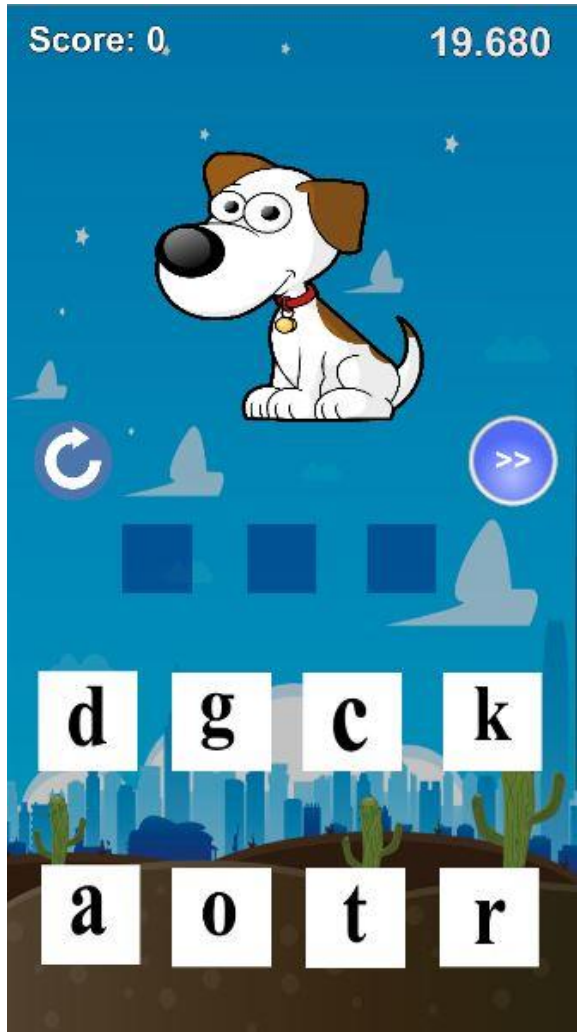
Design

- Sketch the Game
- Design the Interfaces
- Design the database

Implementation

- Implementation game
  - Frontend Development
  - Implementation of Game Level 1
  - Implementation of Game Level 2
  - Created the score and set the time
  - Created the additional pages required for the game

Game for English Language – Level 1

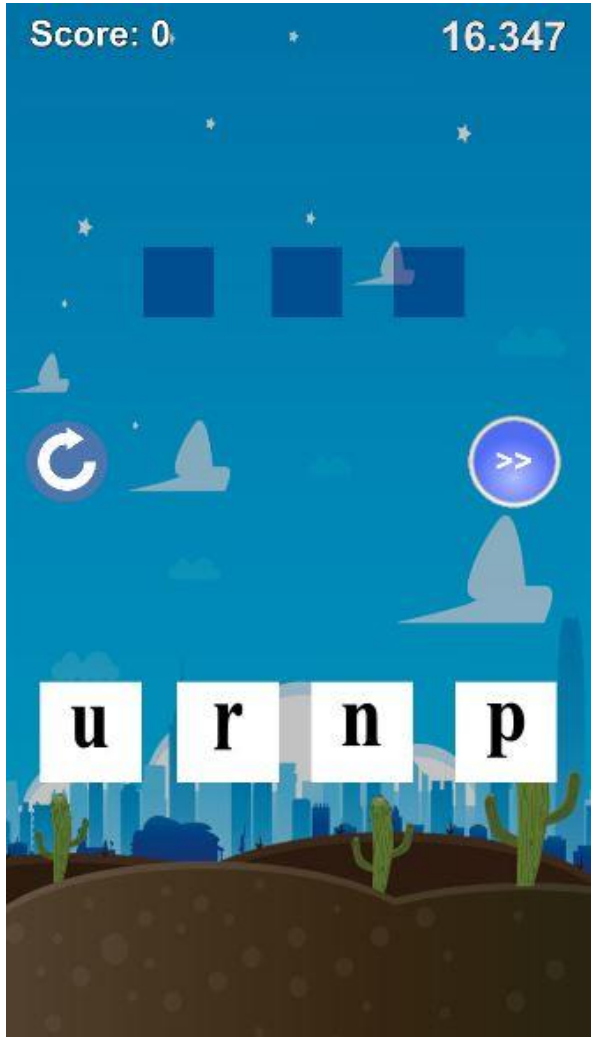


Part 1

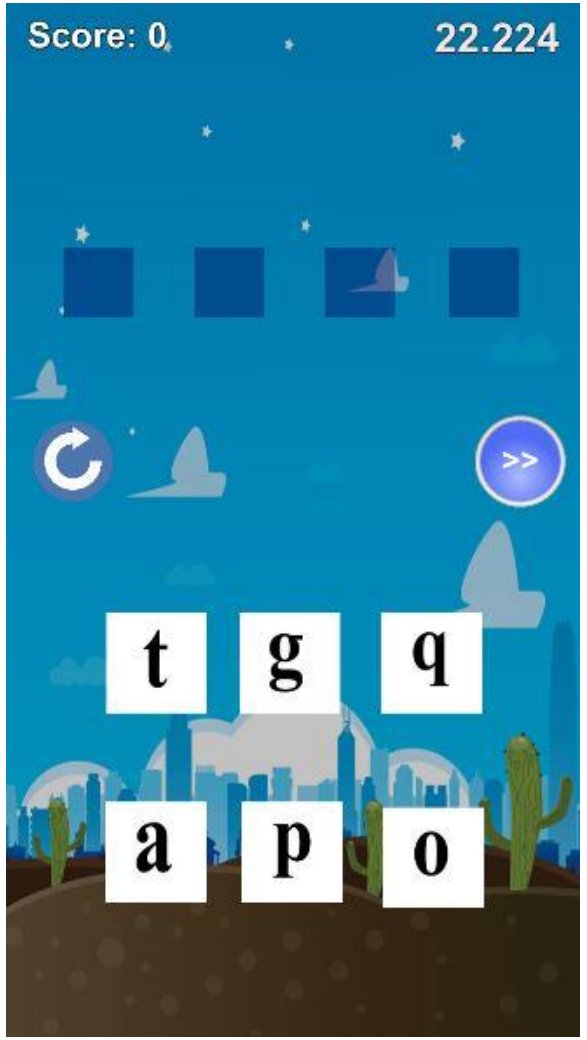
Part 2

Part 3

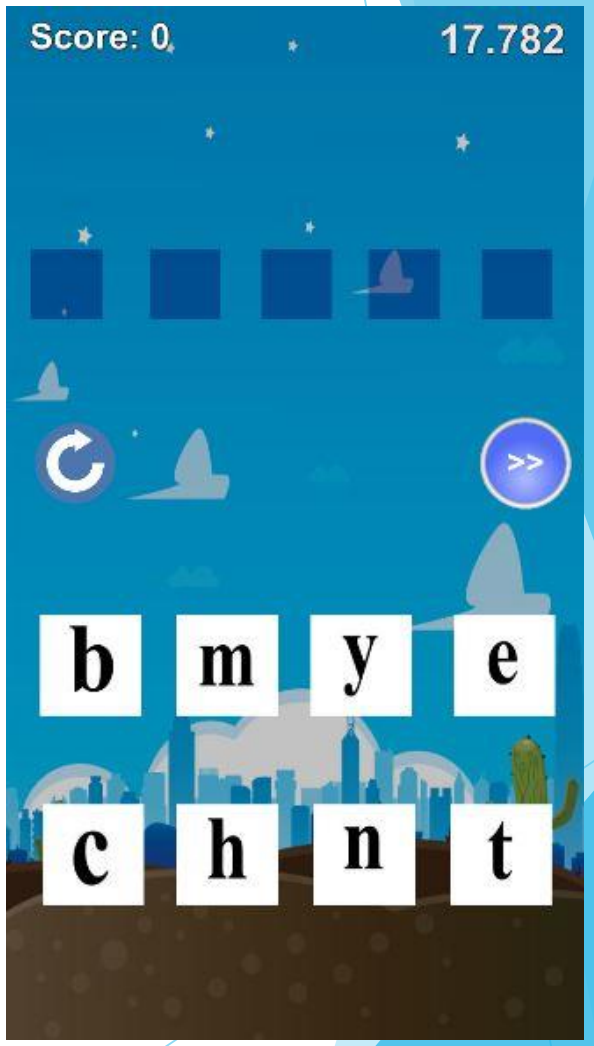
Game for English Language – Level 2



Part 1

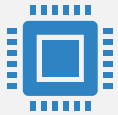


Part 2



Part 3

To do



Complete the implementation of game level 3 with speech to text component.

Connect the database.

Complete the implementation with final score and finalize the game.

Mobile Game to improve Memory Skill

IT17100076

Silva. S. R. R. M.

Objective of the memory component

- Improve Memory including registry and recall stages.

Progress up to now

Initiation

- Feasibility study
- Requirement Gathering

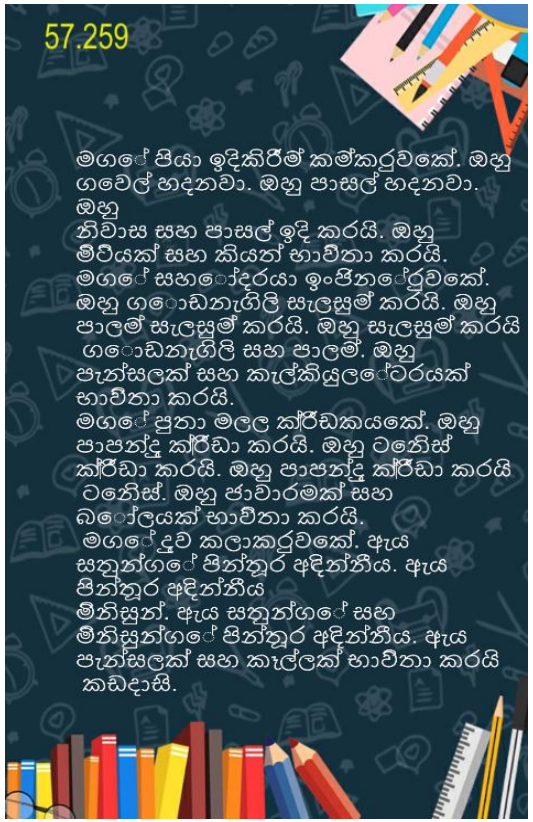
Design

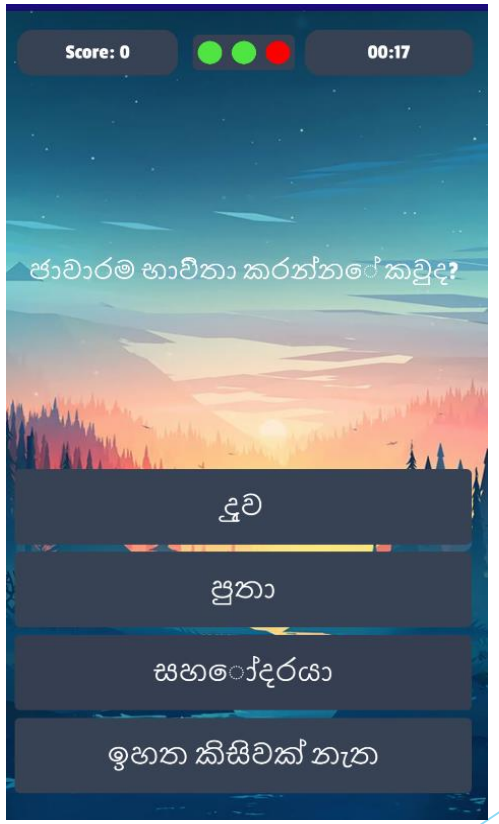
- Sketch out the Game
- Designed the Interfaces
- Designed the database (Stucturing)

Implementation

- Implement Game Level1
- Implement Game Level2 (English)
- Functionality of Scoring

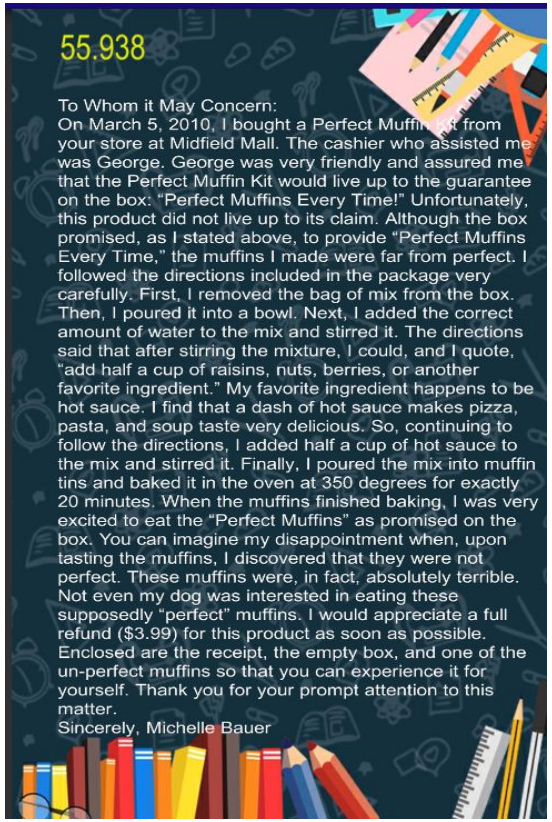
Evidence - Screenshots of interfaces

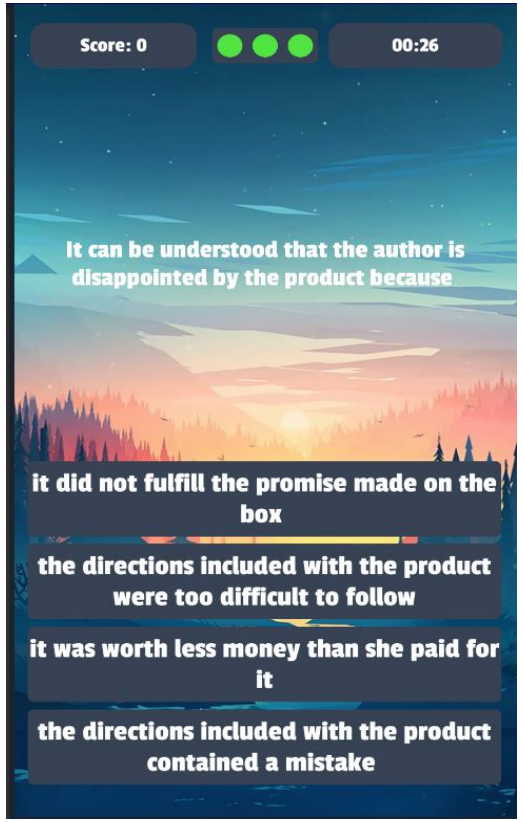


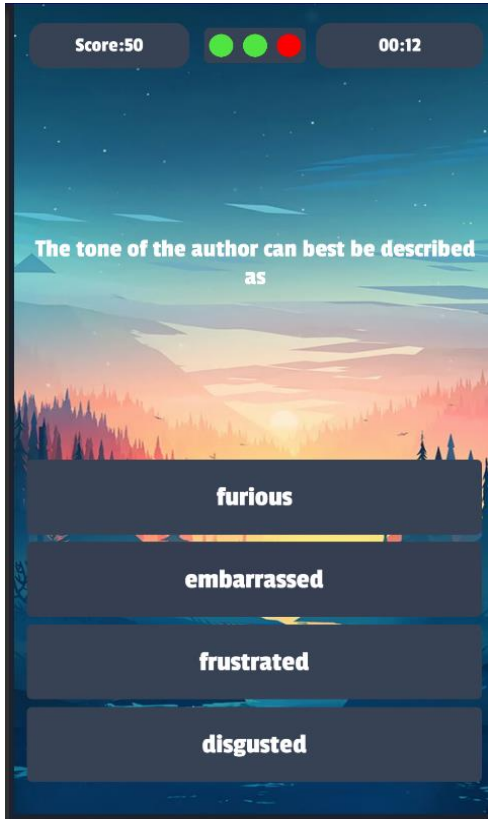


Screen shots of level 01 stage choice 2 with Sinhala language

Cont.

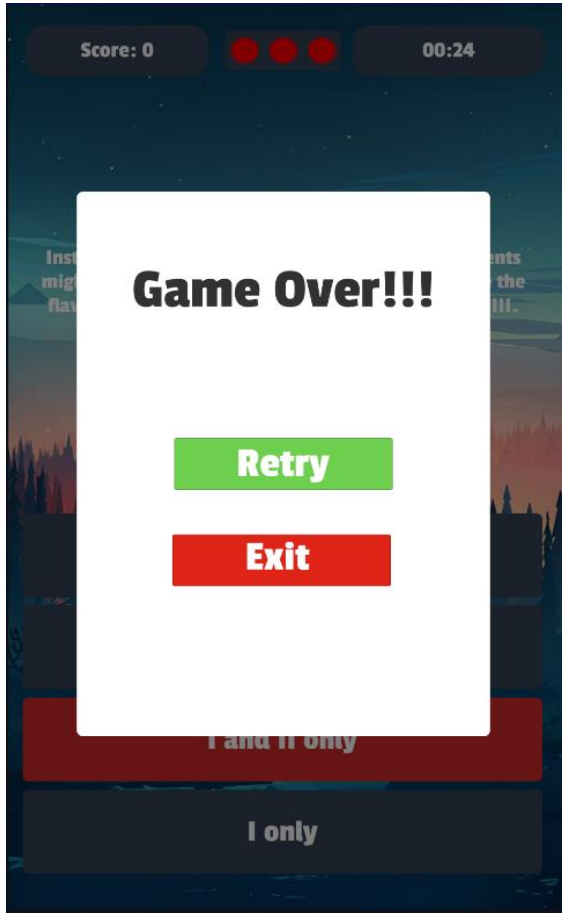




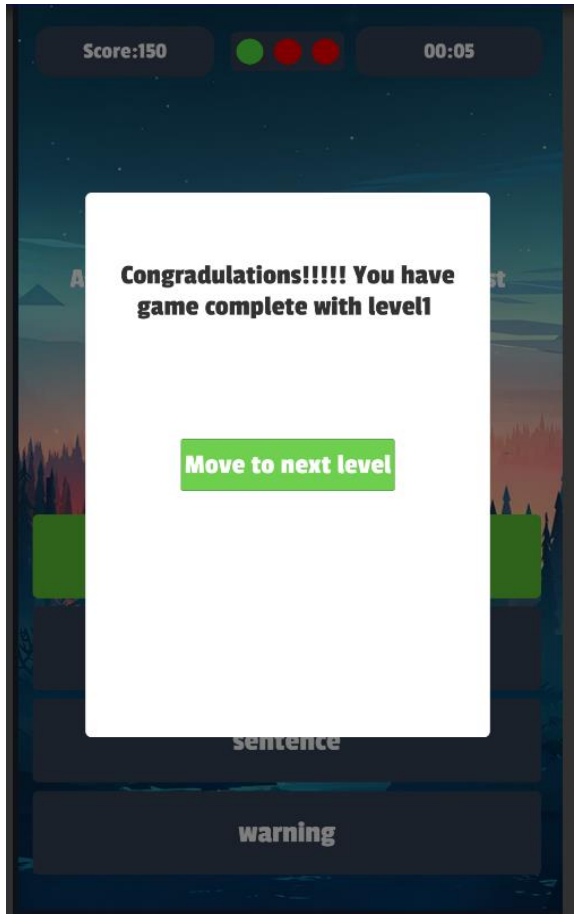


Screen shots of level 02 stage choice 01 with English

Cont.



Game over panel



Level load panel

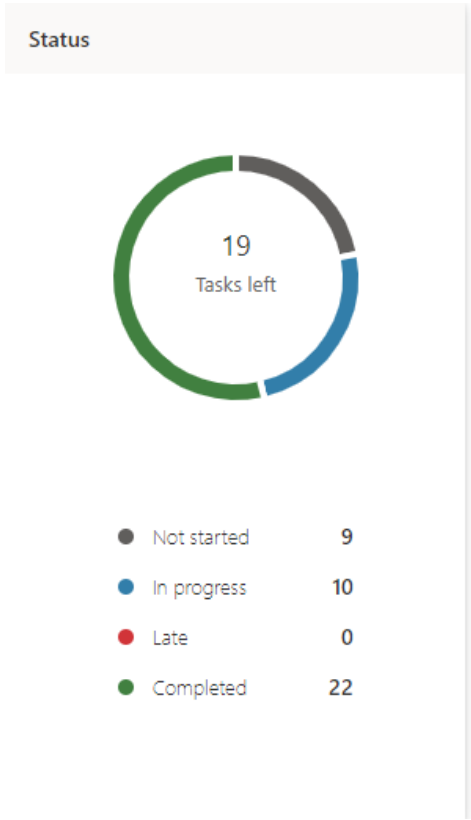
To Do

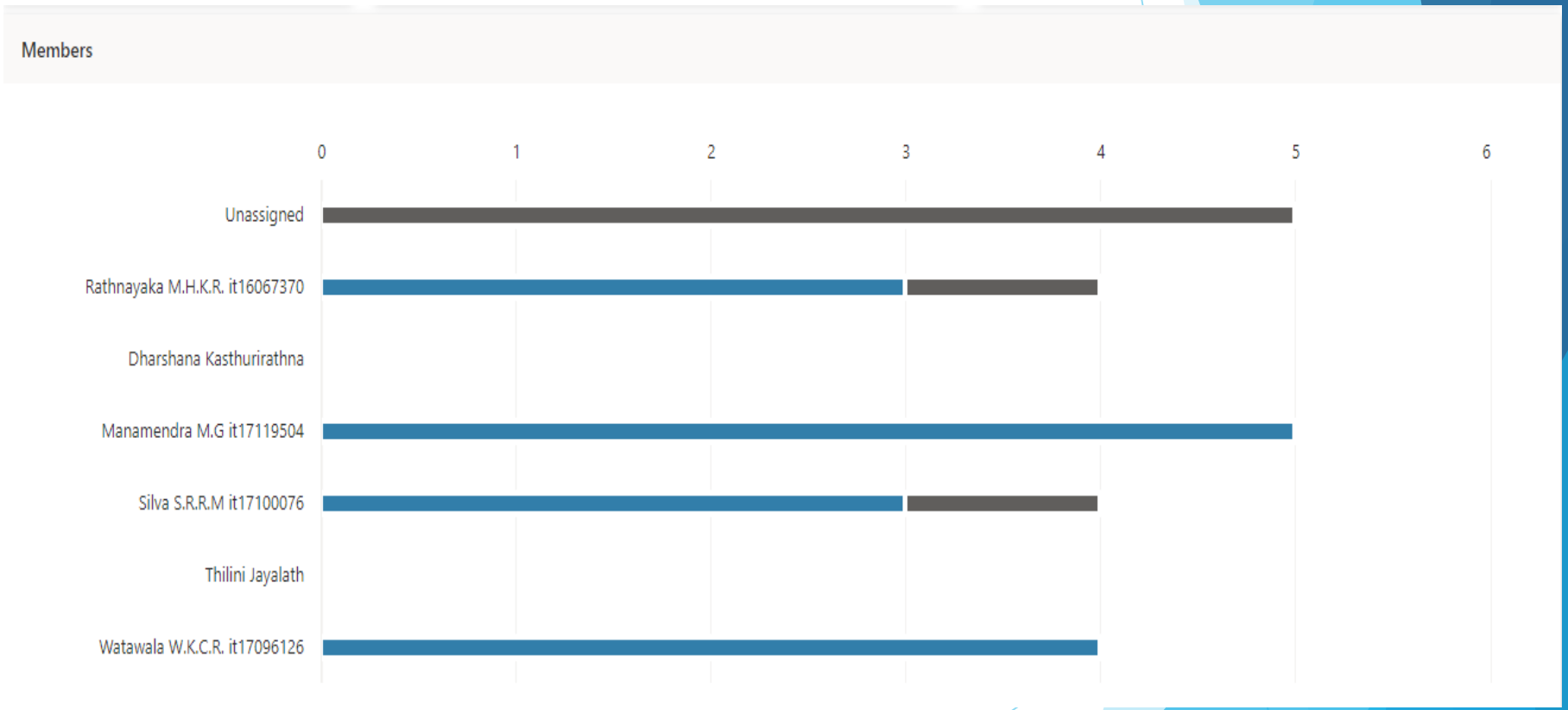
Database connection and integration with unity

Implementation of Machine Learning algorithm

Level unlocking and finalize with memory component

Group progress





To Do

- System Integration
- Testing
- Evaluation
- Completion

Helping hands to Dementia

Commercialization

- Introducing the application(**D-care**) to the doctors.
- Explain the benefits of application to the caregiver.
- Patients installing and using the D-care application with the doctor recommendation.
- Patients getting one-month trial period.
- Continue the D-care application with small payment.

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Thank you…