

Class 1 - Introduction to Coding

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April 1, 2018

Pre-Class Setup

- Browser 1 - Private tabs
 - Tab 1 - Scratch blank project
- Browser 2
 - Tab 1 - Red Light Green Light Project
- Slideshow for flow control

Introduction

Some Quick Talking Points

- Its ok to be frustrated when things don't work
 - When something doesn't work and we need to fix it we call it debugging we will play a fun game with that in week 4
 - Dont give up on your code, start at the beginning of it and read through it.
 - Sometimes it helps to have another coder look at it.

What is flow control

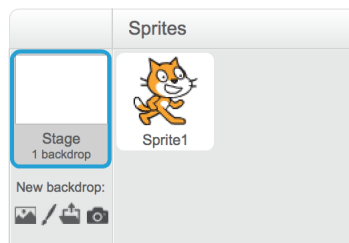
- In Scratch it is called an "if then else" statement"
 - This is a fork in the road for our code. We are able to choose one direction or another based on a test for true or false statements.
 - Red light green light game is flow control, E.G. *if* the light is green *then* we move, *else* we stop
- **show the control flow sideshow**

Explain Boolean Values

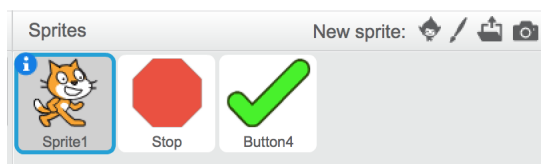
- Boolean values are true or false values.
- Computers don't know the words true and false, Computers talk in 1s and 0s
- 1 = True
- 0 = False
- for us:
 - 1 will equal true or that the light is green
 - 0 will equal false or that the light is red

Example - Red Light, Green Light Game

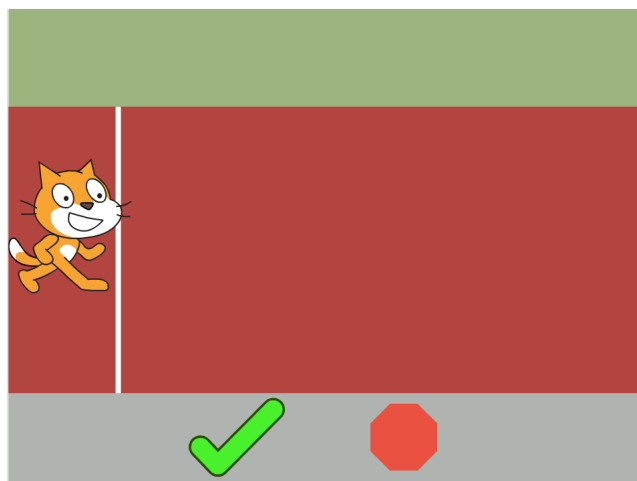
- We will need to add a background to our project. Click on add background and choose **track**



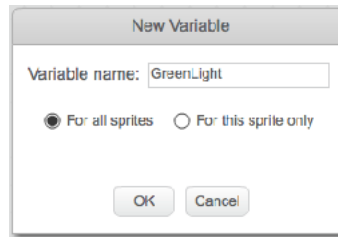
- Next we need to add two sprites, **Stop** and **button4**



- Drag the buttons so that our project looks like this



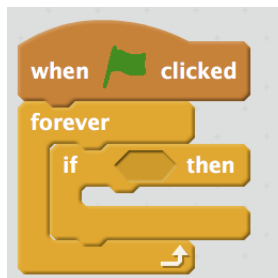
- We need to build a data variable that our cat can read from, this will let him know if the light is green or red. We will call it GreenLight



- Lets make the variable GreenLight True when we click the check mark button
 - In the check mark sprite, let's add a Event block that is when green flag clicked and a forever loop.
 - We want the program to check constantly that the button has been clicked

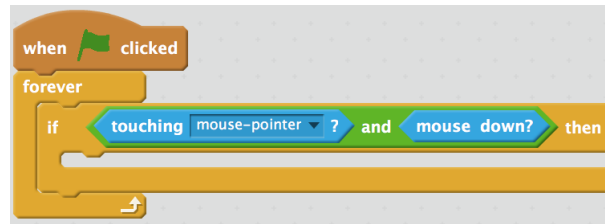


- We are going to have an **if then** statement so that we can look for a click and when that happens we will set the variable.

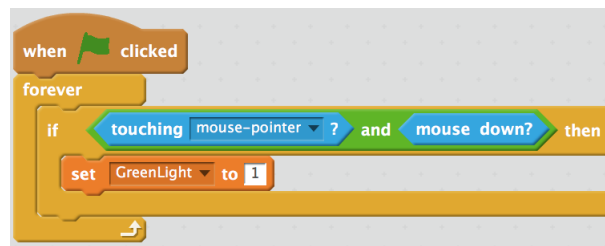


- To recognize a button click we will need a couple of things, this will go into the if statement
 - In the operators section we will need to use a logical and statement, this means next two things we add will both need to be true to enter the if statement
 - First we will add a block from sensing called touching and we will set this to mouse-pointer. This means that our pointer is touching the sprite

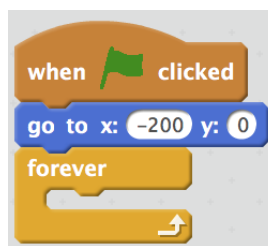
- Second we add a block from sensing called mouse down?. This means that we have clicked the mouse button



- Inside the if statement we will set our green light variable. Go to data and choose the set block. Since this is the go button we want to set this to true which is 1



- ***We will repeat the same thing for the stop button but we will set the variable to 0 for false
- Next we are going to set up our script for the cat to move. This will also involve a **if then** statement in which we will check if we have the green light to move
- We will start with the program start block from events
- we want to set the cats starting location, from the motion section we pick the go to block. I set this to -200 and 0
- Next we will use a forever block from the control section because we want the cat to be constantly checking to see if he should move



- Add an **if then** statement to the inside of the forever statement so the cat can check and decide if he should move

- In operators we want to choose an equal statement because so that we can compare our variable to a green light
- Inside the equals block we want the first part to be the variable, from the data section we will drag the GreenLight variable
- In the second section we will enter the number 1
- Inside the if then statement we will add a block from motion called move steps that will make our character move. enter the value 2

