

RAMP

Rowan Academy of Mobile Programming

Mole Mash Game

Mole Mash Game Description

In our version of whack a mole, you will have thirty seconds to try and get the highest score you can. If your total score after the thirty seconds is high enough, you will be able to collect bonus points by shaking your device! Final Scores are then displayed on another we will call the ScoreScreen. On the ScoreScreen page, the high score is displayed along with the score from the previous game.

Android & Computer Science Concepts Covered in Mole Mash Game

This Android App will include the following Computer Science concepts and Android principles:

- The Android accelerometer sensor
- Android event handling
- How conditional and control statements are used
- Data structures and Abstractions
- Parameter passing and Data Storage
- High level languages translated into low level languages.

Screen 1

The screenshot displays the MIT App Inventor 2 Beta web interface. At the top, the header includes the MIT App Inventor logo, the text 'MIT App Inventor 2 Beta', and navigation links for 'Projects', 'Connect', 'Build', and 'Help'. On the right side of the header, there are links for 'My Projects', 'Gallery', 'Guide', 'Report an Issue', 'English', and the user's email 'john.robinson616@gmail.com'.

The main workspace is titled 'MoleMash1' and features a green bar with 'Screen1', 'Add Screen ...', and 'Remove Screen' buttons. On the right of this bar are 'Designer' and 'Blocks' tabs.

The interface is divided into several panels:

- Palette:** A list of UI components categorized into 'User Interface' (Button, CheckBox, DatePicker, Image, Label, ListPicker, ListView, Notifier, PasswordTextBox, Slider, Spinner, TextBox, TimePicker, WebViewer), 'Layout', 'Media', 'Drawing and Animation', 'Sensors', and 'Social'.
- Viewer:** A central area showing a mobile app preview. It includes a title bar 'Mole Mash', a large grey area, and three buttons: 'Start Game', 'High Score', and 'Quit'. Below the preview, there are checkboxes for 'Display hidden components in Viewer' and 'Check to see Preview on Tablet size', and a section for 'Non-visible components' containing 'TinyDB1'.
- Components:** A tree view showing the hierarchy of components on the screen: 'Screen1' contains 'HorizontalArrangement1' (with 'Image1'), 'HorizontalArrangement2' (with 'startGame', 'HorizontalArrangemen', 'highScore'), 'HorizontalArrangement4' (with 'Quit'), and 'TinyDB1'.
- Properties:** A panel for the selected 'Image1' component, showing properties like 'Height', 'Width', 'Picture', 'RotationAngle', 'ScalePictureToFit', and 'Visible' (checked).
- Media:** A list of media files: 'WelcomeScreen.png', 'gamemole.png', 'grass.png', and 'highscore.jpg'.

Screen 1 Settings

Properties

HorizontalArrangement1

AlignHorizontal
Left ▾

AlignVertical
Top ▾

BackgroundColor
■ Default

Height
310 pixels...

Width
Fill parent...

Image
None...

Visible

Properties

HorizontalArrangement2

AlignHorizontal
Center ▾

AlignVertical
Center ▾

BackgroundColor
■ Default

Height
50 pixels...

Width
Fill parent...

Image
None...

Visible

Properties

HorizontalArrangement3

AlignHorizontal
Left ▾

AlignVertical
Top ▾

BackgroundColor
■ Default

Height
Automatic...

Width
10 pixels...

Image
None...

Visible

Properties

HorizontalArrangement4

AlignHorizontal
Center ▾

AlignVertical
Center ▾

BackgroundColor
■ Default

Height
50 pixels...

Width
Fill parent...

Image
None...

Visible

Properties

Image1

Height
Fill parent...

Width
Fill parent...

Picture
None...

RotationAngle
0.0

ScalePictureToFit

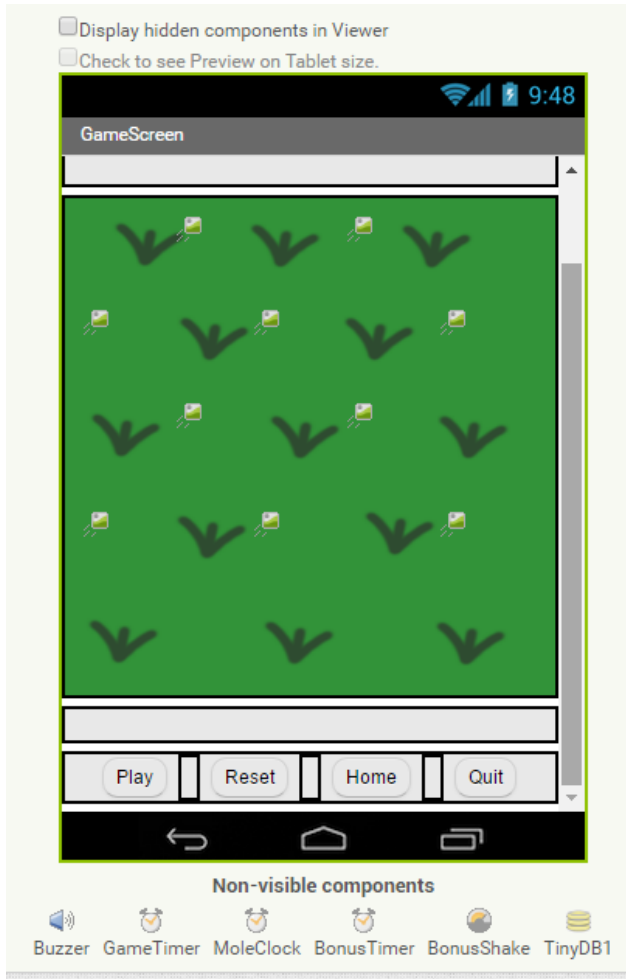
Visible

Game Screen top

The screenshot displays the Android Studio IDE with the following components:

- Palette:** A sidebar on the left containing various UI widgets categorized by User Interface, Layout, Media, Drawing and Animation, Sensors, Social, and Storage.
- Viewer:** The central workspace showing a preview of the game screen. It includes a status bar at the top with the time 9:48 and a checkbox for "Display hidden components in Viewer". The game screen itself has a score of 0 and a timer of 30 seconds. Below the preview is a "Non-visible components" section with icons for Buzzer, GameTimer, MoleClock, BonusTimer, BonusShake, and TinyDB1.
- Components:** A tree view on the right showing the hierarchy of UI elements. The selected element is ScoreTextLabel, which is part of a HorizontalArranger, which is part of another HorizontalArranger, which is part of a ScoreTextValue, which is part of another HorizontalArranger, which is part of a TimerTextLabel, which is part of another HorizontalArranger, which is part of a TextTimerValue, which is part of another HorizontalArranger, which is part of a TimerSecLabel, which is part of another HorizontalArranger, which is part of a BonusNotifier, which is part of another HorizontalArranger, which is part of a Canvas1, which is part of a Hole3, Hole4, and Hole5.
- Properties:** A panel on the right showing the settings for the selected ScoreTextLabel. The properties include BackgroundColor (None), FontBold (unchecked), FontItalic (unchecked), FontSize (25), FontTypeface (default), Text (Score:), TextAlignment (left), TextColor (Black), Visible (showing), Width (Automatic...), and Height (Automatic...).

Game Screen bottom



Game Screen Settings

HZL1 – width – fill parent, height - 20 pixels

HZL2 – width – fill parent, height – automatic

HZL3 – width – 5 pixels, height - fill parent

HZL4 – width – 10 pixels , height - fill parent

HZL5 – width – 5 pixels, height - fill parent

HZL6 – width – 10 pixels, height – fill parent

HZL7 – width – fill parent, height - 20 pixels

CANVAS - width – fill parent, height - 320 pixels

HZL8 – width – fill parent, height - 20 pixels

HZL9 – width – fill parent, height - 20 pixels

HZL8 – width –10 pixels, height - fill parent

Game Screen Settings

Image Sprite	X	Y
Hole1	10	70
Hole2	120	70
Hole3	240	70
Hole4	70	130
Hole5	180	130
Hole6	10	200
Hole7	240	200
Hole8	120	200
Hole9	70	10
Hole10	180	10
Mole	195	282

Score Screen

The screenshot shows the MIT App Inventor 2 Beta interface for a project named "MoleMash1". The current screen is "ScoreScreen". The interface is divided into several panels:

- Palette:** Contains various UI components such as Button, CheckBox, Clock, DatePicker, Image, Label, ListPicker, ListView, Notifier, PasswordTextBox, Slider, Spinner, TextBox, TimePicker, and WebViewer.
- Viewer:** Displays a mobile device screen with the following layout:
 - Header: "ScoreScreen" (with a checkbox to "Display hidden components in Viewer")
 - Top section: "High Score" (text) above a text box containing "0".
 - Middle section: "Your Score" (text) above a text box containing "0".
 - Bottom section: A "Return Home" button.
- Components:** A tree view showing the hierarchy of components on the screen, including ScoreScreen, VerticalArrangement1, HorizontalArrangement, Label1, HighScore, Label2, GameScore, Button1, HighScoreDB, and TinyDB1.
- Properties:** Shows the properties for the selected "Label1" component, including BackgroundColor (None), FontBold, FontItalic, FontSize (45), FontTypeface (default), Text (High Score), TextAlignment (left), TextColor (Black), Visible (showing), and Width (Automatic...).

Score Screen Settings

VERTL1 – width – fill parent, height - fill parent

HZL2 – width – automatic, height – 80 pixels

HZL3 – width – fill parent, height – automatic

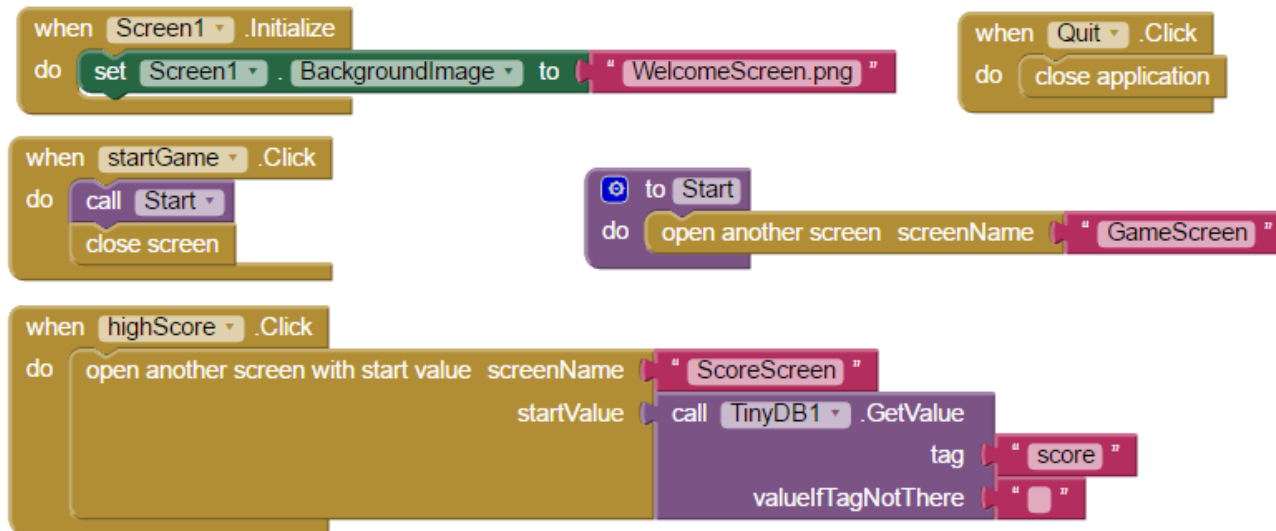
HZL4 – width – automatic, height – 80 pixels

HZL5 – width – fill parent, height – automatic

HZL6 – width – automatic, height – 80 pixels

HZL7 – width – automatic, height – fill parent

Screen 1 Logic



⚠ 0 🔴 0

Show Warnings



Game Screen Logic

The image displays a Scratch script editor with the following logic:

- Global Initialization:**
 - initialize global holes to create empty list
 - initialize global currentHole to 0
- When Play is Clicked:**
 - set Mole . Visible to true
 - set GameTimer . TimerInterval to 30000
 - set GameTimer . TimerEnabled to true
 - set Play . Enabled to false
 - set MoleClock . TimerEnabled to true
 - call MoveMole
- When MoleClock Timer:**
 - if Mole . Visible then call MoveMole
 - set TextTimerValue . Text to TextTimerValue . Text - 1
- When Mole is Touched:**
 - set ScoreTextValue . Text to ScoreTextValue . Text + 1
 - call Buzzer . Vibrate for 100 milliseconds
 - call MoveMole

At the bottom left, there are warning indicators (0 yellow and 0 red triangles) and a "Hide Warnings" button. At the bottom right, there is a trash can icon.

Game Screen Logic

```
when GameScreen .Initialize
do
  add items to list list
  item Hole1
  item Hole2
  item Hole3
  item Hole4
  item Hole5
  item Hole6
  item Hole7
  item Hole8
  item Hole9
  item Hole10
  for each item in list
  do
    set ImageSprite. Picture
    of component
    to
    "hole.png"
  set Mole . Picture to "gamemole.png"
  set Mole . Visible to false
  set GameTimer . TimerEnabled to false
  set BonusNotifier . Visible to false
  set BonusTimer . TimerEnabled to false
  set MoleClock . TimerEnabled to false
```



0 0
Hide Warnings

Game Screen Logic

```
when BonusShake .Shaking
do set ScoreTextValue . Text to ScoreTextValue . Text + 1
```

```
when BonusTimer .Timer
do set BonusTimer . TimerEnabled to false
   set BonusShake . Enabled to false
   call TinyDB1 .StoreValue
      tag "score "
      valueToStore ScoreTextValue . Text
   open another screen with start value screenName " ScoreScreen "
      startValue ScoreTextValue . Text
```

0 0

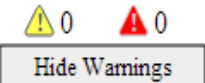
Hide Warnings



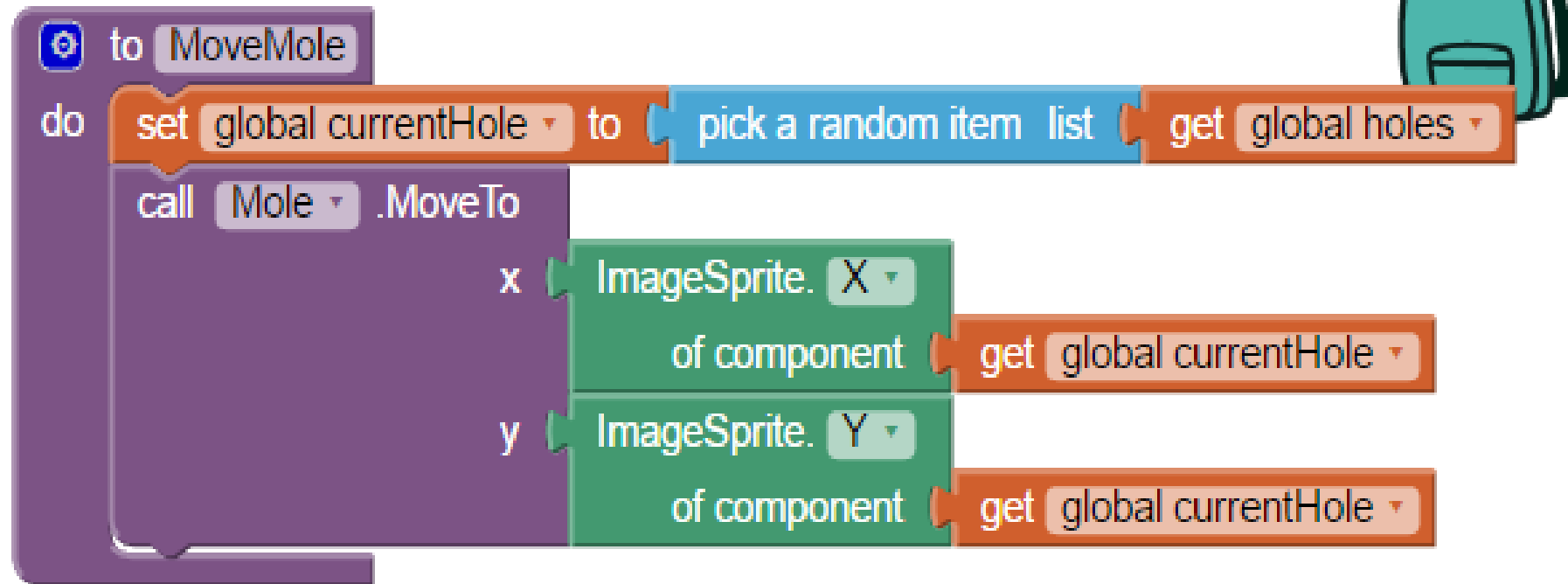
Game Screen Logic

```
when GameTimer.Timer
do
  set Mole.Visible to false
  set GameTimer.TimerEnabled to false
  set TextTimerValue.Text to TextTimerValue.Text
  if ScoreTextValue.Text >= 35
  then
    set BonusNotifier.Visible to true
    set BonusShake.Enabled to true
    set BonusTimer.TimerInterval to 5000
    set BonusTimer.TimerEnabled to true
    set TimerSecLabel.Visible to false
    set TimerTextLabel.Visible to false
    set TextTimerValue.Visible to false
  else
    call TinyDB1.ClearTag
    tag "score"
    call TinyDB1.StoreValue
    tag "score"
    valueToStore ScoreTextValue.Text
    open another screen screenName "ScoreScreen"
```

```
when Reset.Click
do
  set ScoreTextValue.Text to 0
  set Mole.Visible to false
  set MoleClock.TimerEnabled to false
  set GameTimer.TimerEnabled to false
  set GameTimer.TimerInterval to 0
  set BonusNotifier.Visible to false
  set BonusTimer.TimerEnabled to false
  set BonusShake.Enabled to false
  set TextTimerValue.Text to 30
  set Play.Enabled to true
  set TimerSecLabel.Visible to true
  set TimerTextLabel.Visible to true
  set TextTimerValue.Visible to true
```



Game Screen Logic



Game Screen Code

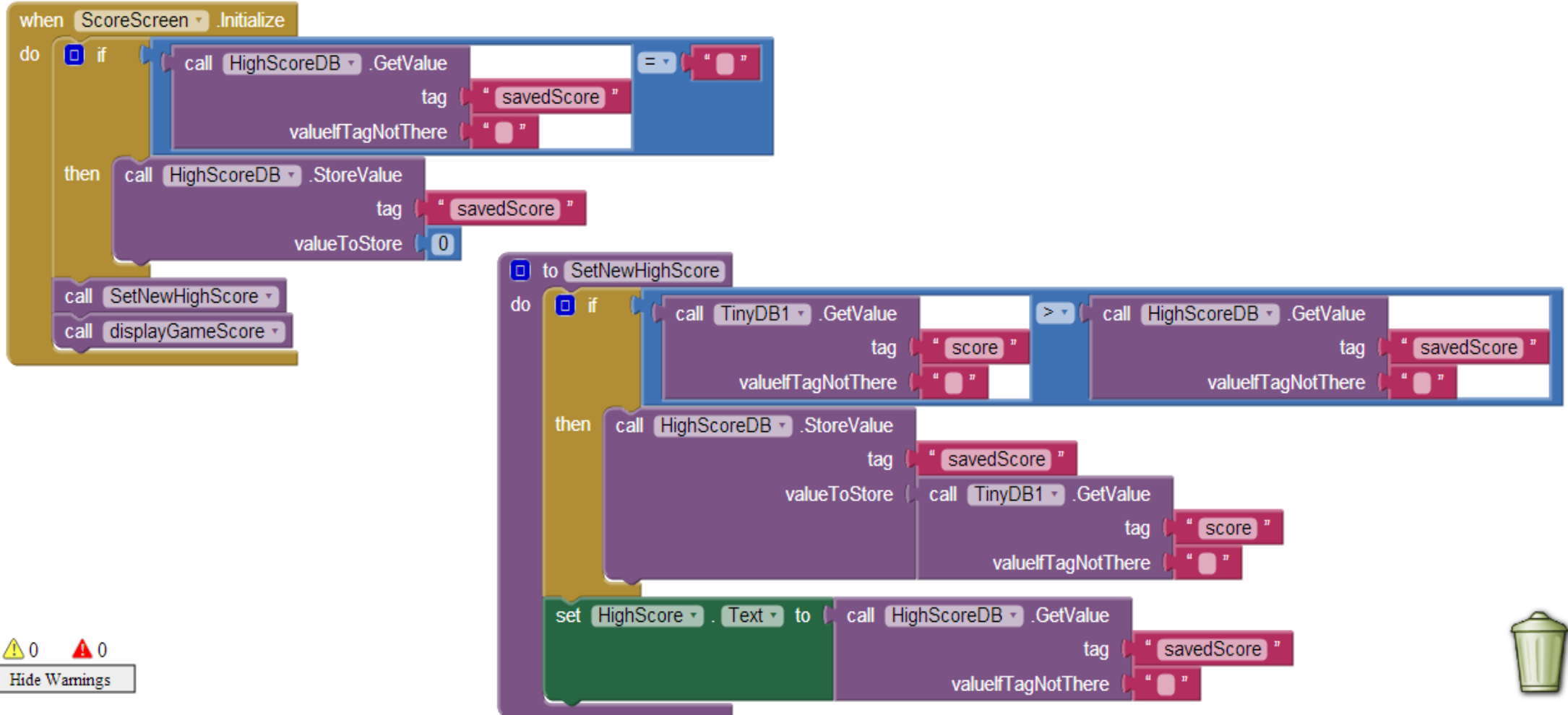
```
to Quit  
do close application
```

```
when Quit .Click  
do call Quit  
close screen
```

```
when Home .Click  
do call Home  
close screen
```

```
to Home  
do open another screen screenName "Screen1"
```

Score Screen Logic



Score Screen Logic

