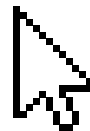


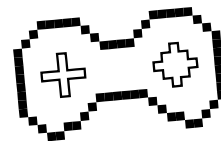


# Intro to Game Design in Scratch:

JiuJiu & Raphael



# Downloading Assets

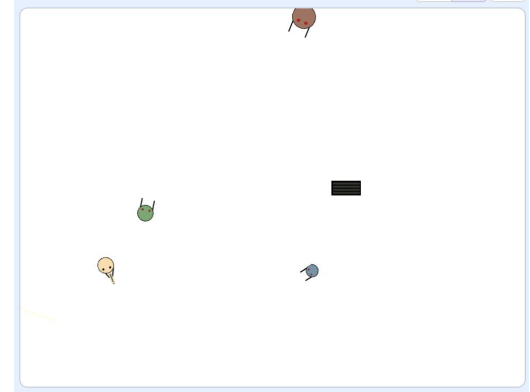
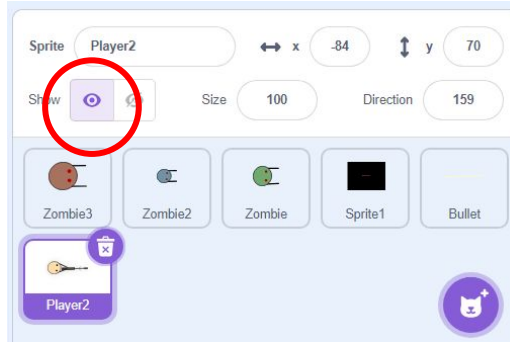
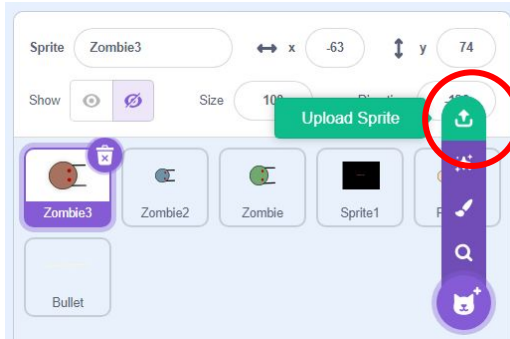


Go to the link and download the items we need to make our game:

- <https://github.com/WLHackClub/ZombieSurvival>

# Set Up Your Scene

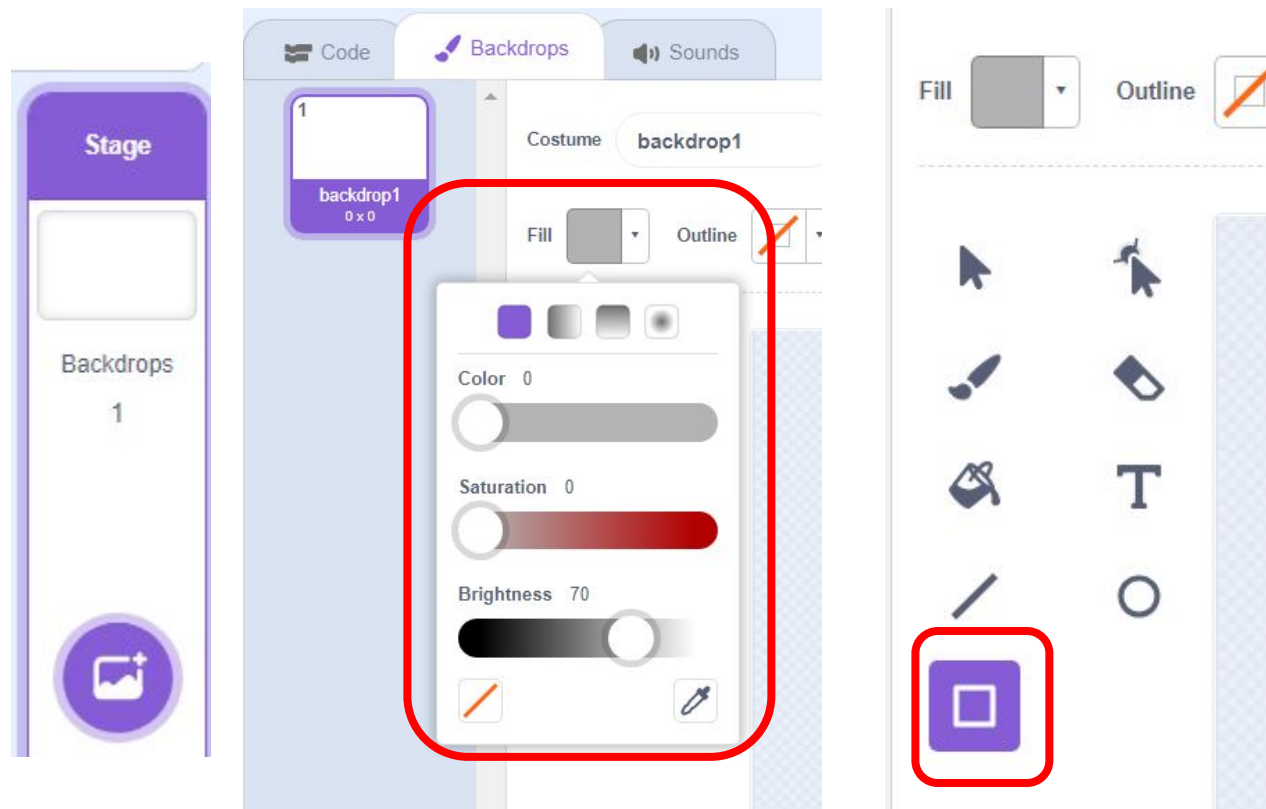
- Upload all the sprites through the button
- Make sure they are showing in the bar
- Click “show” for every sprite except sprite1!





# Background

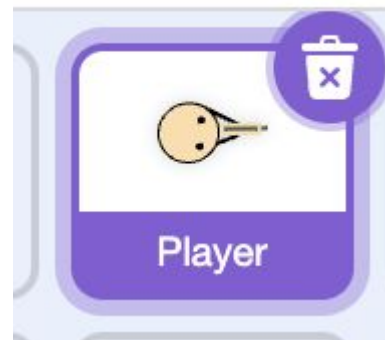
- Go to stage backdrops(right side of the screen)
- Change fill color to 0, saturation to 0, and brightness to ~70
- Select a rectangle and drag on the empty space. Make sure to cover the entire space.





# Player Look

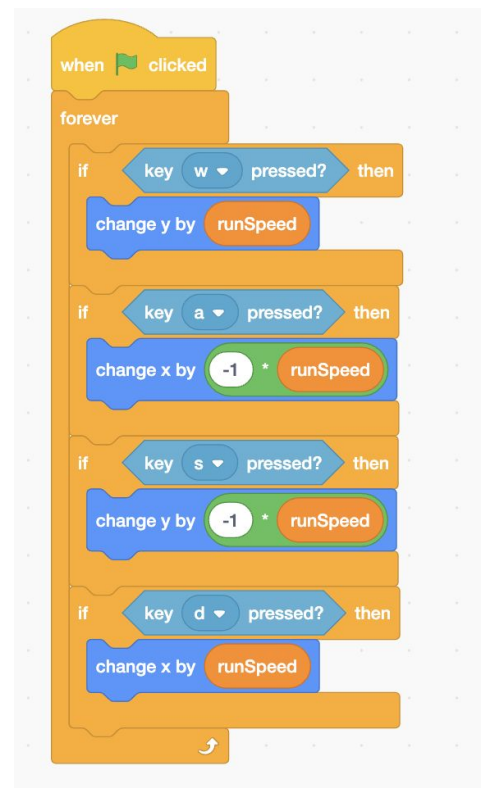
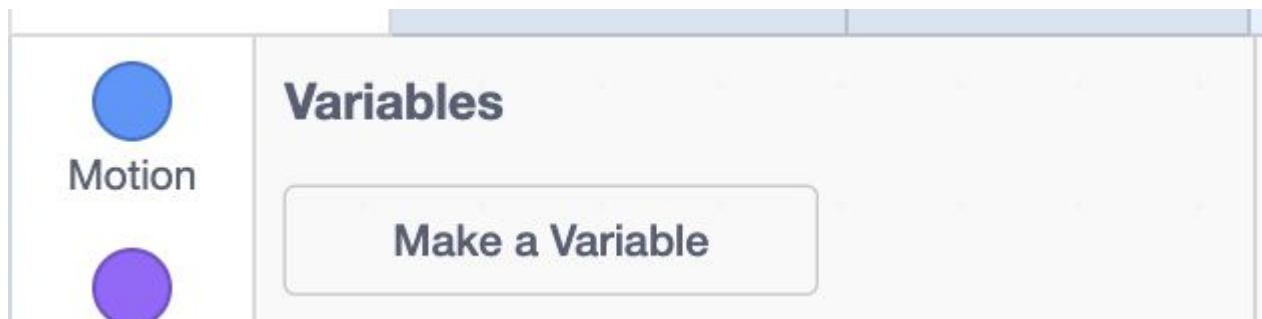
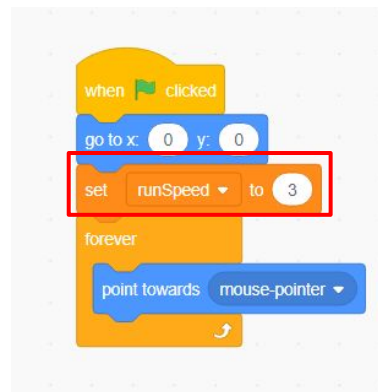
- Select Player
- Use forever loop to point player in the direction of the mouse





# Player Movement

- Start at (0,0)
- Create variable named “runSpeed”
  - What is a variable?
- Move the player!

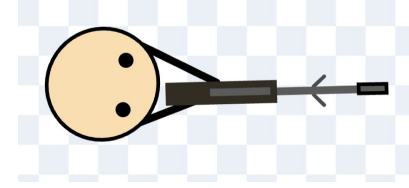
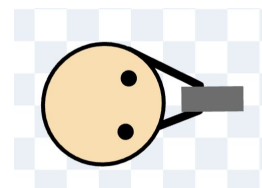
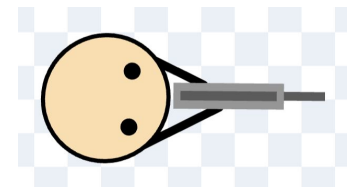
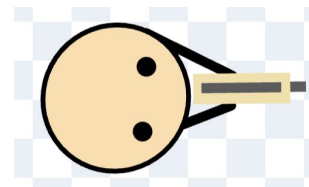
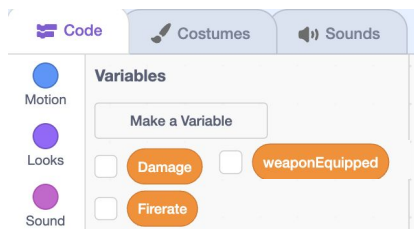




# Weapons

- What variables do we need
  - What is the difference in weapons?
- Fire rate!
- Damage!
- weaponEquipped!

Create your variables:



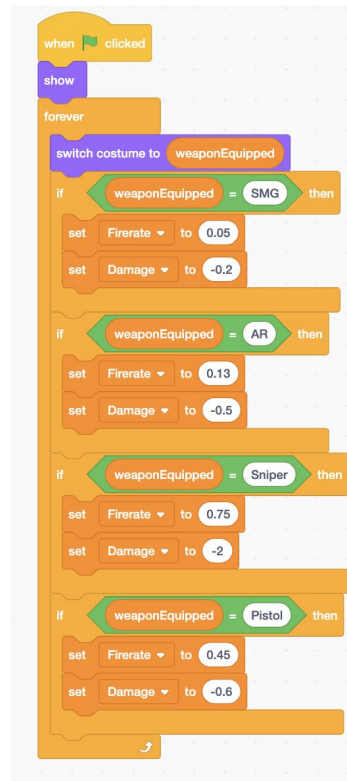
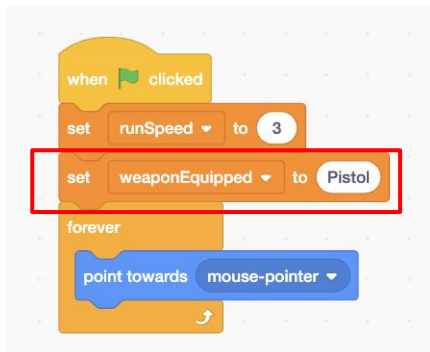
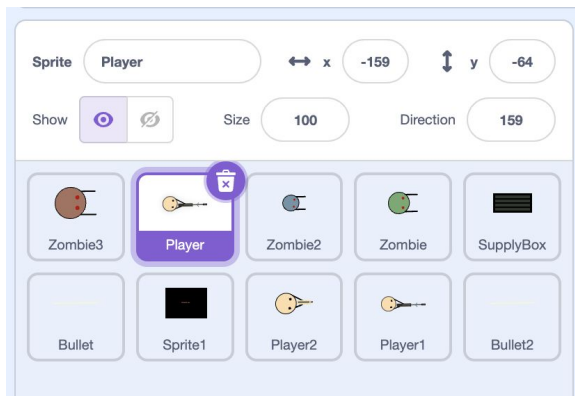
- Go to the costumes tab to find all the weapons



# Weapon Variables

- What can we use to change the fire rate and damage based on the gun we have?
- IF STATEMENTS!!!
- What does this code do?
- Check Capitalization!!!!
- Damage = Negative???

Put code in Player







# Zombie Prep



- Create three variables inside YOUR ZOMBIE

New Variable

New variable name:

Lives

☐ For all sprites ☒ For this sprite only

☐ Cloud variable (stored on server)

Cancel

OK

New Variable

New variable name:

spawnRate

☒ For all sprites ☐ For this sprite only

☐ Cloud variable (stored on server)

Cancel

OK

New Variable

New variable name:

Score

☒ For all sprites ☐ For this sprite only

☐ Cloud variable (stored on server)

Cancel

OK



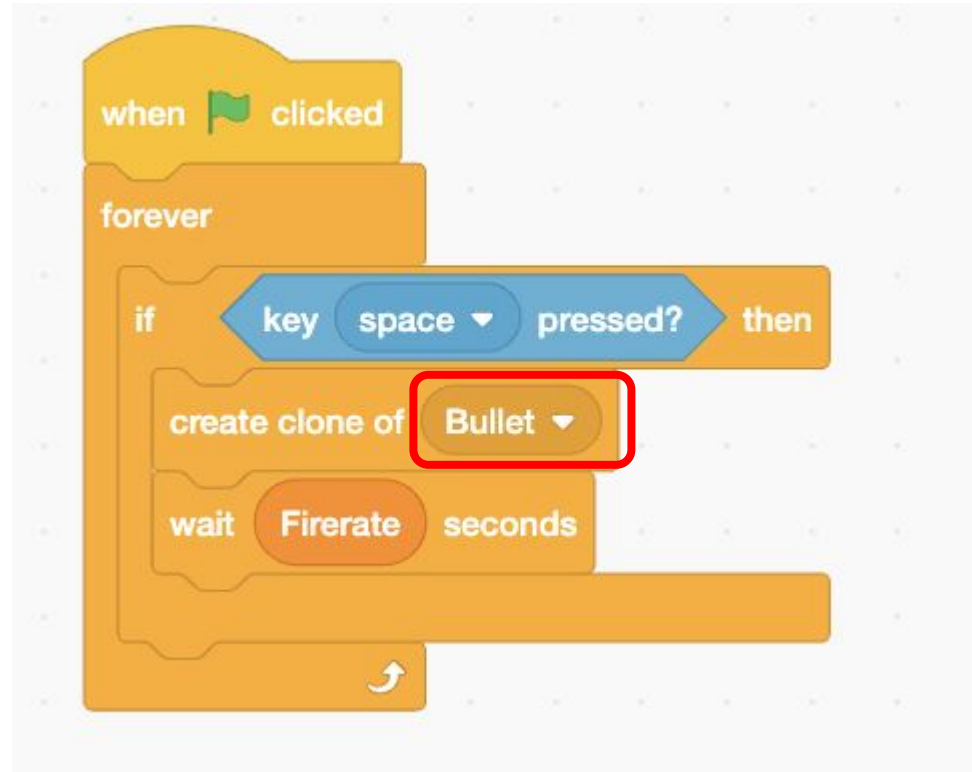
# Switch Weapons

- Navigate to Player
- Use if statements to change "weaponEquipped"



# Weapon Variables (cont.)

- Use a forever loop to detect user input
- Bullet is one of our sprites that we should have dragged into the scene
- The wait time changes how fast we are allowed to fire

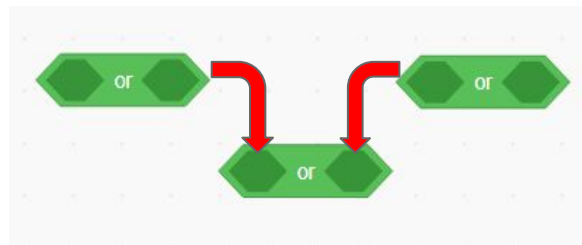


# Weapon Variables (cont.)

- Navigate to Bullet Sprite
- Since the bullet was cloned, how should it behave every time we make a bullet?



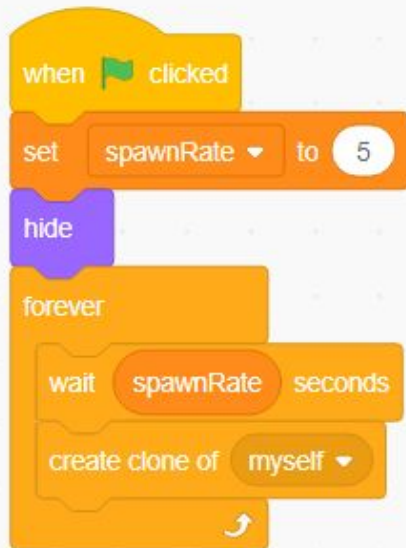
Make sure to always drag the center “or” statement to move around





# ZOMBIES!

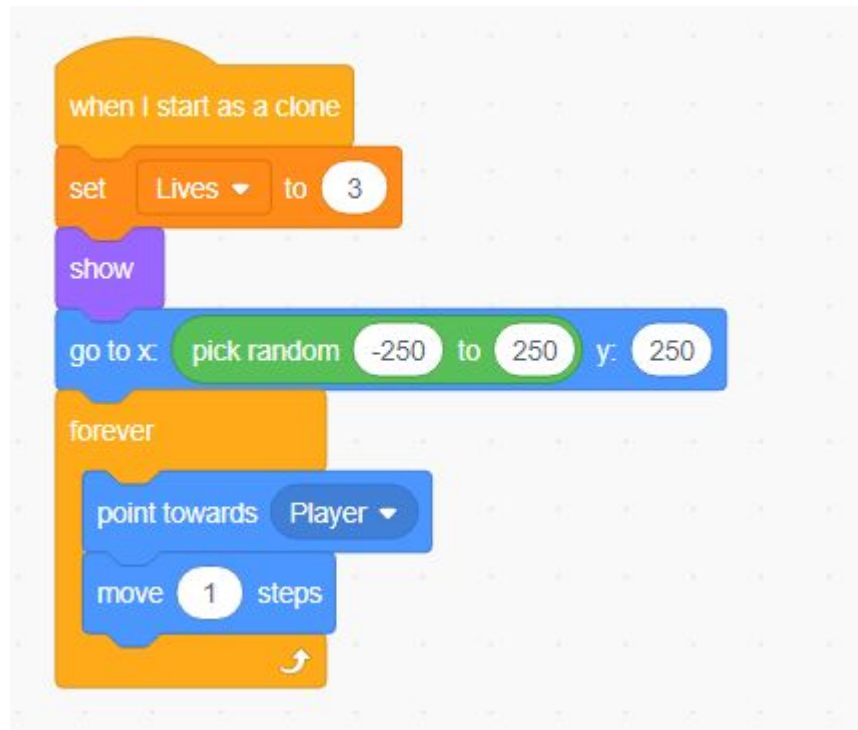
- Select Zombie
- Hide the current zombie - we're making a clone!
- Use forever loop & set "timer"





# ZOMBIES(cont.)

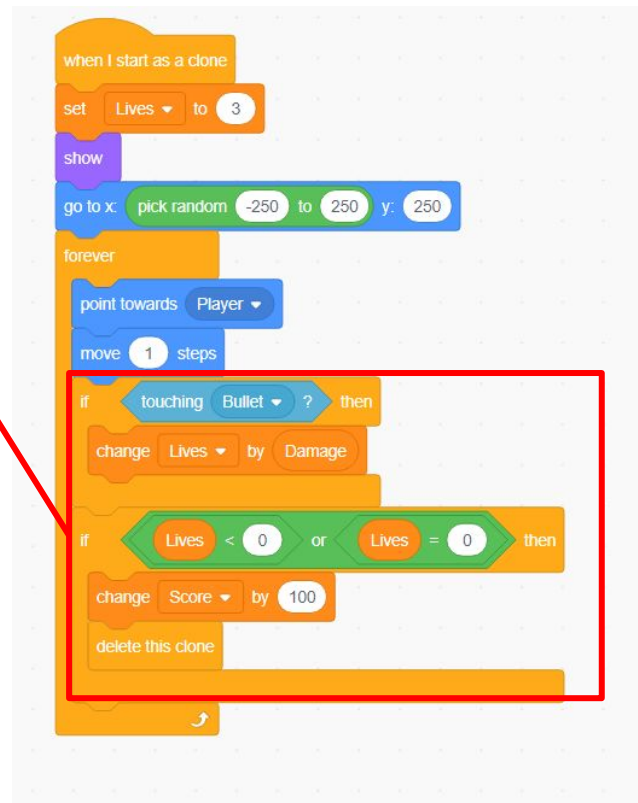
- Start as a clone
- Set HP & show!
- Move to random position: pick random???
- Chase the player!





# ZOMBIES(cont.)

- Lose health when hit by bullet
- Use Damage variable from weapons
- $Lives \leq 0$  = Dead
- Increase score, delete clone





# More ZOMBIES?

- Drag both of the blocks in **Zombie1** onto **Zombie2**

The image shows a Scratch workspace with two scripts and a backdrop.

**Zombie1 Script:**

- when clicked
- set spawnRate to 5
- hide
- forever loop:
  - wait spawnRate seconds
  - create clone of myself

**Zombie2 Script:**

- when I start as a clone
- set Lives to 2
- show
- go to x: pick random -230 to 230 y: 200
- forever loop:
  - point towards Player
  - move 1 steps
  - if touching Bullet ? then:
    - change Lives by Damage
    - if Lives < 0 or Lives = 0 then:
      - change Score by 100
      - delete this clone

**Backdrops:**

- Backdrops: 1
- when clicked
- set spawnRate to 5
- hide
- forever loop



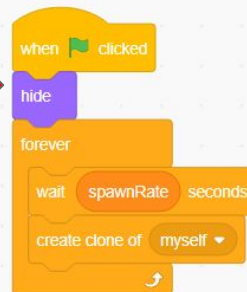


# ZOMBIE(Fast)!

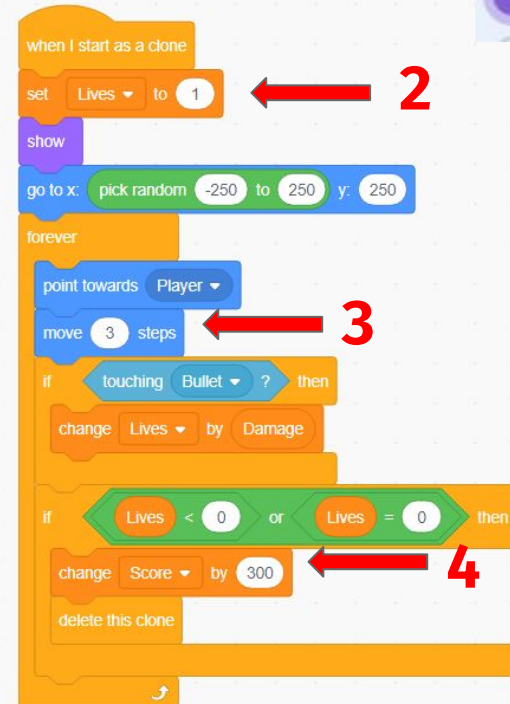


- Go to Zombie2
1. Delete set spawnRate
  2. Change HP
  3. Increase number of steps!
  4. More score!

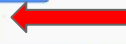
1



2



3



4





# More ZOMBIES?

- Drag both of the blocks in **Zombie1** onto **Zombie3**

The image shows a Scratch workspace with two zombie scripts. The script for 'Zombie1' (highlighted with a red box) consists of the following blocks:

- when green flag clicked
- set spawnRate to 5
- hide
- forever loop:
  - wait spawnRate seconds
  - create clone of myself

The script for 'Zombie3' (on the right) consists of the following blocks:

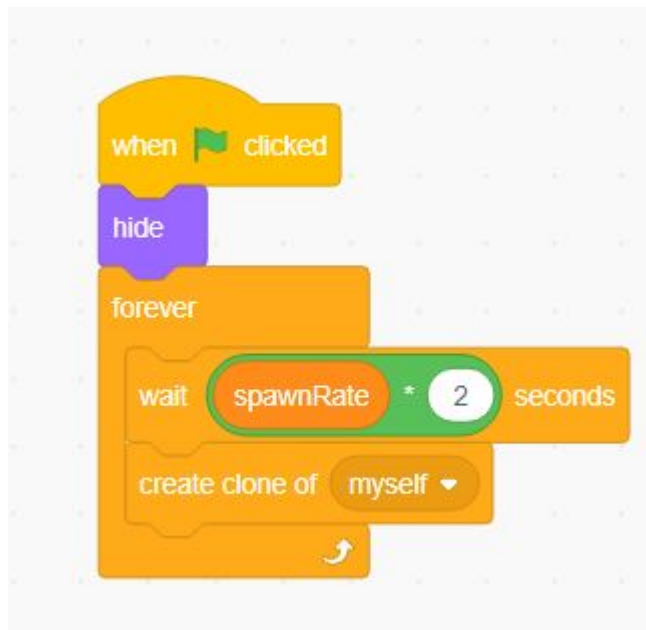
- when I start as a clone
- set Lives to 2
- show
- go to x: pick random -230 to 230 y: 200
- forever loop:
  - point towards Player
  - move 1 steps
  - if touching Bullet then:
    - change Lives by Damage
    - if Lives < 0 or Lives = 0 then:
      - change Score by 1
      - delete this clone

In the bottom right corner, the 'Sprite' panel shows a 'Zombie' sprite. A red box highlights the 'when clicked' block in the 'Zombie' sprite's script area, with a red arrow pointing from the 'when clicked' block in the 'Zombie1' script to this box.



# ZOMBIE(TANK)!

- A little bit different this time
- Delete set spawnRate
- Use multiplication to change spawnRate
- Why? Tank zombie is strong!





# ZOMBIE(TANK)!

1. Change HP
2. Decrease number of steps!
3. More score!
  - Easy Peasy





# End Game

- Use a message to end the game

Inside Player:





# End Game

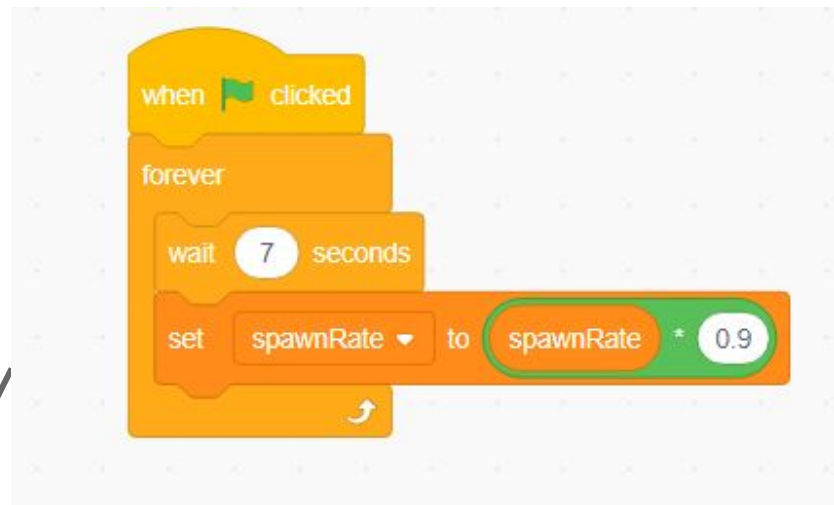
- Make Game Over screen appear when the game is over





# End Game

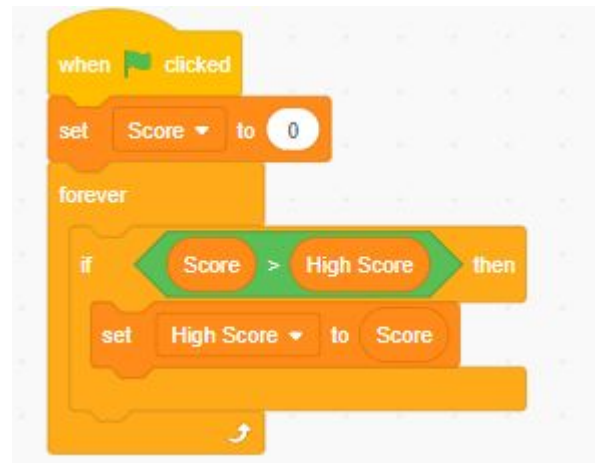
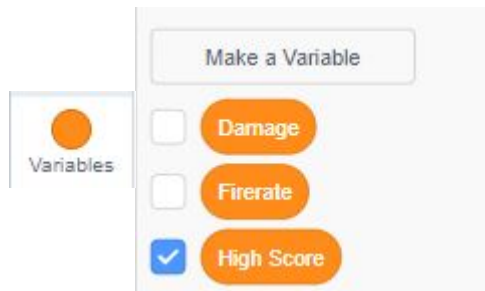
- Make things harder as time goes on
  - Make more zombies spawn faster!
- Put inside Zombie1





# End Game

- Make a new variable “High Score”
- Add into player to check if the current score is greater







# Cleanup

- Uncheck Variables to hide them



Variables

Make a Variable

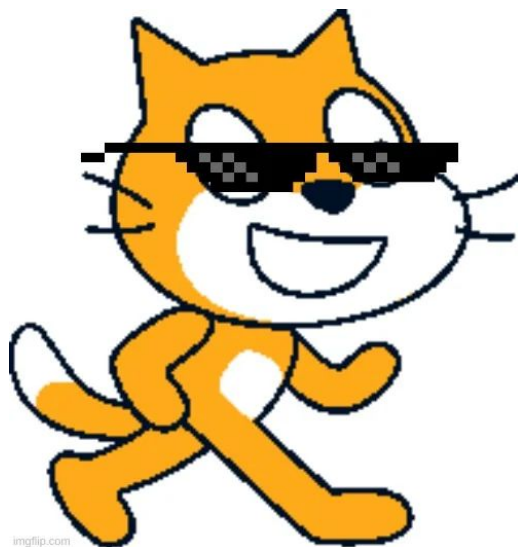
Variable	Checked
Damage	<input type="checkbox"/>
Firerate	<input type="checkbox"/>
High Score	<input checked="" type="checkbox"/>
runSpeed	<input type="checkbox"/>
Score	<input checked="" type="checkbox"/>
spawnRate	<input type="checkbox"/>
weaponEquipped	<input checked="" type="checkbox"/>
Zombie	<input type="checkbox"/>

set Damage to 0

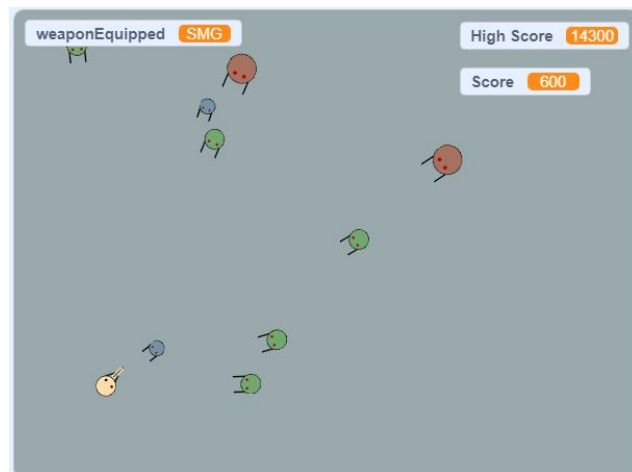


# Congrats!

- You've finished making a fun and engaging game in Scratch!

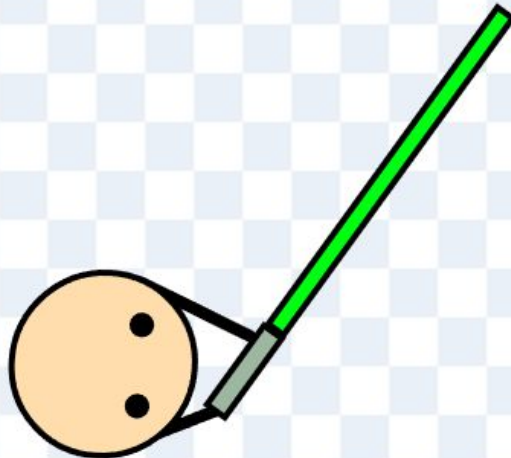
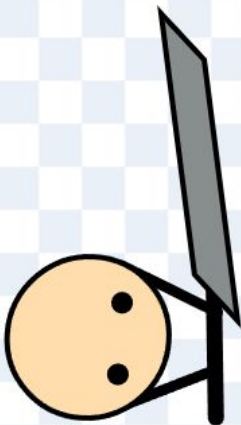


imgflip.com





# Challenge: Create your own weapon



- Sword
- Lightsaber
- Rifle
- Shotgun
- Machine gun
- etc...
- Maybe decorate the background!
- Try beating our highest score of 15500 points!