



Scratch Programming

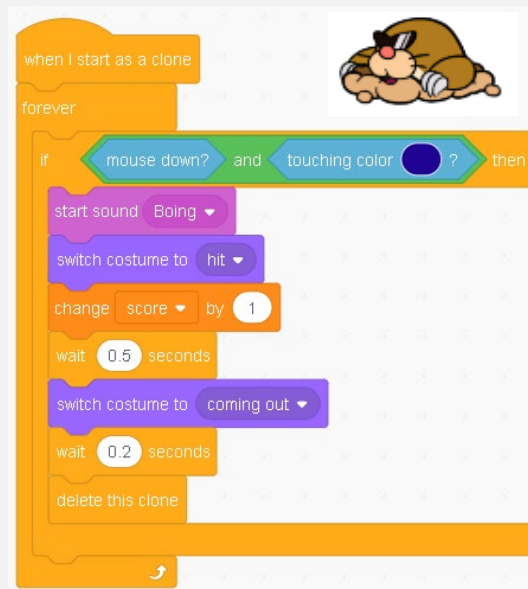
Lesson 2-5

Car Race Game I

Presented by Advaspire Team



Review - Fix the bug (Hitting with Hammer)

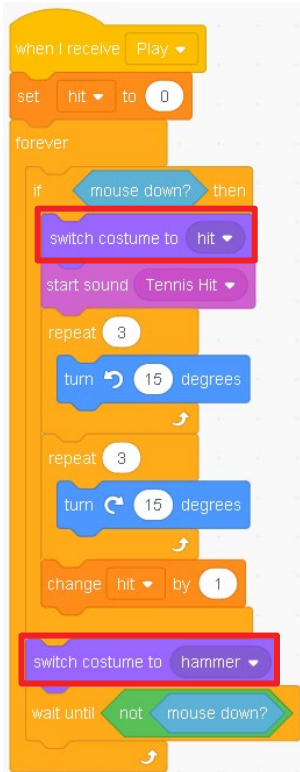


This is because your mole will get hit when “mouse down” and it’s “touching blue color”.

How should we fix this?

Review - Rescript the Hammer

Script:



When I click my mouse, the hammer will change to “hit” costume (which has the blue colour edge), then it will switch back to normal “hammer” (no blue edge) again.

And only when you release the mouse click, you are able to re-click again.

But during this moment, the moles won't respond to your hammer even when you're holding the mouse click.



Review - Use our digit to show the variables



Now we want to use our own digits to represent our variables.

As these variables are responsive to the game, it's not like 1 time calculation, so we will need a forever-loop to code for this.



Review - Combine the responsive digits

Script:

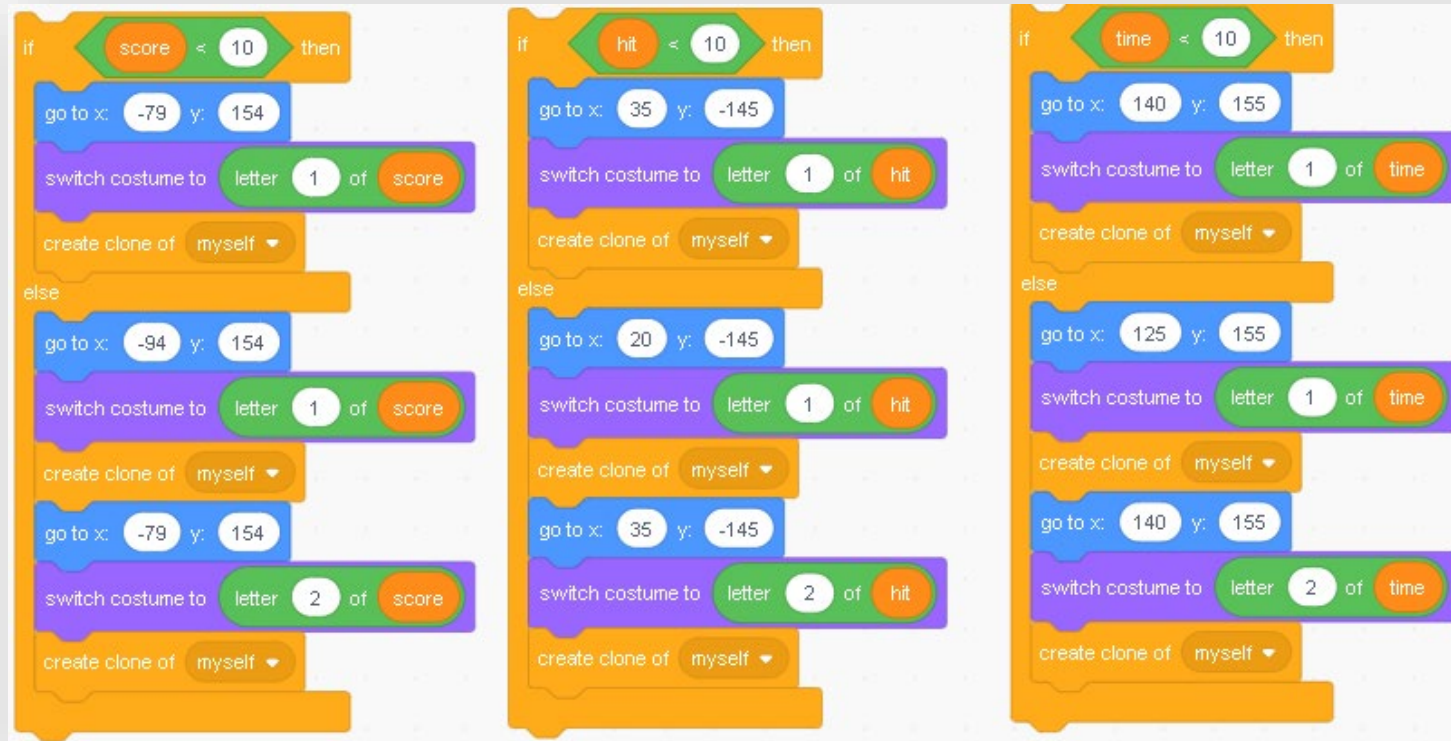
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What we need to do is to combine all of these into 1 forever loop. Just add each to the bottom of another.



Review - Combine the responsive digits



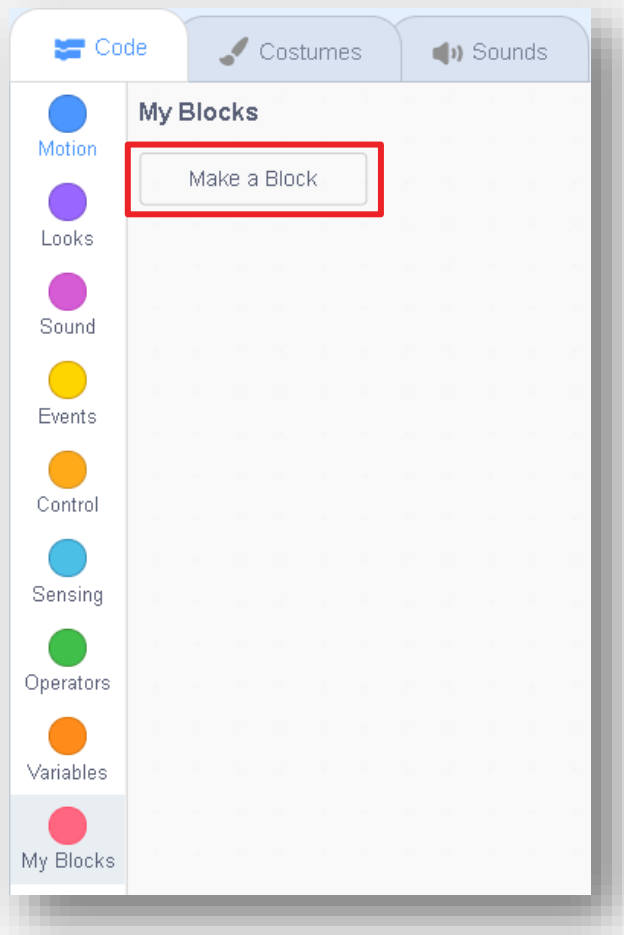
Do you notice that all these 3 are totally with same framework, the difference are:

1. Variable
2. Ones digit position
3. Tens digit position
4. Y-position

Others are all same.



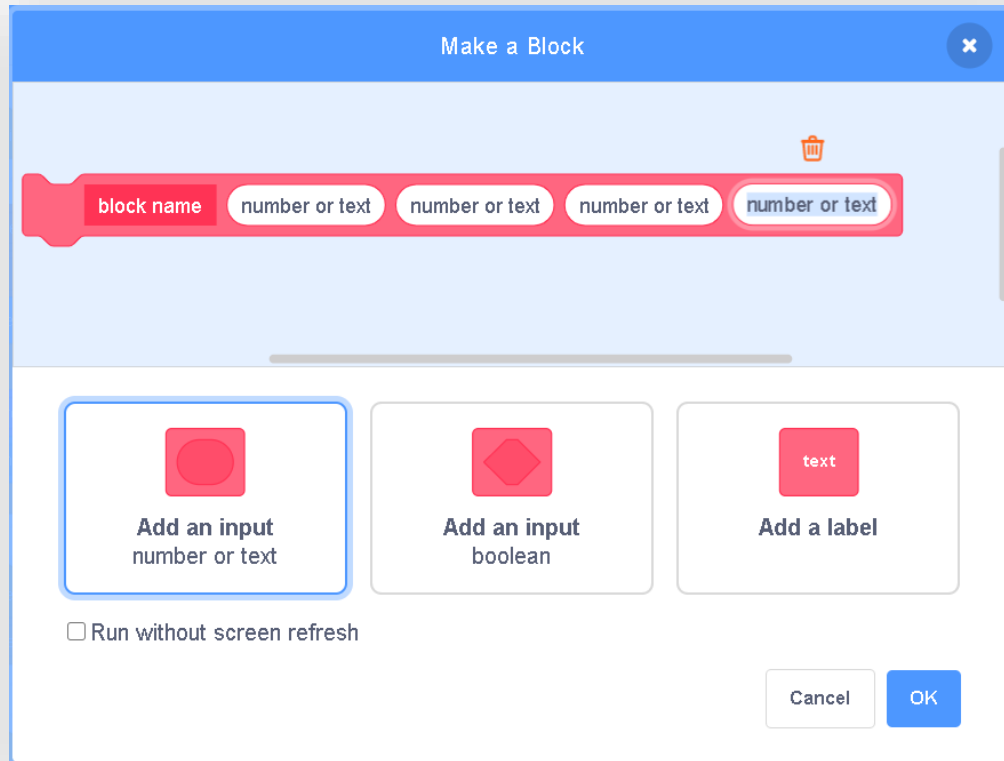
Review - My Blocks



Click on the “Make a Block” to create your customized block.



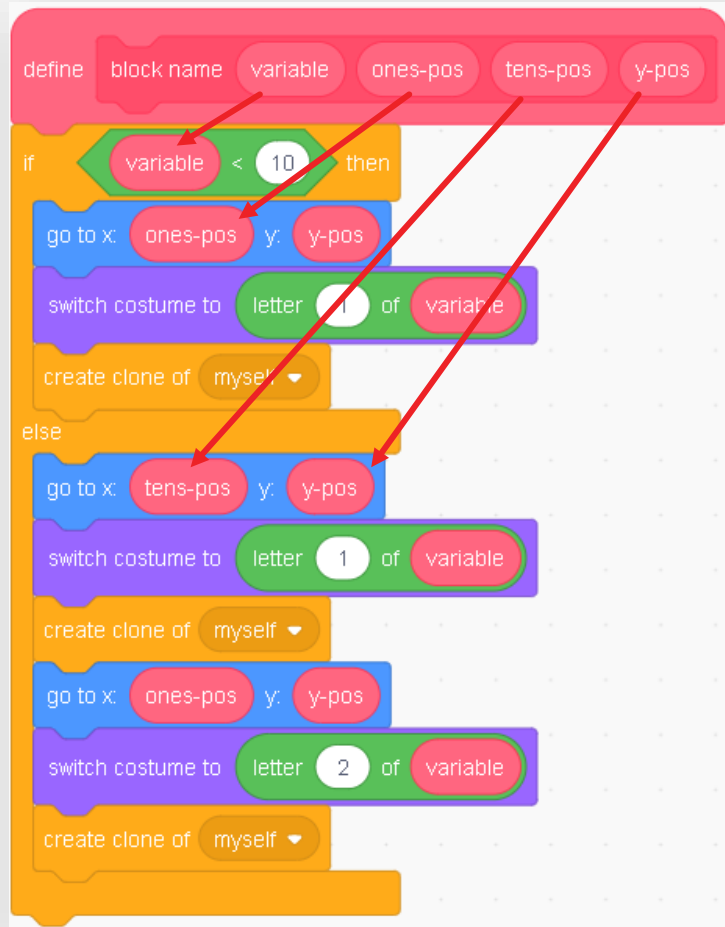
Review - My Blocks



Click on the “Add an input” to create 4 columns for our variables, since we know we have 4 different values in our digits showing script.



Review - My Blocks Setup

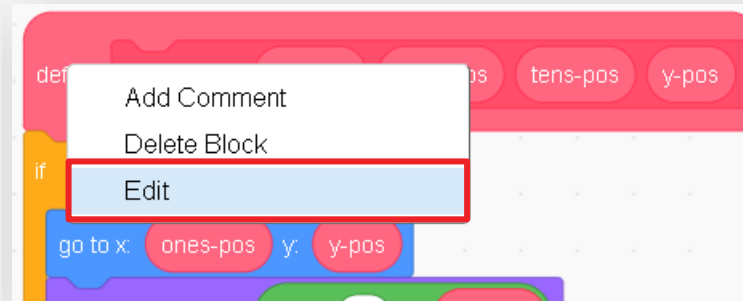
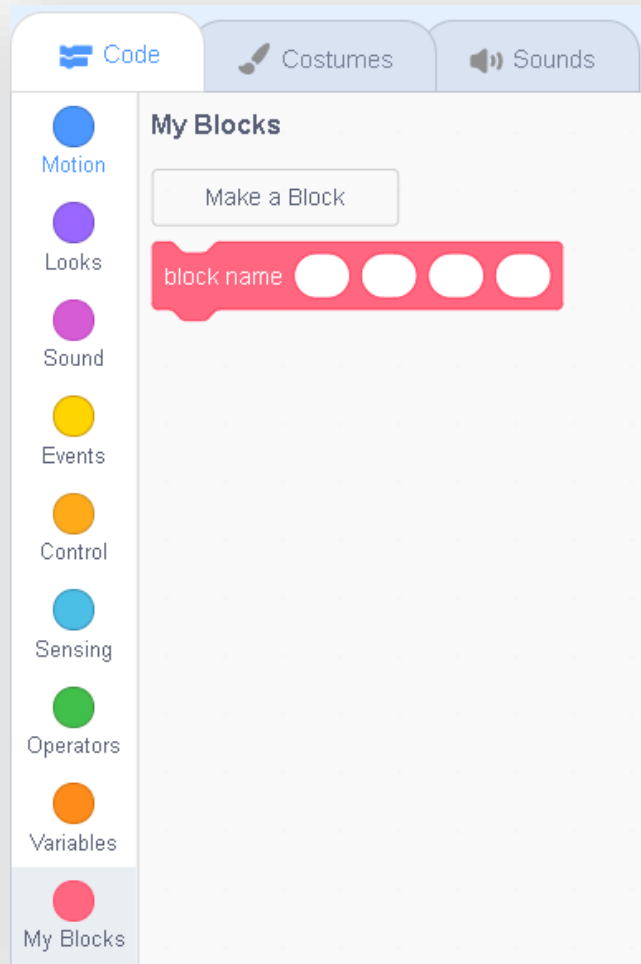


Now drag the variable field into corresponding places (all of them).

Once you done this, the variables of the my blocks will follow this to execute.



Review - Newly Created My Blocks



When you go and check your My Block (**This is only for the digit sprites, you won't see this My Block in other sprite*).

You can right-click on the my block and select edit to change the name (I will change it to "Show Digits")



Review - Newly Created My Blocks

Script:

```
when I receive Play
  hide
  set size to 50 %
  set brightness effect to 90
  forever
    Show Digit score -79 -94 155
    Show Digit hit 35 20 -145
    Show Digit time 140 125 155

when I start as a clone
  forever
    show
    wait 0.03 seconds
    delete this clone

define Show Digit variable ones-pos tens-pos y-pos
  if variable < 10 then
    go to x: ones-pos y: y-pos
    switch costume to letter 1 of variable
    create clone of myself
  else
    go to x: tens-pos y: y-pos
    switch costume to letter 2 of variable
    create clone of myself
```

Then drag out the “Show Digit” my blocks into your forever loop, and change the value in each of the fields.

1. Variables (“score”)
2. Ones digit (-79)
3. Tens digit (-94)
4. Y-position (155)

Above is for my score.



Mission 2-4 – Extra Challenge



This is the extra challenge, you can try and challenge this (1,000 Adcoins reward):

- 1. Setup Game Menu**
- 2. Do 3 different level (3x3, 4x4, 5x5)**
- 3. Timer selection (30, 60, 90)**
- 4. Difficulties (Easy, medium, hard)**
- 5. Level, timer and difficulties can be selected in game menu before game starts**

****We will reveal this programming in end of the car race game (L2-9)***

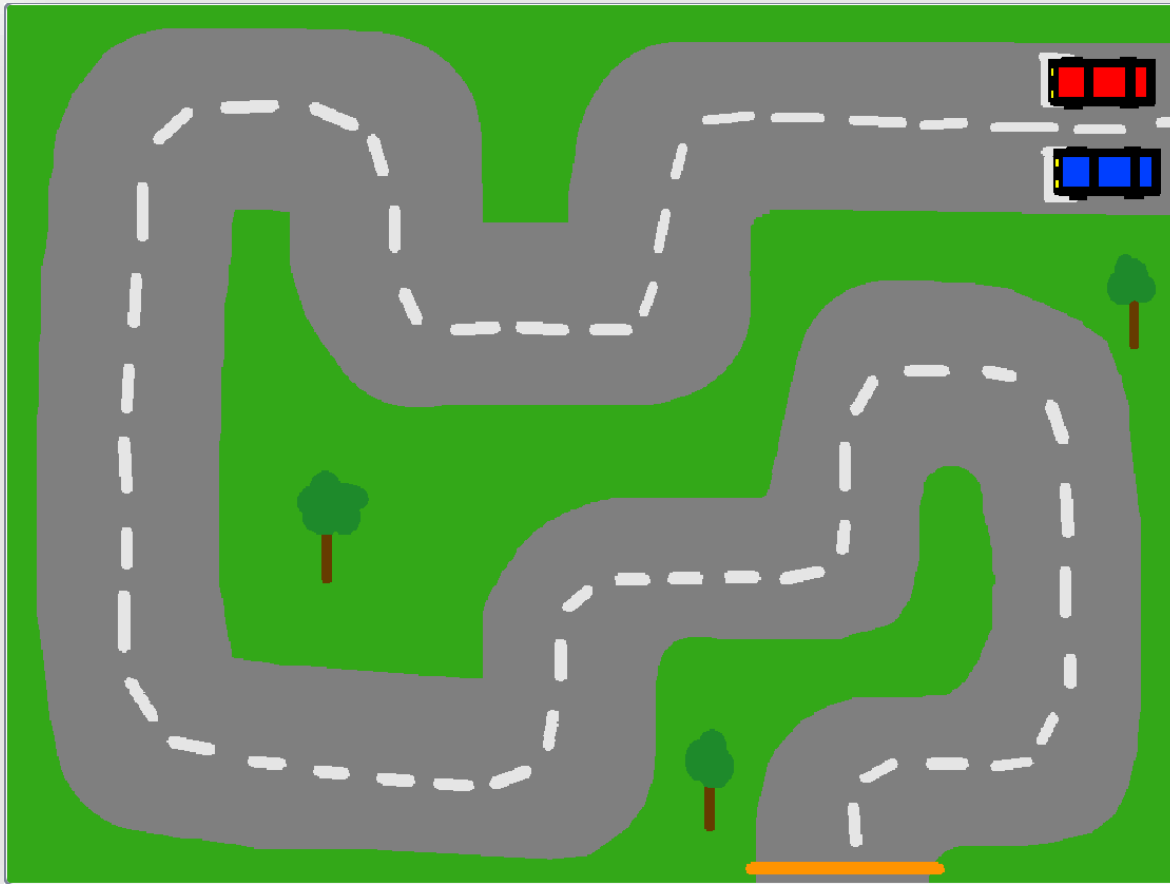


Let's do a Car Race Game





Car Race Game – 2 Players



It's not going to be a fancy one, but we will start from a quick draft of the game.



Game Development



A game is usually designed by a team or a group of people, they are different roles inside the team.

If a game is only designed by a person, it will take very long time to get it complete and will be very busy to fix those bugs and update constantly on new features and levels.



Game Development

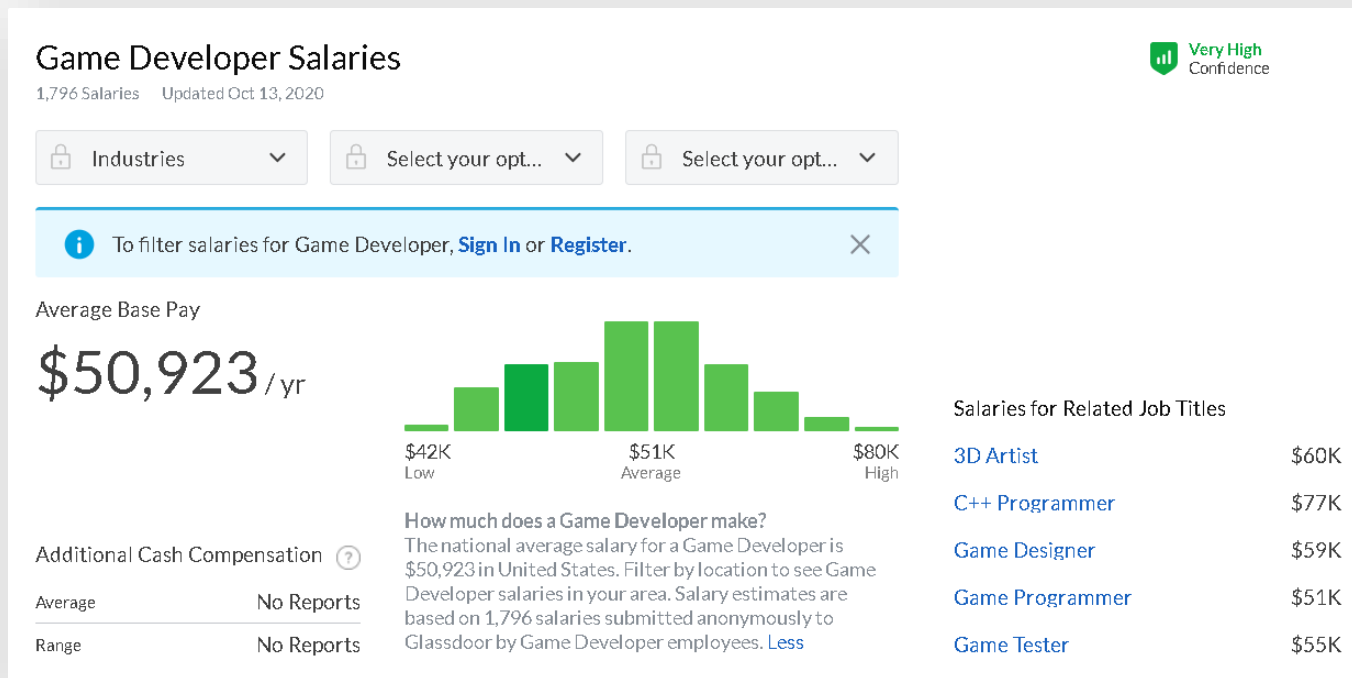


A game development team includes these roles or disciplines:

- Designer
- Artist
- Programmer
- Level designer
- Sound engineer
- Tester
- High concept
- Pitch



Income of a Game Developer in US



The national average salary for a Game Developer is \$50,923 in United States.



Earn Money from a Game



How game developer make money:

- **Sell the game** on a platform (Playstore, App Store, Steam, Epicgame, etc.)
- Provide **upgraded perks options** inside a free game (top up to buy costume, weapon, etc.)
- Collaborate with others to sell **advertisement**.



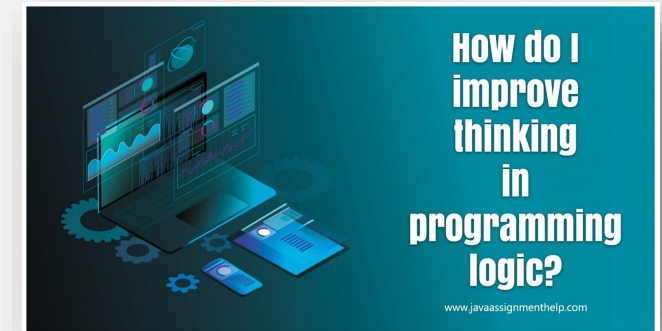
Why learn Game Development?

Understand how a game works behind the scene.

Develop logical thinking and problem solving through coding game.

Have a good start in coding journey because game is more visual than apps.

Make yourself easier to understand syntax in coding when you start to learn JavaScript, Python, C# language and etc.



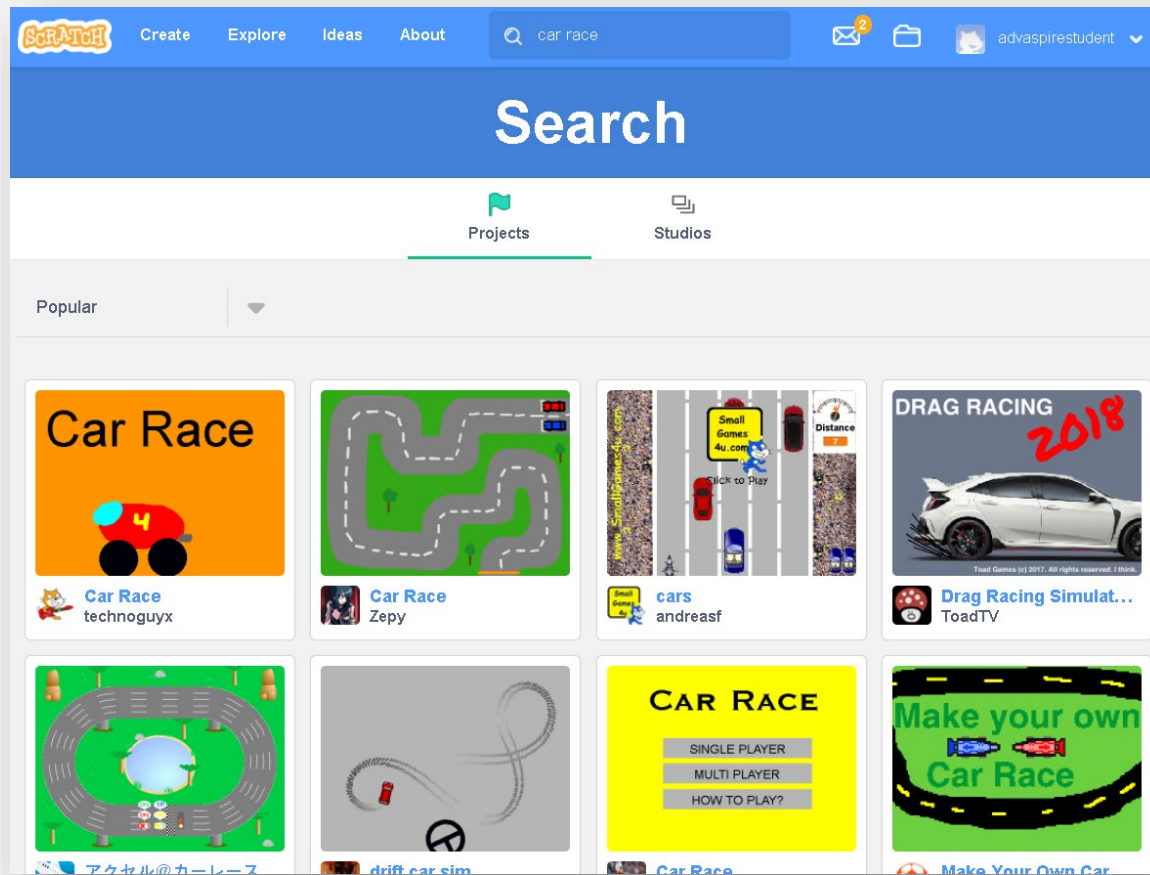
Car Race Game – Concept & Setup



Let's draft out our idea for this car race game before we start importing the sprites, backdrops and start coding it.



Car Race Game – Concept & Setup



This game can be found on Scratch, and it's done by other.

You can search keyword "car race" on the search column in scratch.

Car Race Game – Concept & Setup

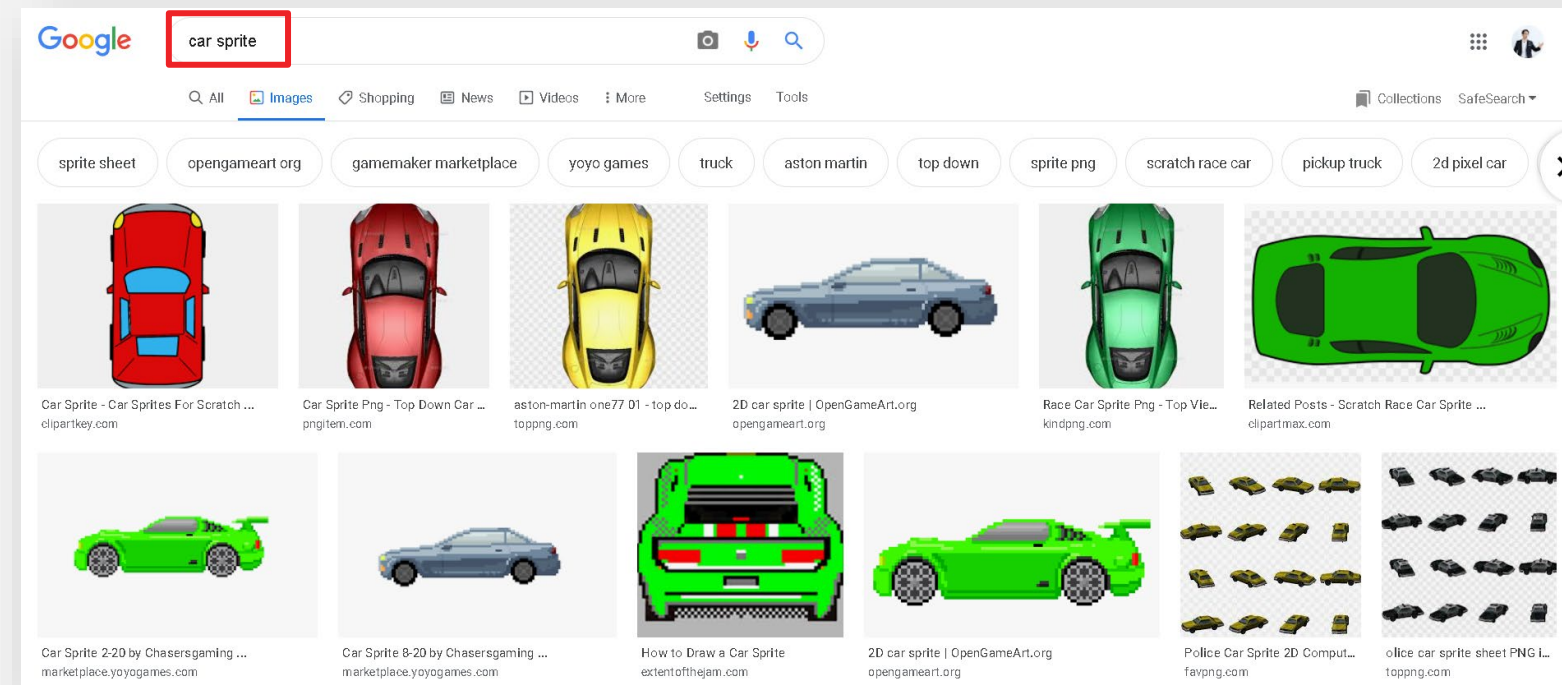


Concept:

1. This game can be played by either 1 or 2 players.
2. It has different map to choose before the race starts.
3. The first person reaches the finish line wins.
4. We will use a timer to calculate time used to complete the race.
5. 3 seconds countdown timer before starts.



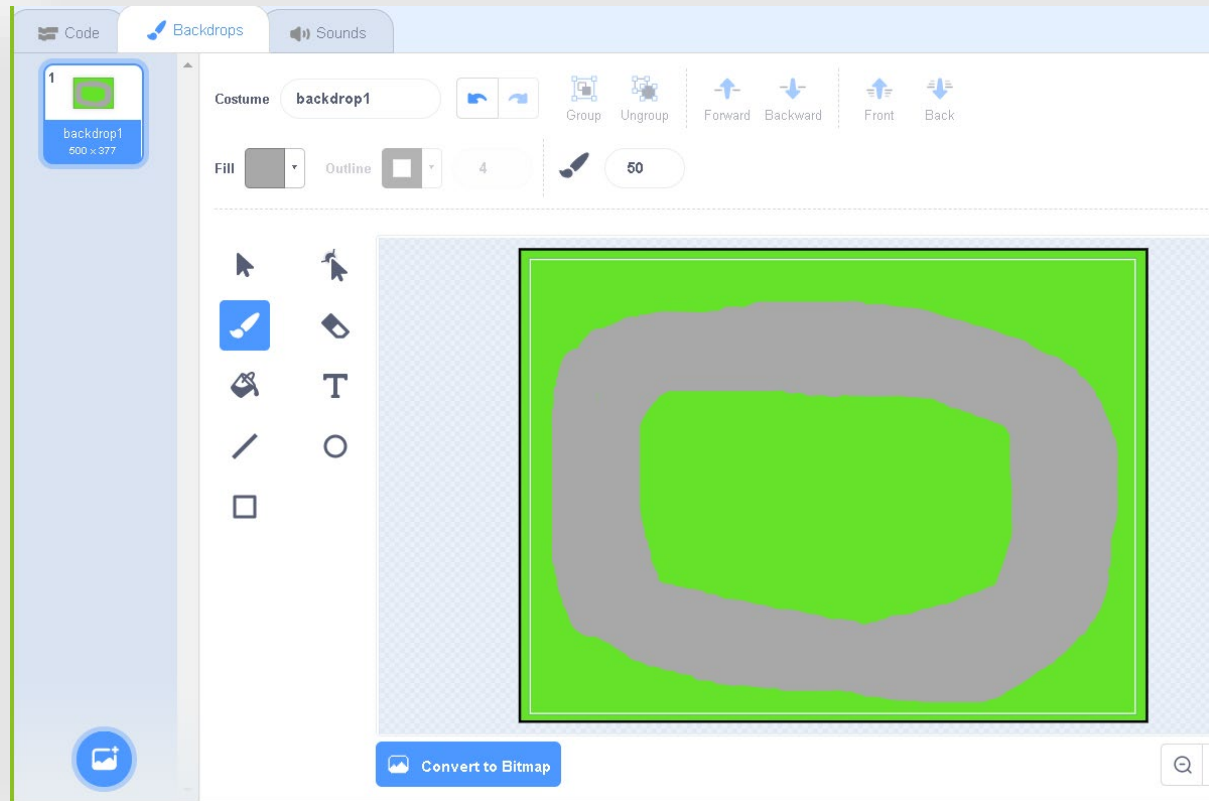
Car Race Game – Setup



**Choose a car sprite (top down view) from google search.
Download it and upload to your Scratch. (*You can draw if you want.*)**



Car Race Game – Setup



Draw a backdrop for your race track.

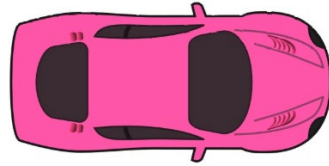
Use the paint brush and make the brush size bigger to paint faster.

If you want to make it nicer, you can spend some hours to modify it.



Car Race Game – Car Script

Script:



How should you code the car?

Which blocks to start with?

Take care of these conditions:

- 1. What if you run out of the track?**
- 2. Will you collide with other car?**
- 3. What control should you have for this car and other player?**
- 4. When to know it run for a lap?**



Car Race Game – Car Script



Please use what you learnt previously to code the cars for 2 players game.



ASSIGNMENT *for*

Lesson 2-5



L2-5 – Mission

Today mission is to program your cars so that it can be controlled (up-down-left-right) by P1 and (w-s-a-d) by P2.

Think a way that can count the lap finished by the car. (some player will play cheat that straight move backward to complete the lap, so you need to think of a way to prevent this happen.)



You can direct message your teacher and ask your question through [Slack Robotene Community](#) or arrange a [One-to-One Consultation](#) with your teacher.



Any Questions?



Thank you :)