# IV. User Interface Design

## Main Screen



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | Turn on/off music | Turn off music when it’s in on status or turn on music when it’s in off status | N/A | Change music’s status |
| 2 | Play listening game | Go to list of some listening games | N/A | Navigate to listening game screen |
| 3 | Play speaking game | Go to speaking game screen. | N/A | Navigate to speaking game screen |
| 4 | Play writing game | Go to list of some writing games | N/A | Navigate to writing game screen |
| 5 | Play vocabulary game | Go to vocabulary game screen. | N/A | Navigate to vocabulary game screen |

## Listening game

### 2.1 Listening game menu screen



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fields | | | | | | |
| No. | **Name** | **Description** | **Mandatory** | **Control**  **Type** | **Data**  **Type** | **Length** |
| 5 | Logo | Logo | No | Image View | N/A | N/A |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | Play new words game | Go to “new words” game | No | Navigate to “new words” game |
| 2 | Play multi choice game | Go to “multi choice” game | No | Navigate to “multi choice” game |
| 3 | Play “ask and take” game | Go to “ask and take” game | No | Navigate to “pick items” game |
| 4 | Back to “Home” | Go to “Main screen” | No | Navigate to “main screen” |

### 2.2 New words menu screen

### 



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | Play Alphabet new word | Go to “alphabet new words” | No | Navigate to “New words” game with “Alphabet” |
| 2 | Play Number new word | Go to “Number new words” | No | Navigate to “New words” game with “Number” |
| 3 | Play Color new word | Go to “Color new words” | No | Navigate to “New words” game with “Color” |
| 4 | Play Animal new words | Go to “Animal new words” | No | Navigate to “new words” game with “Animal” |
| 5 | Play Food new words | Go to “Food new words” | No | Navigate to “new words” game with “Food” |
| 6 | Play Fruit new words | Go to “Fruit new words” | No | Navigate to “new words” game with “Fruit” |
| 7 | Back to menu | Back to “Listening menu game” | No | Navigate to “Listening menu game screen” |
| 8 | Back to home | Back to “Main” | No | Navigate to “Main screen” |

#### 2.2.1 New word game screen



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fields | | | | | | |
| No. | **Name** | **Description** | **Mandatory** | **Control**  **Type** | **Data**  **Type** | **Length** |
| 2 | Image | Image with sound | No | Image Button | N/A | N/A |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | Back to menu | Back to “New words game menu” | No | Navigate to “New words game menu screen” |

### 2.3 Multi choice game menu screen



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | Play Alphabet multi choice | Go to “alphabet multi choice” | No | Navigate to “Multi choice” game with “Alphabet” |
| 2 | Play Number multi choice | Go to “Number multi choice” | No | Navigate to “Multi choice” game with “Number” |
| 3 | Play Color multi choice | Go to “Color multi choice” | No | Navigate to “Multi choice” game with “Color” |
| 4 | Play Animal multi choice | Go to “Animal multi choice” | No | Navigate to “Multi choice” game with “Animal” |
| 5 | Play Food multi choice | Go to “Food multi choice” | No | Navigate to “Multi choice” game with “Food” |
| 6 | Play Fruit multi choice | Go to “Fruit multi choice” | No | Navigate to “Multi choice” game with “Fruit” |
| 7 | Back to menu | Back to “Listening menu game” | No | Navigate to “Listening menu game screen” |
| 8 | Back to home | Back to “Main” | No | Navigate to “Main screen” |

#### 2.3.1 Multi choice game screen



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | Back to menu | Back to “Multi choice game menu” | No | Navigate to “Multi choice game menu screen” |
| 2 | Answer1 | Answer 1 | No | Navigate to next question |
| 3 | Answer2 | Answer 2 | No | Navigate to next question |
| 4 | Answer3 | Answer 3 | No | Navigate to next question |
| 5 | Answer4 | Answer 4 | No | Navigate to next question |
| 6 | Replay sound | Replay sound | No | Replay sound of the question |

#### 2.3.2 Listening multi choice result screen

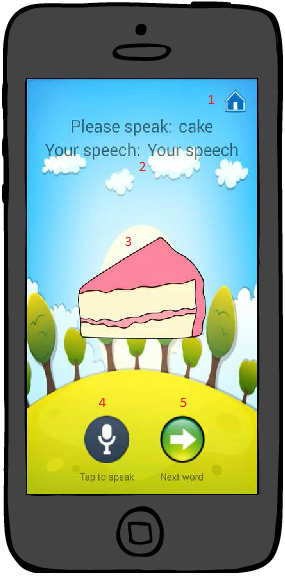
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fields | | | | | | |
| No. | **Name** | **Description** | **Mandatory** | **Control**  **Type** | **Data**  **Type** | **Length** |
| 1 | Result | Result of 10 question | No | Dialog | N/A | N/A |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 2 | Back to menu | Back to menu of multi choice game | No | Navigate to “Multi choice game menu screen” |
| 3 | Replay | Replay game | No | Replay game |
| 4 | Back to home | Back to listening game | No | Previous page |

### 2.4 Pick items game screen

## Speaking game

### 3.1 Speaking game screen



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fields | | | | | | |
| No. | **Name** | **Description** | **Mandatory** | **Control**  **Type** | **Data**  **Type** | **Length** |
| 2 | Question and answer | Show word required and word after speech | No | Text View | N/A | N/A |
| 3 | Image | Image with sound | No | Image button | N/A | N/A |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | Back to home | Back to home page | No | Navigate to “Main screen” |
| 4 | Speech | Tap to speech | No | Show Speech Recognition |
| 5 | Next | Next question | No | Show the next question |

## Writing game

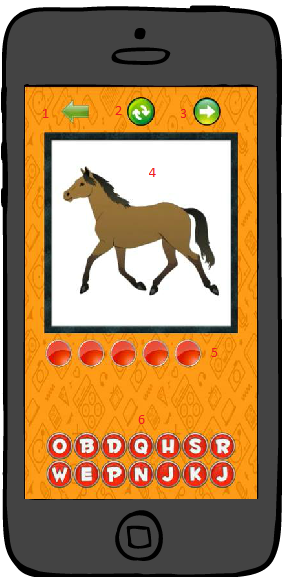
### 4.1 Writing menu game screen



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 |  |  | No |  |
| 2 | Play missing word game | Go to “Arrange word” game | No | Navigate to “Arrange word game screen” |
| 3 | Play arrange word game | Go to “Missing word” game | No | Navigate to “Missing word game screen” |
| 4 | Back to home | Back to home page | No | Back to “Main screen” |

### 4.2 Queue game screen

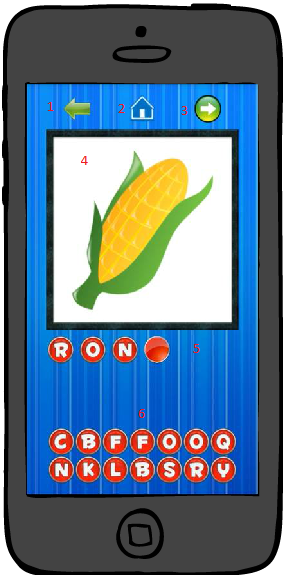
### 4.3 Arrange game screen



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fields | | | | | | |
| No. | **Name** | **Description** | **Mandatory** | **Control**  **Type** | **Data**  **Type** | **Length** |
| 4 | Image | Image | No | Image View | N/A | N/A |
| 5 | Answer | Show word has been chosen | No | Image View | N/A | N/A |
| 6 | Word | Suggest word | No | Image button | N/A | N/A |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | Back to menu | Back to “Writing menu” | No | Navigate to “Writing menu game screen” |
| 2 | Refresh | Refresh the question | No | Refresh the question |
| 3 | Next | Skip this question | No | Go to next quesion |

### 4.4 Missing word game screen



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fields | | | | | | |
| No. | **Name** | **Description** | **Mandatory** | **Control**  **Type** | **Data**  **Type** | **Length** |
| 4 | Image | Image | No | Image View | N/A | N/A |
| 5 | Answer | Show the answer | No | Image view | N/A | N/A |
| 6 | Word | Suggest word | No | Image button | N/A | N/A |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | Back to menu | Back to “Writing menu” | No | Navigate to “Writing menu game screen” |
| 2 | Home | Back to home page | No | Navigate to “Main screen” |
| 3 | Next | Skip this question | No | Go to next question |

## Vocabulary game

### 5.1 Vocabulary game screen



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fields | | | | | | |
| No. | **Name** | **Description** | **Mandatory** | **Control**  **Type** | **Data**  **Type** | **Length** |
| 3 | Image | Image | No | Image View | N/A | N/A |
| 4 | Answer1 | Suggest answer 1 | No | Image button | N/A | N/A |
| 5 | Answer2 | Suggest answer 2 | No | Image button | N/A | N/A |
| 6 | Answer3 | Suggest answer 3 | No | Image button | N/A | N/A |
| 7 | Answer4 | Suggest answer 4 | No | Image button | N/A | N/A |

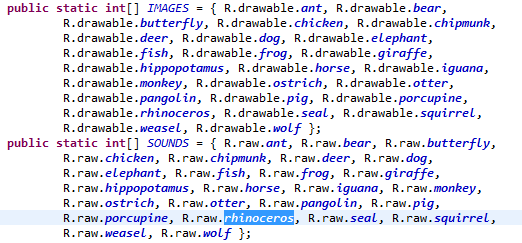
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Button/HyberLink | | | | |
| No. | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | Home | Back to home page | No | Navigate to “Main screen” |
| 2 | Next | Skip this question | No | Go to next question |

# V. Algorithm design

## 5.2 Listening game

### 5.2.1 New word game

* There are 2 array list:



Images to save list of image to learn.

Sounds to save list of sound to hear.

* When user click on image, application will check index of this image in list then get the sound and name of this image. After that, application will play the sound and show text respective of this image.
* Using SwipeEventDetected event to load next image.

### 5.2.2 Multi choice game

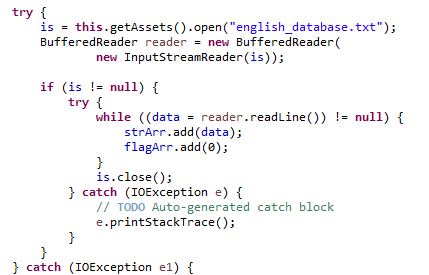
* There are 4 imagebutton for answer and 1 default sound in 1 question.
* There are 2 array lists Images and Sounds.
* Default sound will be random in Sounds list and play. Application will notice the index of this sound to check the answer is right or wrong.
* One answer image have image index and sound index in list, if this index is equal to random sound index the answer is right else the answer is wrong.

### 5.2.3 Pick items game

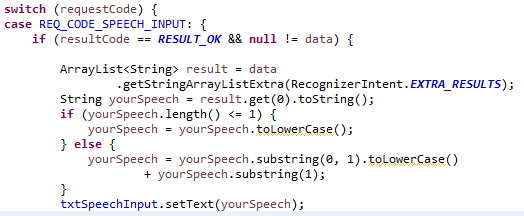
* There is 2 lists of sound, one for number sound and one for items. The question is combined between one random number and one random item in 2 list with index.
* Application will check the index of number and items to known right or wrong.

## 5.3 Speaking game

* There are 3 text files for 3 modes are easy, normal and hard mode. When user choose mode of game, the text file respective will load to strArr list to save word. FlagArr list is to check the word are not repeated.



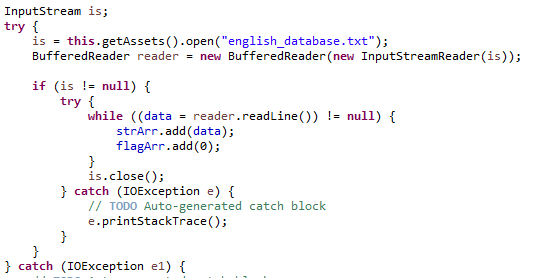
* Google speech API will recognize user’s speech and then change to text type. If this text is equal to word that user have to speak the answer is right else the application will show the user’s voice via Google speech API.



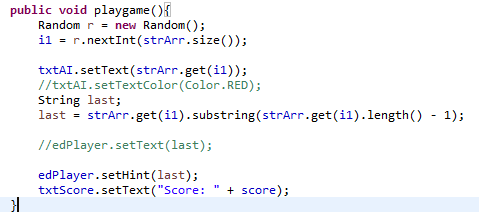
## 5.4 Writing game

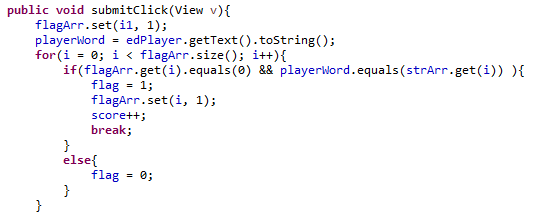
### 5.4.1 Queue game

* There is one text file have 10.000 English vocabulary, we will read this text file and then save 10.000 vocabulary in array list.



* Application will pick one random word in this list and show to the screen.
* User will fill input to edittext field. Application will check 2 things, one is this word must be appear in 10.000 word list and two is first character of user’s input is equal to last character of application word.





### 5.4.2 Arrange word game

* There are 2 lists image list and respective word list , when image is loaded random in image list we will have the index of this image so we can get the word of this image in word list.
* We put the character in the edittext field one by one but wrong order character. If user’s input is equal to initial word the answer is right else the answer is wrong.

### 5.4.3 Missing word game

* There are 2 lists image list and respectiveword list, when image is loaded random in image list we will have the index of this image so we can get the word of this image in word list.
* We put the character in the edittext field one by one but miss one character. We will notice this miss character to one variable and will compare with user’s input. If user’s input is equal to missing character the answer is right else the answer is wrong.

## 5.5 Vocabulary game

* There are 2 lists image list and respective word list , when image is loaded random in image list we will have the index of this image so we can get the word of this image in word list.
* Get 3 random word in word list and make it to be multichoice answer with 1 right answer.
* Application will check if user’s answer is equal to right word the answer is right else the answer is wrong.