

## Trees, Our Lifeline – Part II

In the last video, we designed the screens for our game. In this video, we will code the backdrops and the buttons that we added.

Let us begin with the Home Screen. Go to the backdrops Tab and select the 'Home Screen' costume. Move to its Code section. Remember, no sprite will be selected at this time as we are in the code editor of the Home Screen backdrop. Go to the events section and drag 'when backdrop switches to...' block to the editor. From the drop down, select the option 'Home Screen'. We will create a variable for the backdrop as we have multiple backdrops and each of them will play a separate role in the game.

Go to the variables section, click 'Make a variable' and select the option 'For all sprites'. We are calling the variable 'BackdropScreen'. To initialise the variable, Drag 'Set BackdropScreen to 0' block from the variables section and attach to the when backdrop switches to... block. The value should be 0.

We have created 7 main screens or backdrops till now. Let us assign a value to each screen using the BackdropScreen variable. Arrange the backdrops in sequential order. Go back to the code section. Duplicate the entire code block 'When backdrop switches to...' 6 more times.

Select backdrops one by one and assign values appropriate values. We are assigning -1 to Game Rules Screen, 1 to High wind landscape, 2 to Industrial Landscape, 3 to Soil Erosion Landscape, 4 to Coastal landscape and 5 to Game Over Screen.

We will now add sounds to the backdrops. Go to the sounds tab and delete the default sound. Click on the icon at the bottom left and upload 3 sounds of your choice for the Home Screen, Main Game and Game Over Screens respectively. Rename them as Home Screen Sound, Main Game Sound and Game Over Screen Sound. You can also choose sounds from the Scratch directory.

Go back to the code editor. From the events section, Drag 'When I receive message' block to the editor. Select the option 'New message' and create a message called 'Check Sound'. This message can be heard by other backdrops as well. Drag the 'if then' block thrice from the control section and attach them to 'when I receive Check Sound' block one after another.

Drag the 'lesser than' block from the operators section and place it in the first <hexagonal slot> of the block. Drag the variable 'Backdrop Screen' from the variables section and place it in the left hand side slot of hexagonal slot. Change the value from 50 to 1. Now drag 'stop all sounds' block from the sound section and place it inside the 'if then' block. Drag the 'start sound...' from the sound section and place it after the stop all sounds block inside the same 'if then' block. Select the 'Home Screen Sound' from the drop down.

Drag the 'and' block from the operators section and place it in the <hexagonal slot> of the second 'if then' condition. Drag the 'greater than' block and place it in the left hand side of the AND operator and drag the 'less than' block to the right hand side of the and operator. From the Variables section, drag the 'BackdropScreen' variable to both the left hand side slots. Change the value in the first condition to 0 and in the second condition to 5. Now drag 'stop all sounds' block from the sound section and place it inside the 'if then' block. Drag the 'start sound...' from the sound section and place it after the stop all sounds block inside the same 'if then' block. Select the 'Main Game Sound' from the options in the drop down.

Drag the 'equal to' block from the operators section and place it in the <hexagonal slot> of the third if then block. Drag the variable 'BackdropScreen' from the variables section and place it in the left hand side slot of the hexagon. Change the value to 5. Now drag 'stop all sounds' block from the sound section and place it inside the 'if then' block. Drag the 'start sound...' from the sound section and place it after the stop all sounds block inside the same 'if then' block. Select the 'Game Over Screen Sound' from the options in the drop down.

*Let us recapitulate our logic. The three if-then conditions ensure that if the BackdropScreen is less than 1, which implies the Home Screen and the Game Rules Screen, then the Home Screen Sound is played. If the BackdropScreen is 1,2,3 or 4 which implies the 4 landscapes - High Wind Landscape, Industrial landscape, Soil erosion landscape and Coastal landscape., then the Main Game Sound is played. And lastly, if the BackdropScreen is 5 which implies the Game Over Screen, then the Game Over Screen Sound is played.*

It is time to code the buttons now.

### **Let us begin with the Start button.**

Select the 'Start button' sprite. From the events section, drag 'when flag clicked' in the code editor. Drag 'set BackdropScreen to 0' from the variables section and attach to the when flag clicked block. Let the value remain 0. This is done to initialize the variable to 0.

Then drag 'switch backdrop to' from the looks section and attach. Select Home Screen from the drop down. Drag a 'forever' block from the control section and attach to switch backdrop to Home Screen block. Drag an 'if else' block from the same section and place it inside the forever loop. Drag an 'equal to' block from the operators section and place it in the <hexagonal slot> of the if then loop. Then drag the 'BackdropScreen' variable and drop it in the blank space. Change the value to 0 from 50. Drag 'show' block from the looks section and place it inside the if loop and drag 'hide' block and place it inside the else loop.

Now move 'when this sprite clicked' from the events section to the code editor. From the looks section, drag 'switch backdrop to' and attach. From the drop down, select the option 'High Wind Landscape'. This step ensures that when the player clicks on the start button, it takes him or her to the High wind landscape screen.

### **Our next step is to code the 'Game Rules Button'....**

Select the 'Game rules button' sprite and go the code editor. From the events

section, drag 'when flag clicked' to the code editor and attach the 'forever' block from the control section to it. Drag the 'if then' block from the same section and place it inside the forever loop. Drag 'and' block from the operators section and place it in the <hexagonal slot>. The 'And' Operator returns TRUE if both conditions in the hexagonal slot are true. Drag a 'greater than' block from the operators section and place it in the left <hexagonal slot>. Similarly drag a less than' block and place it in the right <hexagonal slot>.

Drag the 'BackdropScreen' variable from the variables section and drop it in the left hand side slots of both conditions. Change the value to 0 in the condition to the left and 5 in the condition to the right. This button should appear only on the home screen and hence drag 'hide' block from the looks section and place it inside it.

Now drag 'when backdrop switches to...' from the events section to the code editor and attach 'show' block from the looks section. From the drop down, select the option 'Home screen'. This step ensures that the Game rules button is visible on the home screen.

Drag 'when this sprite clicked' from the events section and attach 'switch backdrop to...' from the looks section. Select 'Game Rules Screen' from the dropdown. This logic ensures that when the Game Rules button is clicked, the rules of the game are displayed.

This button should not appear on the Game rules screen. Drag 'when backdrop switches to...' from the events section to the code editor and attach the 'hide' block from the looks section. From the drop down, select the option 'Game Rules screen'.

### **Let us code the 'Back Button' now.**

Select the 'Back button' sprite. Drag 'when flag clicked' from the events section to the code editor. Attach a 'forever' block from the control section to it. Drag an 'if then' block from the same section and place it inside the forever loop.

Drag an 'and' block from the operators section and place it inside the <hexagonal slot>. Drag the 'greater than' block from the operators section and place it in the left <hexagonal slot> and the 'less than' block in the right <hexagonal slot>. Drag the 'Backdrop Screen' variable from the variables section and drop it in the left slots of both conditions. Change the value to 0 in the condition on the left and 6 in the condition on the right. Since the back button should not be visible on any of these screens, drag 'Hide' from the looks section inside the if then loop. The back button should be visible only on the Game Rules screen and not on any other screen. Drag the 'when backdrop switches to...' from the events section to the code editor and attach 'show' block from the looks section. From the drop down, select the option 'Game Rules screen'.

Now drag 'when this sprite clicked' to the code editor from the events section and attach 'switch backdrop to...' from the looks section. From the drop down, select 'Home Screen' option.

Next, drag 'when backdrop switches to...' from the events section to the code editor and attach 'hide' block from the looks section. From the drop down, select the option 'Home Screen'. This piece of code will hide the back button once it switches back to the home screen.

### **The last button that we need to code is the 'Restart Button'**

Select the 'Restart button' sprite. Drag 'when flag clicked' from the events section to the code editor. Attach a 'forever' block from the control section to it. Drag an 'if else' block from the same section and place it inside the forever loop. Drag 'equal to' block from the operators section and place it in the <hexagonal slot> of the if loop. Then, drag the 'BackdropScreen' variable to the left hand side of the condition. Change the value to 5.

Drag 'show' block from the looks section and place it inside the if loop and drag 'hide' block and place it inside the else loop.

Drag 'when this sprite clicked' from the events section to the code editor. Attach 'switch backdrop to' from the looks section.

From the drop down, select the 'Home Screen' option. This ensures that when the player clicks on the restart button, the control passes to the Home screen.

Next, drag 'when backdrop switches to...' from the events section to the code editor and attach 'hide' block from the looks section. From the drop down, select the option 'Home Screen'. This logic will hide the restart button once it switches back to the home screen.

Time to test the screens and the functionalities of the various buttons. Our screens and buttons seem to be working fine.

Before we complete this task, we need to code our trees and the soil patches. All trees should appear on all landscapes and only one suitable soil patch should appear on every single landscape.

### **Let us begin by coding our 'Trees'.**

The trees should appear on all the landscapes but should not appear on the Home Screen, the Game Rules Screen and the Game Over Screen. Go to the 'Banyan Tree' sprite. Drag 'when flag clicked' from the events section to the code editor. Attach a 'forever' block from the control section to it. Drag 'if else' block from the same section and place it inside the forever loop. Drag an 'and' block from the operators section and place it inside the <hexagonal slot>. Drag the 'greater than' block from the operators section and place it in the left <hexagonal slot> and the 'less than' block in the right <hexagonal slot>. Drag the 'Backdrop Screen' variable from the variables section and drop it in the left slots of both conditions. Change the value to 0 in the condition on the left and 5 in the condition on the right. Drag the 'show' block from the looks section and place it in the if loop and drag 'hide' block and place it in the else loop.

This code ensures that the tree will appear only if the values for the backdrops are 1, 2, 3 and 4 which correspond to the 4 landscapes.

We have to Repeat the steps described earlier for the remaining 3 trees. Copy the code block and paste it for each of the remaining tree sprites.

We are done with the coding of our tree sprites for now.

### **Now, let us code the 'Soil Patches'**

As mentioned earlier, we need only one patch of soil to appear on each landscape. Soil patches should not be visible on the Home Screen, the Game Rules Screen and the Game Over Screen. We will code each patch individually.

Select the 'High Wind Soil' sprite. Drag 'when flag clicked' from the events section to the code editor. Attach a 'forever' block from the control section to it. Drag 'if else' block from the same section and place it inside the forever loop. Drag 'equal to' block from the operators section and place it in the <hexagonal slot> of the if loop. Then, drag the 'BackdropScreen' variable to the left-hand side of the condition. Change the value to 1. Drag 'show' block from the looks section and place it in the if loop and drag 'hide' block to place it in the else loop. These steps will ensure that this soil patch will appear only to the backdrop with the value 1, that is High Wind landscape.

Repeat the steps described earlier for all the other remaining 3 soil patches. You can drag and paste the same code to the other three sprites. Now go to each individual sprite and change the values of the Backdrop screen variable in the conditions.

For Industrial Soil, the value of the BackdropScreen will be 2.

For Erosion soil, the value of the BackdropScreen will be 3.

And for Coastal soil, the value of the BackdropScreen will be 4.

Let us test our code now. All the backdrops, buttons and sprites are working perfectly.

Congratulations. You have completed one more task. In the next video, we will begin coding our tree sprites.

See you soon. Bye-bye.