Assessment 1: Project Proposal

Introduction:

This document focuses on developing an android mobile gaming application, as per the requirements of unit SIT708. Mobile services have risen in prominence and people can use them virtually anywhere. Mobile applications are present everywhere, which is the reason why I've chosen to work on a mobile gaming application.

The mobile gaming application is called Memento Puzzler. The document includes-

- Background, Market research, Competitive Analysis
- Asset List, Product Purpose, 3 complex components of the system, Summary of working system
- Milestones of project plan
- UI/UX design, User Stories and Use Cases
- High Level Wireframes

1.1 Background-

This game is intended for both children and adults. The benefits of this game can be more efficient for a child than an adult. This is a fun little game which is very fast paced. This game intends to enhance a child's memory and concentration skills but, only concentration on the adult's side. Patience can also play a crucial role in this game. Nowadays, everyone has a mobile. The era of reading books is well beyond us, with the era of mobile gaming upon us. Mobile games do not focus on enhancing memory skills and are mostly based on violence. These games can play a very crucial role on a child's behaviour.

There aren't many valuable resources available for making the perfect game for a child, which has no violence, but is also very enjoyable to play. My application has a very simple UI and functions, and it doesn't focus on violence and crude visuals. My application doesn't provide many aspects but, can be very beneficial on a child's mind since, it only emphasises on its sole purpose, i.e. to enhance memory and concentration skills.

I'm developing a mobile gaming application, Memento Puzzler which is based on a person's memory skills. The game doesn't require much thinking skills, but it can become difficult for the player, if they aren't concentrating much. Failed attempts can be irritable and patience from the player's side will become essential. As mentioned before numerous times, the main aim of the application is to enhance a person's concentration and memory skills and knowledge in a simple and interactive way.

1.2 Market Research and Motivation-

There are numerous applications available on play store, with the same concept. Various applications were analysed, before coming up with the idea of Memento Puzzler. Memento Puzzler's basic idea is to enhance a child's memory and even help adults in particular instances where they find it difficult to concentrate on their tasks. The difference between my application and the applications available are that, my application is easy to understand. The available applications straight away start with the game page and it becomes difficult for the player to understand what's going on. Another advantage my game has over the available applications is that it provides information on how to play the game. My application has a help page, where you can contact me thorough my e-mail address, if there's any issue with the game.

But the most important difference would be, the available applications usually start with their game screen and have all the face cards hidden. The players then aimlessly keep clicking on cards and hope that the cards match. But in my game, the faces are revealed for a second, so that the player can get a glance on what faces are available and then try to memorize what's behind each card.

My game acts on its purpose to be interactive and easy to understand.

1.3 Competitive Analysis-

In this section, I will mention three different games based on the concept of memory. These are android games developed on Android framework and are currently available to be downloaded and played at play store.
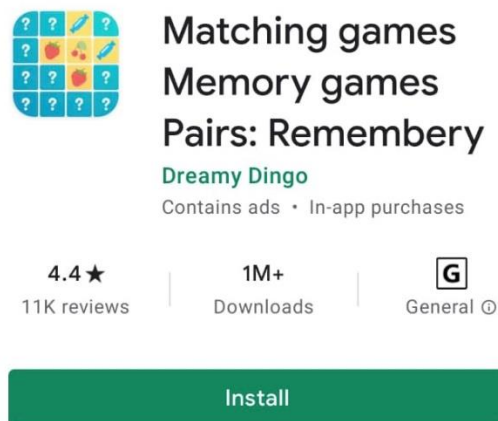
1. **Picture Matching Memory Game –**
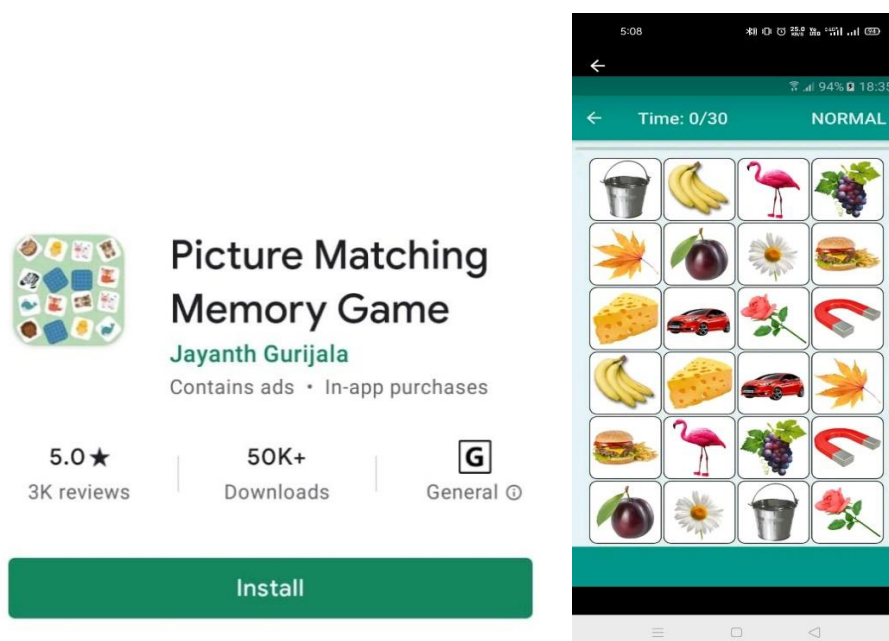
Demerits of the application-

- The game page doesn't reveal any faces at the beginning of the game.
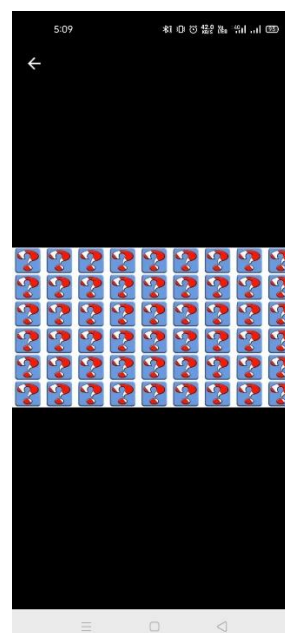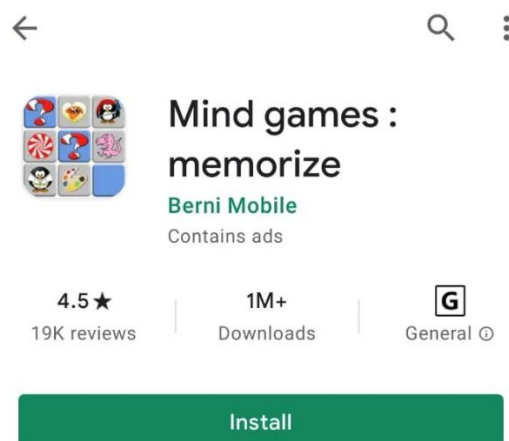- The game doesn't provide any rules on how to play it.

2. Remembery-

Demerits of the application-

- The game page doesn't reveal any faces at the beginning of the game.
- The game doesn't provide any rules on how to play it.
- There's no help page, through which players can provide feedback.

3. Mind Games: Memorize-

Demerits of the application-

- The game page doesn't reveal any faces at the beginning of the game.
- The game doesn't provide any rules on how to play it.
- There's no help page, through which players can provide feedback.

Features:

2.1 Asset List-

I'll develop my application on **Android Studio IDE**, where I will be using **Java.** The minimum **SDK version** will be 20 and **Target version** will be 28. I will be using **Native application development** method because I want it to be accessed by everyone and for free.

My code will be integrated with **RESTful web service** since, it's a maintainable and scalable service. Scalability is necessary for an application because each game and the points scored in the game will constantly go in the database. Plus, the game will have frequent updates.

The opening page of my application is the log in page, which will then take you to the home page, where the player will click on Play and proceed to the game page. The player's Username and details, moves used and time taken will be saved in the database.

Basic flow diagram of my game-
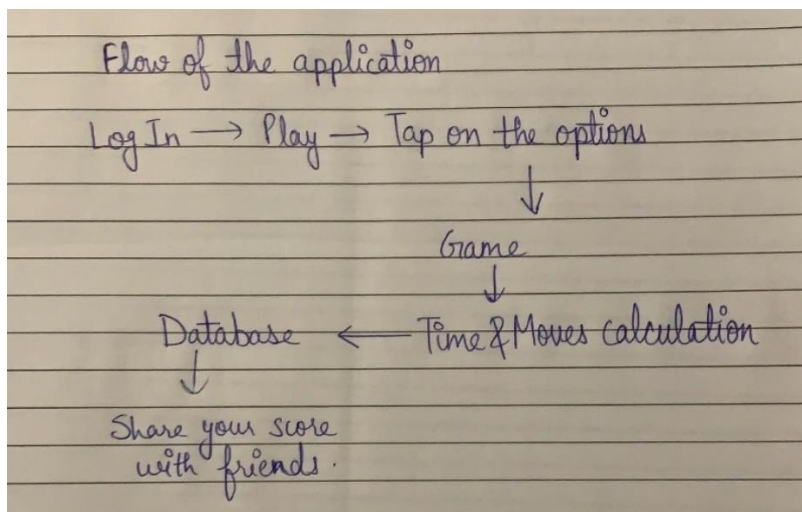
I will be using **jMonkeyEngine (jME)** as my game development engine. jMonkeyEngine is free and provides modern 3D development. Its supported by android SDK. There is a total of 14 pages in my application and each one of them is interactive.

Development language will be used in **java, Node JS, HTML, Javascript and css** files. The main data source will be from Mock API.
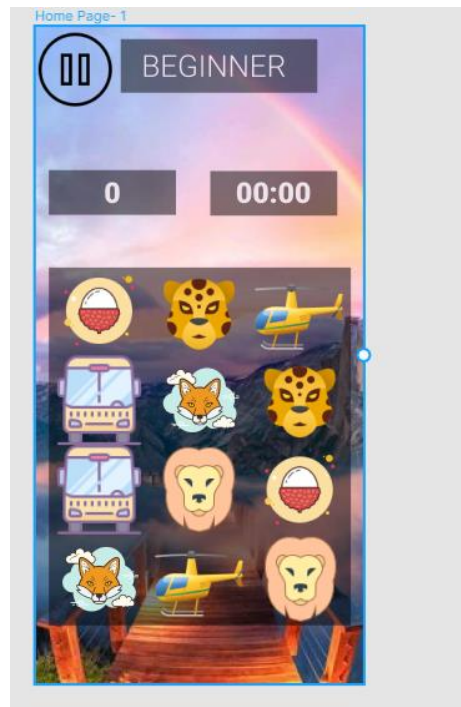
The above image is of the beginner level game page. The faces used in the image were taken from **icons8.com** and the background image for each game page was taken from **Pinterest**.

2.2 Product Purpose-

Target Audience-

There's no age limit for the Memento Puzzler. It can be played by children, teenagers, adults and even old people. This game is particularly intended for children but, can even turn out to be beneficial for teenagers and adults. Thus, children, teenagers and adults constitute our Target Audience.

The effects of this game on a child are that, it can increase a child's concentration level and enhance their memory skills. When the game starts, each box is revealed for a second and is then hidden. It is impossible to remember what face is behind which box. But still the player can remember a few boxes and then progress with their game. Thus, a player's memory and concentration come in to play. Another purpose of this game is that its non-violent. There are numerous violent games available at Android OS platforms based on violent concepts, which are very enjoyable and cool to play but can evidently be very rough and vicious for a child. On the other hand, my game is very simple, non-violent and an interactive game.

Moving on to teenagers and an adult's perspective. In the current world, lack of concentration and being lost in own thoughts is very common. Not being attentive and proactive is one's own loss. People are generally self-occupied and remain connected to their devices which slows down their thinking abilities and makes them more vulnerable to mishaps. This game acts as a concentration exercise, which will help a person in shifting to their more serious and attentive side.
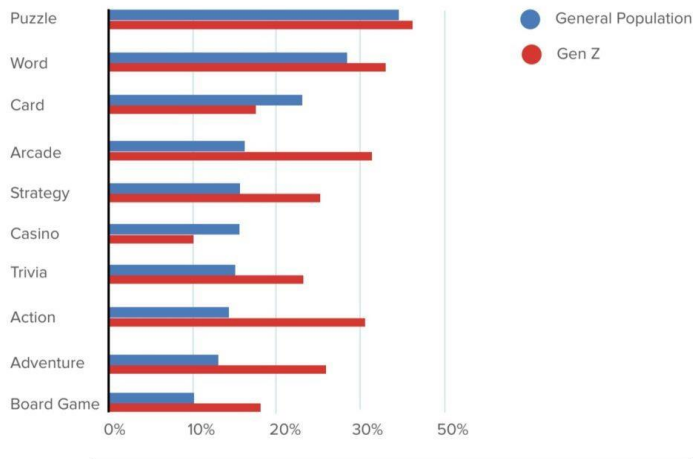
This image depicts on what mobile games teenagers and adults usually play. The most played genre is the Puzzle kind and our game falls in that category.

Creativity in Design-

- My application's log in page will be connected to the database, where the player's username and details will be stored. This will be useful later on, when the player will play the game and score points.
- The player has the option to turn the game's music on or off.
- The player can leave a feedback for our team, through the help page.
- The Settings, Help and Home button are available on almost each page.
- The player's previous scores can be calculated, and the player can then be suggested on what level they should play.

2.3 Three Complex Components-

1. **Home Page and Game Centre Page-**
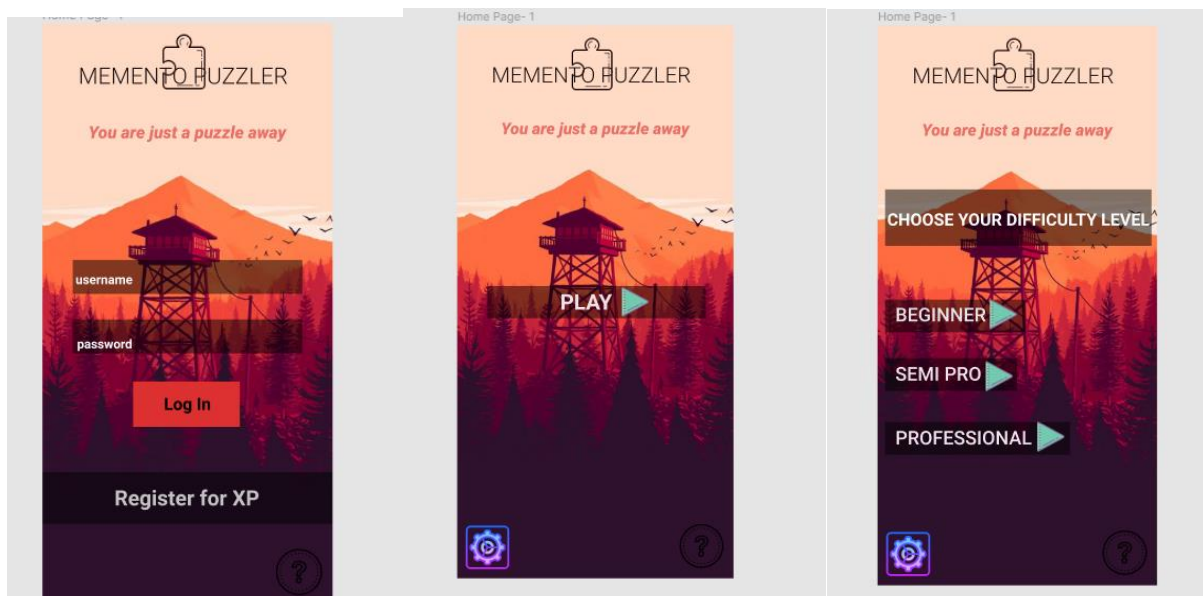
The login page consists of entering the username and password correctly. The Home Page consists of the Play button and also consists of the settings button and help button. On clicking the Play button, the player is navigated to the Game Centre Page. There the player can choose the difficulty level of their choice. Again, the settings page and help page buttons are available.

| User Stories	Acceptance Criteria	Estimation	Priority
As a user, I want to enter my user credentials and play the game	The user credentials must be correct. Make sure there's no text already mentioned in the username and password text fields. The Log In button should successfully navigate the player to home page.	Story Point: 10	High Priority
As a user, I want to win the most difficult level of the game	The players user credentials must be correct, so that the database can identify the player and check the player's previous scores and then suggest whether they should play Professional level or not.	Story Point: 7	Medium Priority

2. Main Gaming Screen and victory page-
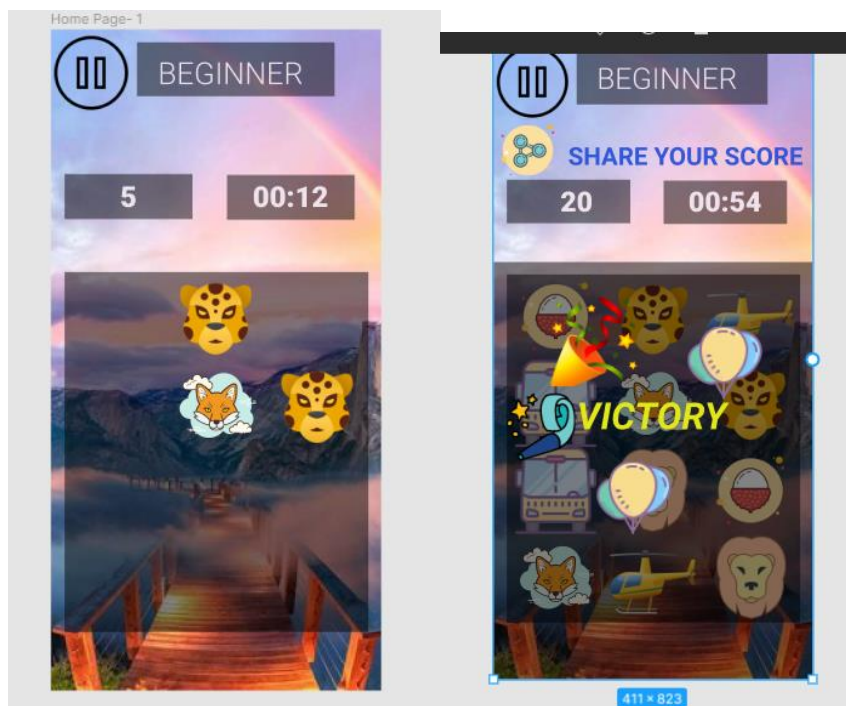
The Main gaming screen consists of the pause button and the game itself. The player has to tap on each box to unveil the face behind it and make sure that they guess the correct boxes to win. On winning the game, the victory page comes up, where the player has the option to share their score.

User Stories	Acceptance Criteria	Estimation	Priority
As a user, I don't want to experience any lag in the game and want to ensure that I select the correct box	Each box in the screen must be distant and easily tapped on. On clicking the 2nd box of row 1, I want to reveal the leopards face. My total moves and time taken must counted simultaneously.	Story Point: 10	High Priority
As a user, I want to share my game winning scores	The player must ensure that they click on the share button. The player must also ensure that they share their scores on their preferred services.	Story Point: 7	Medium Priority

3. **Settings Page-**
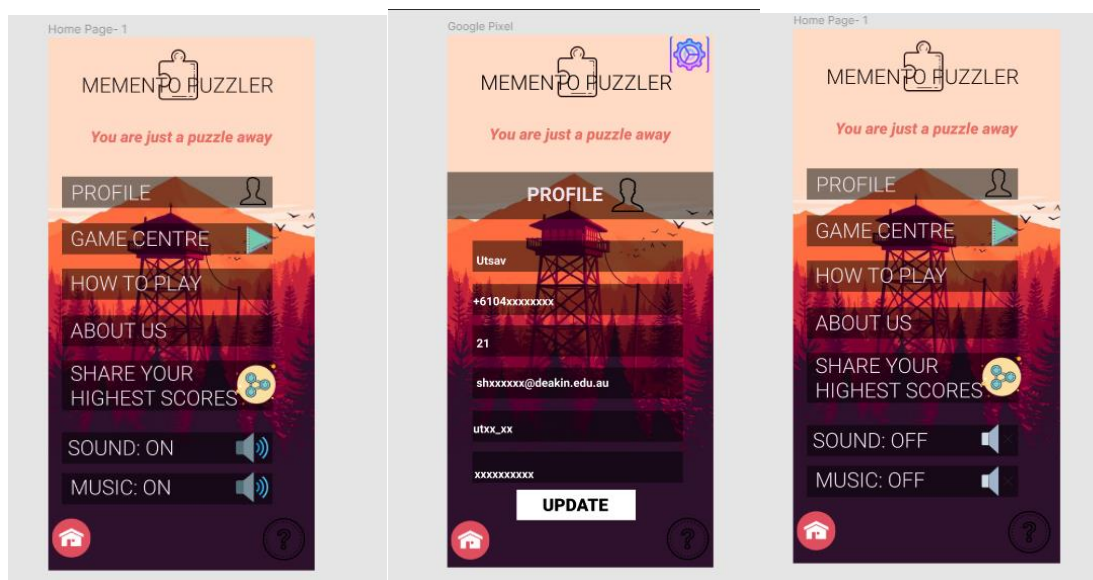
The settings page consists pf various options. The player can access their profile page, they can go to the game centre, share their scores and even turn the game's music off. Through the profile page, we can check whether our details are correct and if not, then update them.

| User Stories	Acceptance Criteria	Estimation	Priority
As a user, I want to update my profile details.	The user will be navigated to the profile screen. The user can enter their details and then click update.	Story Point: 7	Medium Priority
As a user, I want to turn the game's music off.	The user can simply select the music on:off button. The game's sound will also turn off, once the music is turned off.	Story Point: 7	Medium Priority
As a user, I want to contact the game developers and discuss about the issues I'm facing.	The user can select the Help option, available at each page of the application, and then contact the developers team to discuss the issues being faced.	Story Point: 7	Medium Priority

Coding Concepts:

Session Handling- For maintaining all the activities of the user in a session. It ensures that only a single object is created.

OOPS Concepts- OOPS concept will be implemented throughout the code. Inheritance, Polymorphism, Abstraction and Modularity.

Arrays and Linked Lists- The whole application development will manage large amounts of data. Different classes of Arrays, Array List and Linked List will be used.

MySQL Queries- MySQL will be used for storing the database.

2.4 System Working Summary-
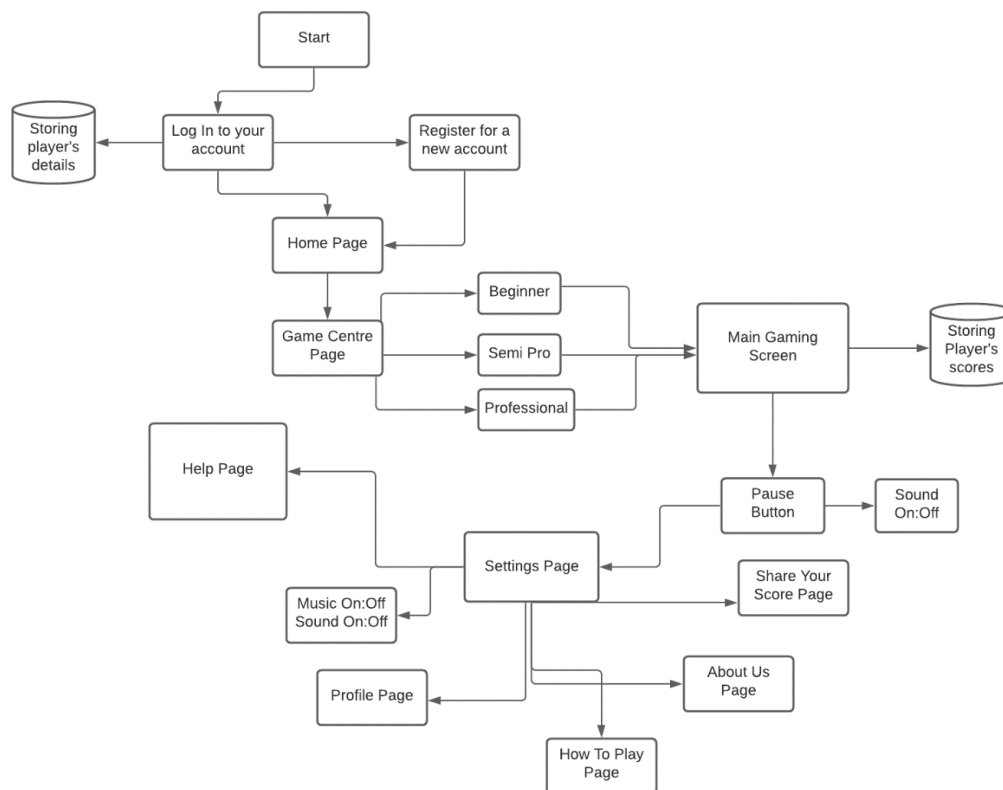
- The opening page of my application is the login page. If the player doesn't have an account, they can register for a new account which is accessible from the same page.
- Once the player has registered and logged in, then they reach the game page. Their data and username have been stored in the database.
- The home page consists of the Play Button and on clicking it, the player proceeds to the Game Centre page.
- Then the player chooses the level they want to play at. Once, the level is chosen, they reach main gaming screen.
- Once the game is over, the victory page comes up and the player has the option to share their score.
- The players score is simultaneously being saved in the database.
- The gaming screen has a pause button, through which the player can go back to the game centre page, turn the sound on or off or simply just resume the game.
- Each page of the application consists of the settings option.
- The settings page consists of the player's profile page. The player's profile can be updated through that page. It also consists the How to Play page, which contains the game's rules.
- The settings page also contains the option of turning the music of the application, on or off, with the sound button right below it.
- Additionally, an About Us page and Share your Best Score page is also available.

- Lastly, a Help Page is present, where the player can contact us if they have any issues regarding the game. The Help button is also available at each page of the game.

Milestones of Project Plan:

| Description	Actual Man Hours	Estimated Hours
User Interface: • Login Page and Registration Page. • Home Page with Play Button. • Game Centre page with different levels. • Pause Button Page. • Victory Page and sharing score's page. • Turning game's music and sound on & off. • Settings, Home Page and Help Page button on each page.	18	32
Database Creation: • Creating database tables for storing data. • Database and interface connections.	5	9
Navigation: • Navigate through each page of the game. • For instance, selecting Semi Pro level at the game centre and then pausing the game to go back to game centre page and select another level.	14	28
Game's Logic: • Create a table and add small tables in it. • Add faces on each table. • Show the faces a one second and then hide them. • Tap on each table to unveil the faces behind them. • Get the victory page once the game ends. • Share your victory scores with friends.	20	37

UI/UX Design:

URL to UI/UX design on figma-
https://www.figma.com/proto/IFVdGvMgJiJSDD7XL0FTnV/Memento-Puzzler-Memory-Game-Project-Proposal?node-id=60%3A141&scaling=scale-down&page-id=60%3A140

User Stories-

| User Stories	Acceptance Criteria	Estimation	Priority
As a user, I want to pause the game because of some interruption in the real world.	The user must tap the pause button while playing.	Story Point: 5	Medium Priority
As a user, I want to quit the game and play on another level.	The user must tap the pause button, and then select game centre option.	Story Point: 7	Medium Priority
As a user, I want to share my score and then provide feedback on the game	The user must navigate to the settings page, then proceed to the Share your best score page. Then the user must tap on the share button. Once done sharing, the user must select the settings button on top of the page, and then navigate to the help page. From there, the user can contact the developer's team.	Story Point: 9	High Priority
As a user, I want to set a new record.	The user must play attentively. Once they correctly select the correct box's, the victory page will come up. If the user wins the game in record time, then a dialogue box will come up indicating the same.	Story Point: 7	Medium Priority

Use Case-
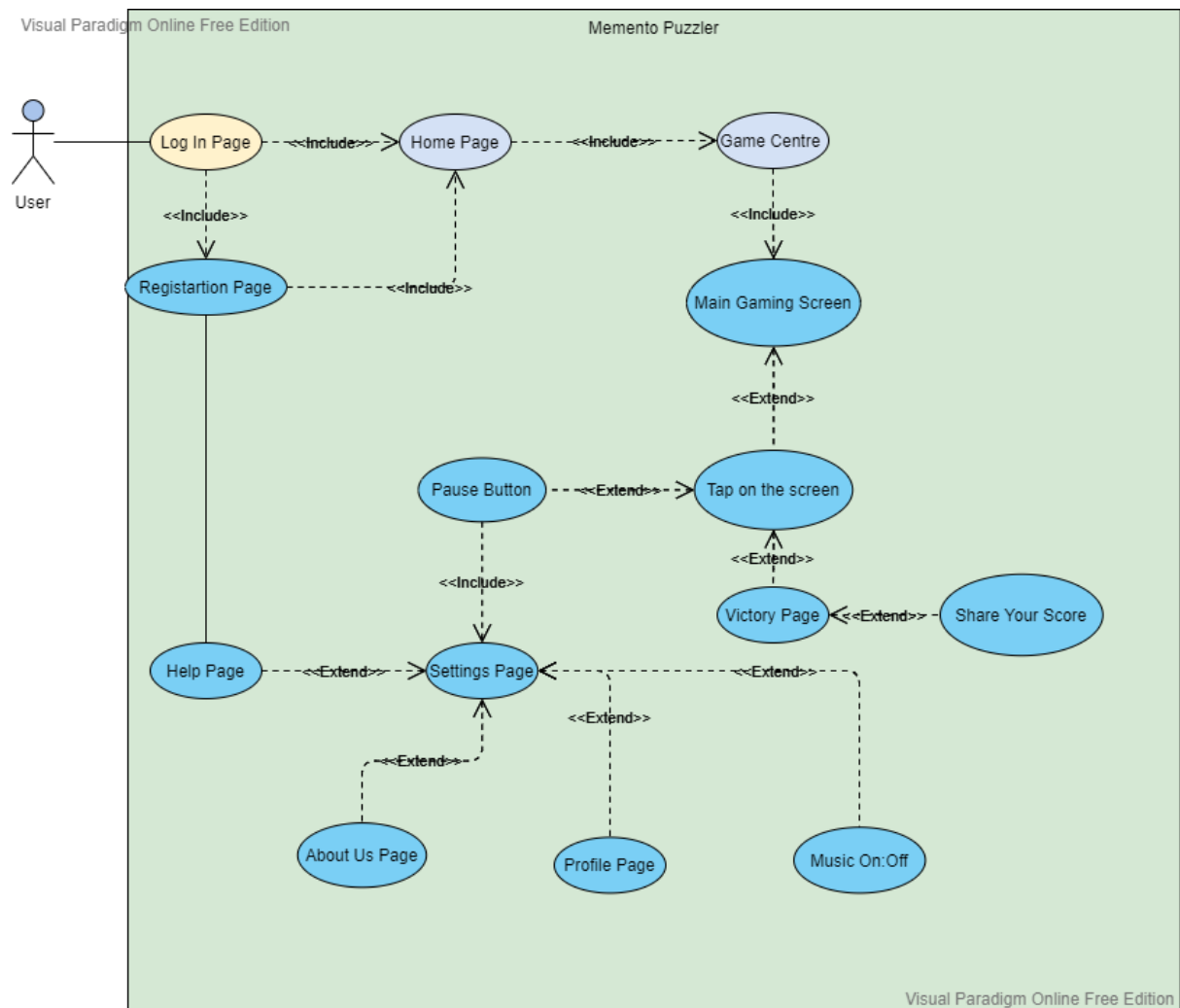
High Level Wireframes:

I've done my wireframing on figma. There are a total of 27 pages in my UI/UX design. My design wireframing starts with the Log In page.
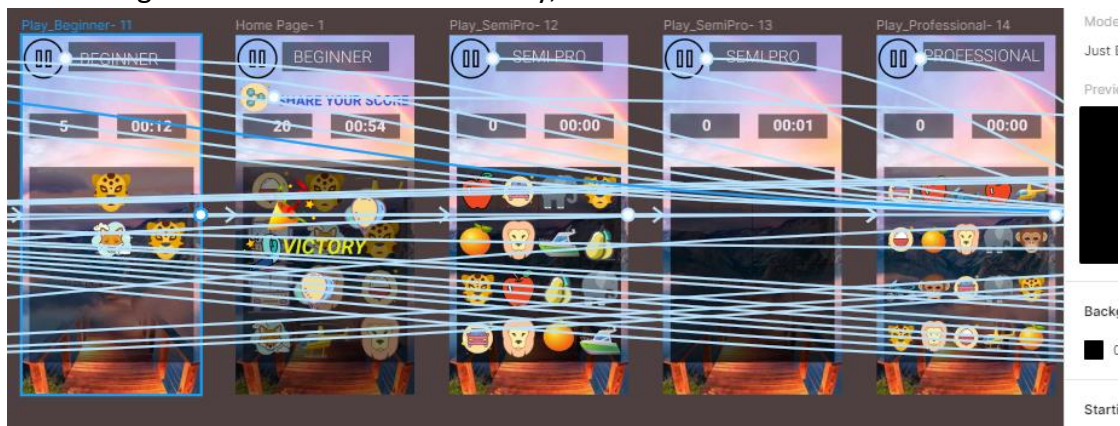
This image consists of the Log In, Registration, Home, Game Centre and Beginner Game Pages.
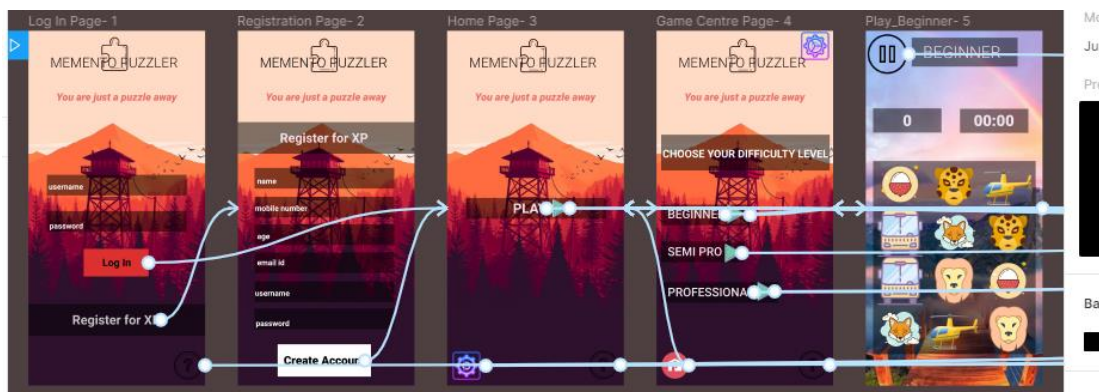
This image consists of how the Beginner Game Page works.

This image consists of the Victory, Semi Pro and Professional Game Pages.

This image consists of the Professional Game, Pause Button and Settings Page. There are a total of 3 settings page in my design as they depict the option of turning the music and sound off.
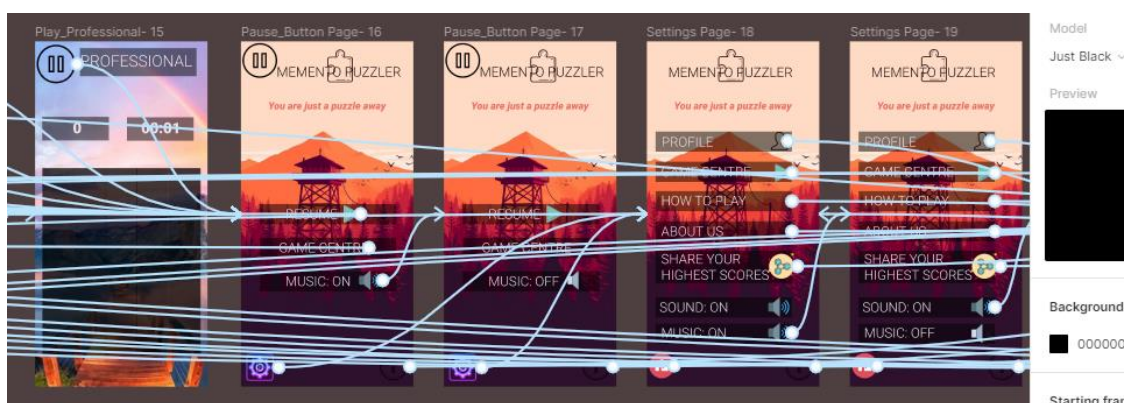
This image consists of the Profile, How to Play, Share Your Best Score Pages.
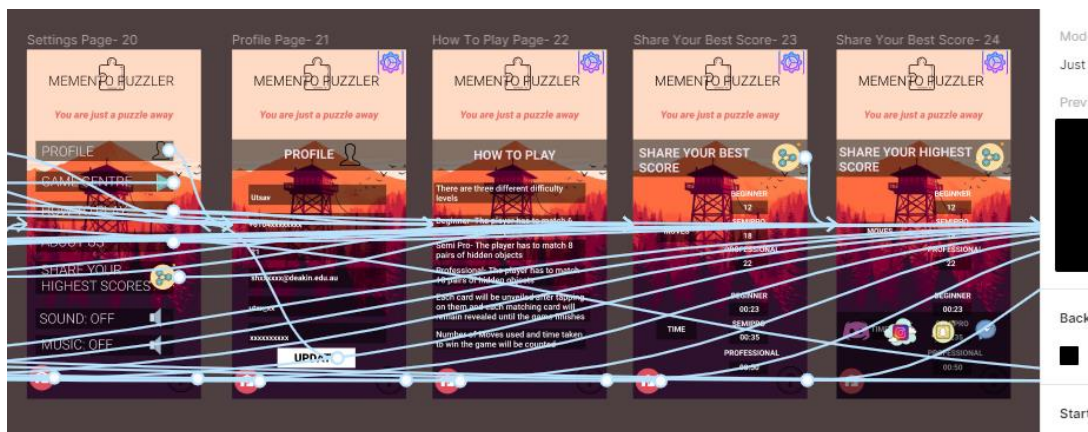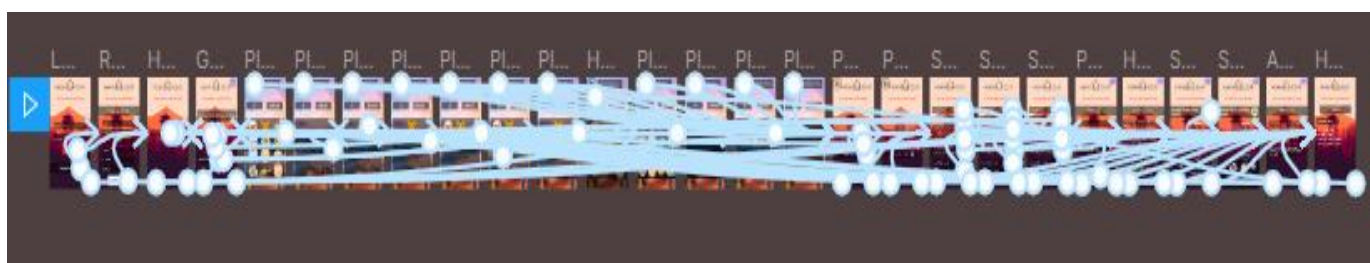

This image consists of the About Us and Help Pages.
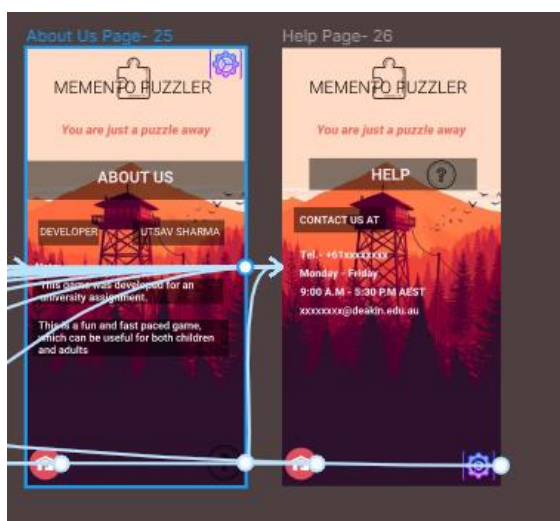
As depicted in the images, the Home Page, Settings Page and Help Page are the most accessible and used pages. Their buttons are almost available on each page.

This a zoomed-out image of whole UI/UX design.

Reference Section:

1. D2l.deakin.edu.au. 2021. [online] Available at: <https://d2l.deakin.edu.au/d2l/le/content/1030571/viewContent/5552608/View> [Accessed 6 April 2021].

2. D2l.deakin.edu.au. 2021. [online] Available at: <https://d2l.deakin.edu.au/d2l/le/content/1030571/viewContent/5552610/View> [Accessed 6 April 2021].

3. Freer, A., 2020. *Only a third of Gen Z identify as mobile gamers but play more than millennials*. [online] Business of Apps. Available at: <https://www.businessofapps.com/news/only-a-third-of-gen-z-identify-as-mobile-gamers-but-play-more-than-millennials/> [Accessed 8 April 2021].