



# Scratch Programming

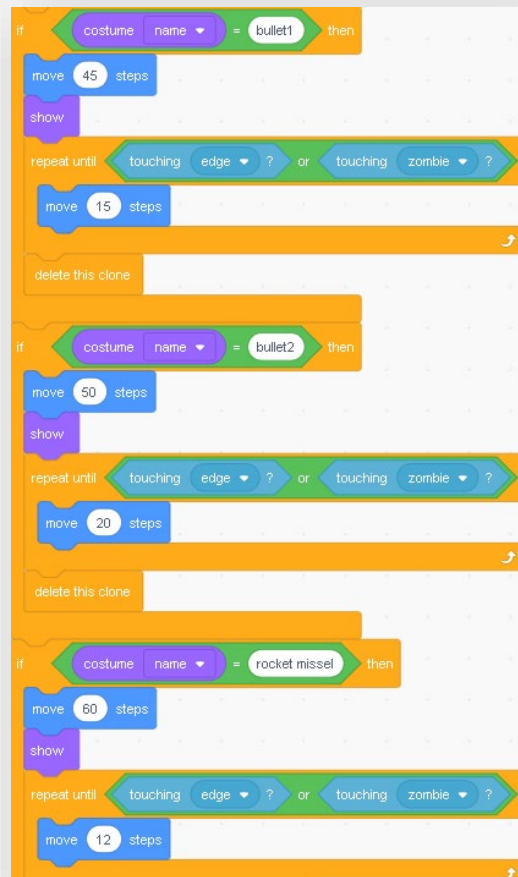
## Lesson 2-11

### Shooting Game III

Presented by Advaspire Team



## Review - Different flying speed for bullets



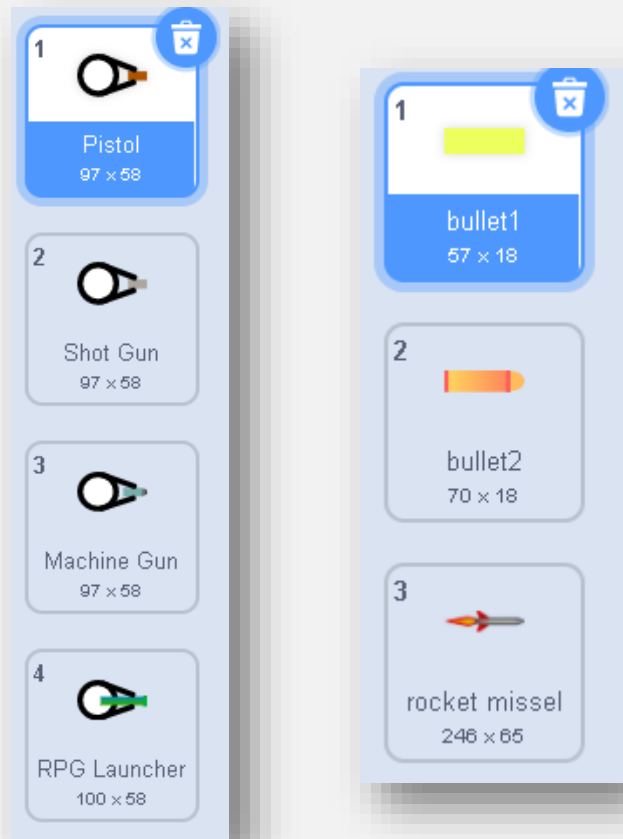
**While spawning the bullet or firing, you will need to check what costume the bullet is, if it is bullet1 (pistol & shotgun), the speed is medium.**

**If bullet2 (Machine gun), the speed should be fast.**

**If rocket missel (RPG launcher), it should be slow.**



## Review - Weapon & Bullet Problem



**Did you realize your bullets are unlimited and do not need to reload the ammos?**

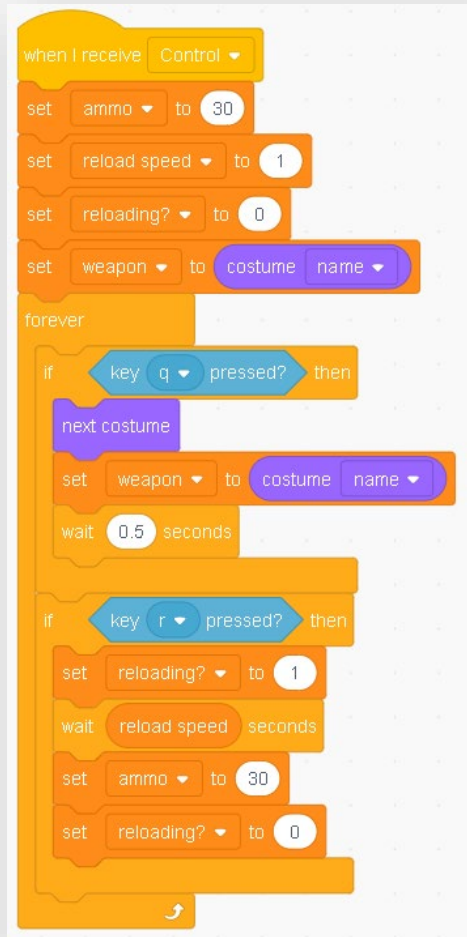
**How many slots for weapon can a person carry?**

**While reloading, can the person still shoot?**

**How to change the bullet speed based on different weapon?**



## Review – Reload and switch weapon



So I will need to create some variables to make my weapon switching works.

Set “ammo” to 30 (maximum number in magazine).

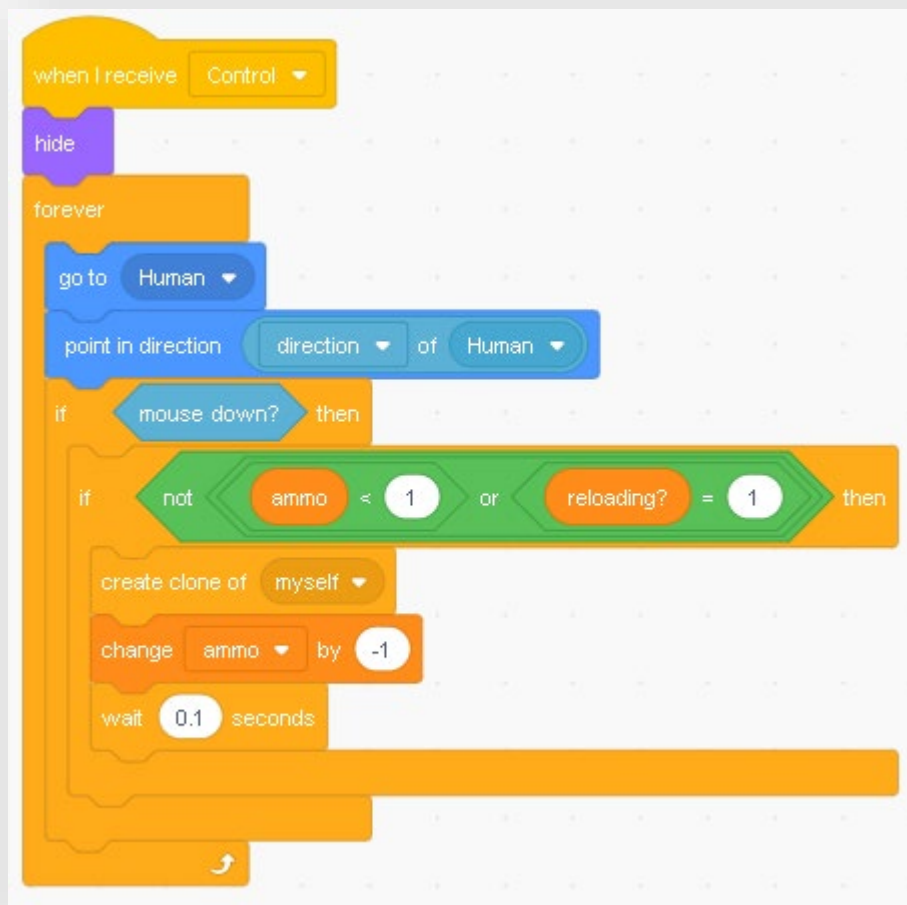
Set “reload speed” to 1 (1 second to reload before I can fire).

Set “reloading?” to 0 (if 1 mean the player is reloading, during this time, firing is not an option).

Set “weapon” to “costumer name” (this is the weapon slot).



## Review – No fire option when no ammo



**For the bullet firing part, we should check if there is still ammo left or check if the player is reloading.**

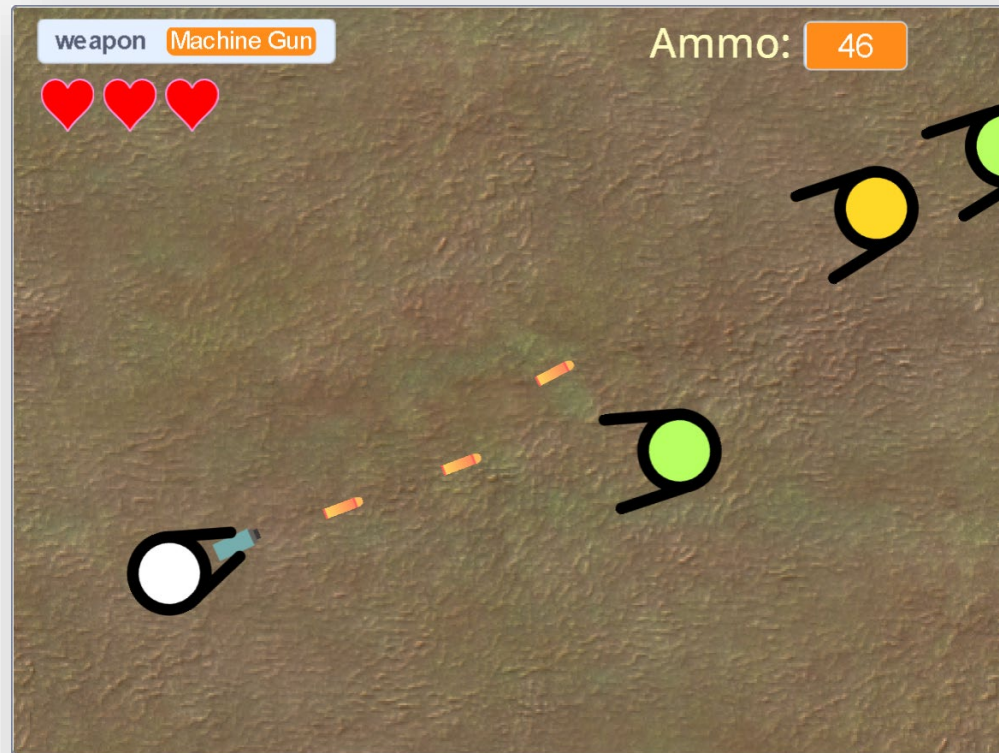
**If both of these don't happen, it can fire and deplete the bullet from the ammo.**

**So when player keeps firing for 30 bullets, the ammo will become "0".**

**It will require player to reload before he can fire the next round.**



## Switch Weapon Option

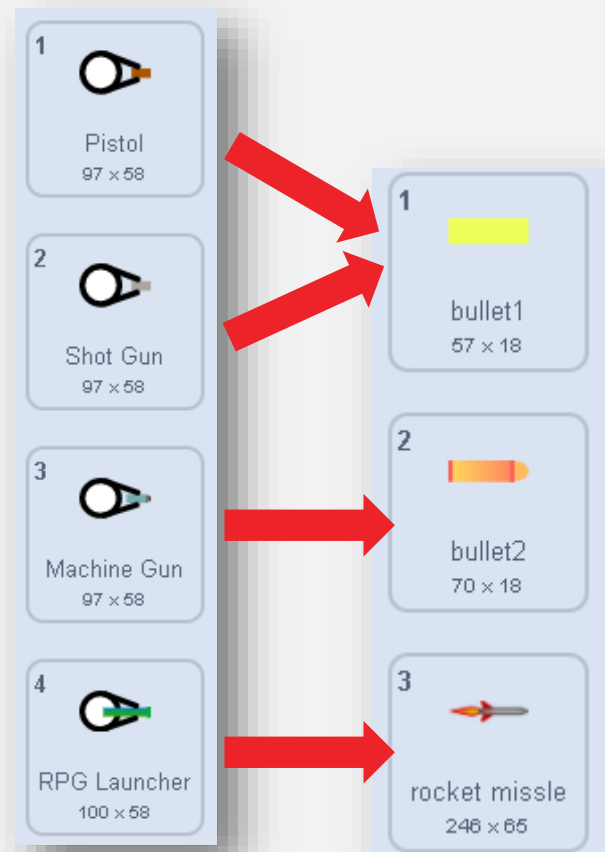


**Now we have different weapon to use in the game, and it's weapon got its own properties:**

- 1. Reload Speed**
- 2. Carried ammo**
- 3. Shooting Damage**
- 4. Fire rate**
- 5. Speed of bullets**
- 6. Accuracy & handling**



## Bullets in different weapons



**I had made different costumes of bullets for different weapon.**

**Pistol and Shot Gun will use bullet1, Machine Gun will use bullet2 while RPG Launcher will be shooting rocket missile.**





## Switch Weapon Key (q key)



Normally, gamer is using <w> <s> <a> <d> to control the movement of the character, and <1> <2> <3> <4> <q> <r> as shortcut key to change and reload weapon.





## Switch Weapon Key (q key)



So we will make the functions for different key press in switching and reloading weapon:

**<q> key → switch to next weapon**

**<r> key → reload ammo**

**<1> key → switch to slot 1**

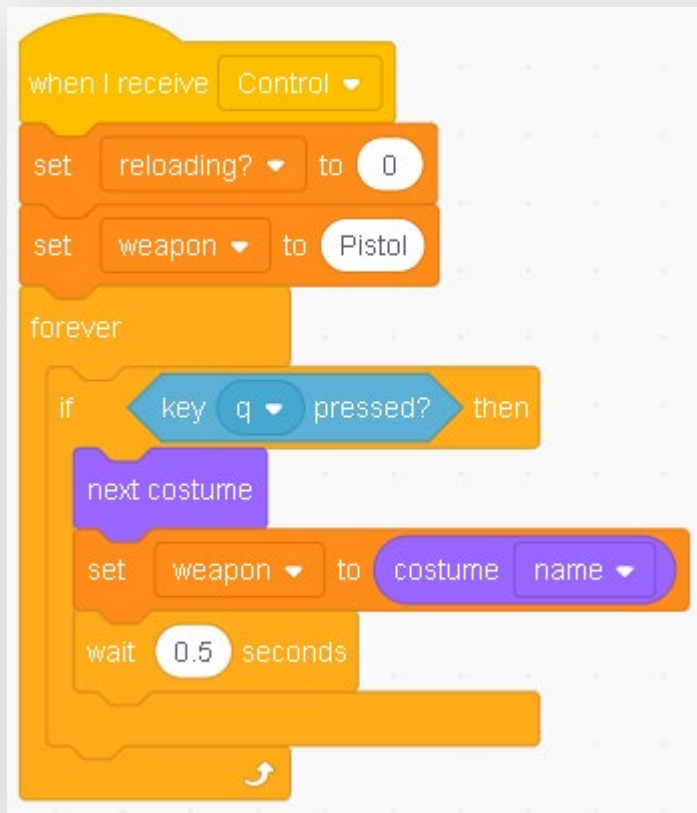
**<2> key → switch to slot 2**

**<3> key → switch to slot 3**

**<4> key → switch to slot 4**



## Setting up variables – Human Script



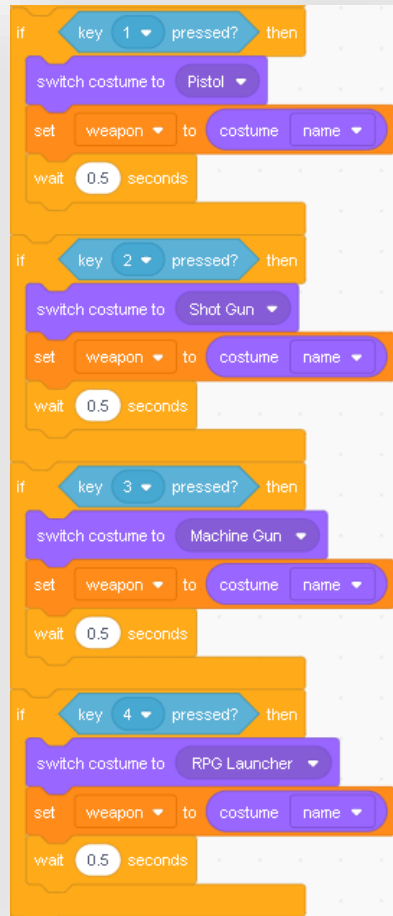
**So we will have a variable called “weapon” to record which weapon we are using now.**

**And player can’t fire when he’s reloading the ammo.**

**So I will set a “reloading?” as a state to check is the player is reloading or not reloading.**



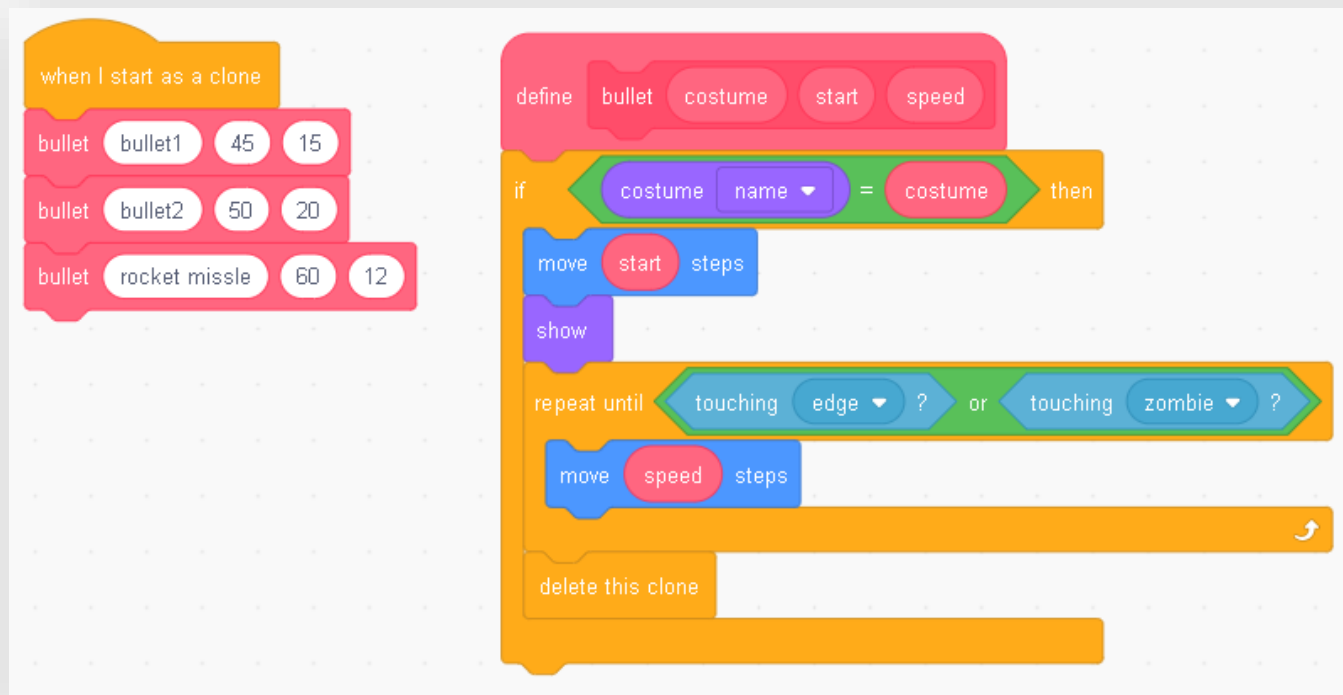
# Switching between Slots - Human Script



**And for <1> <2> <3> <4> slots switching keys, we will switch our weapon according to the slots.**



## Firing bullets – Bullet Script

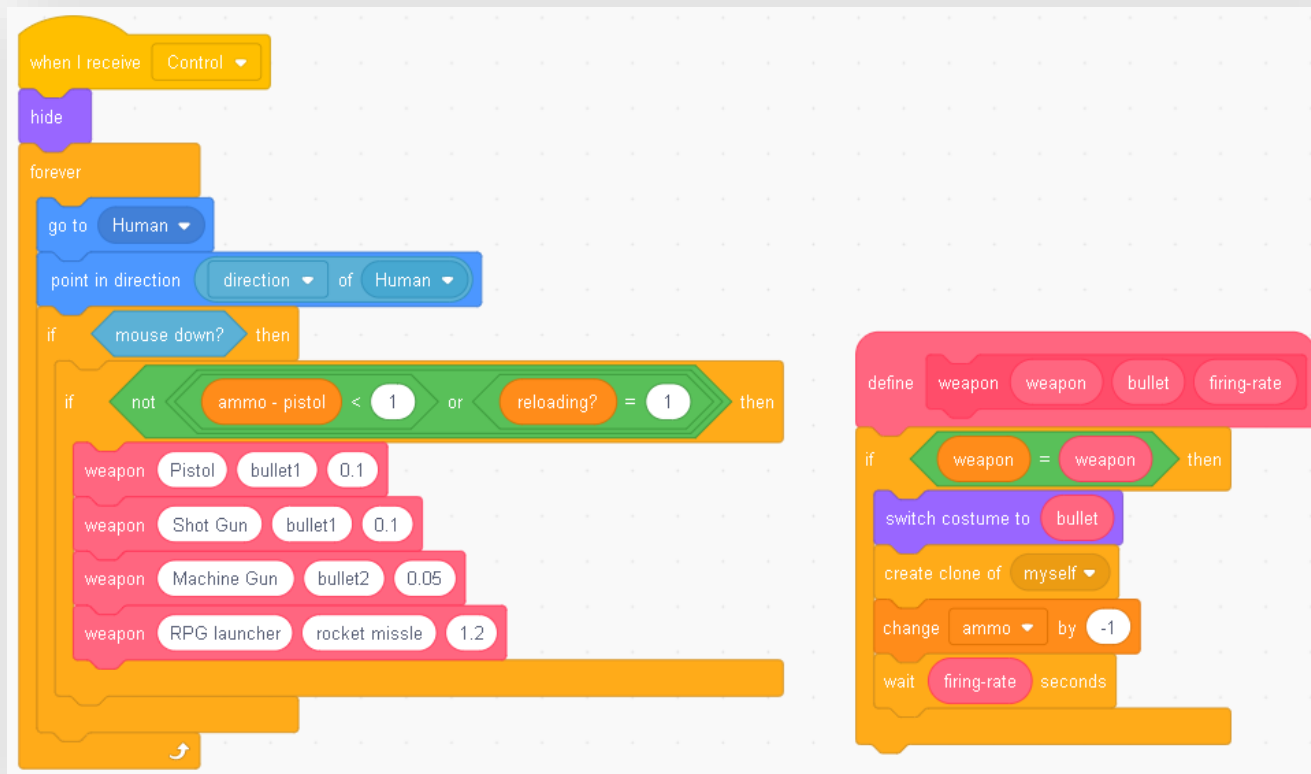


As we know the way our bullet fly forward is similar, we can define our own my block and link “costume”, “start”, and “speed” to the input.

Then use this block and input the value according to different bullet.



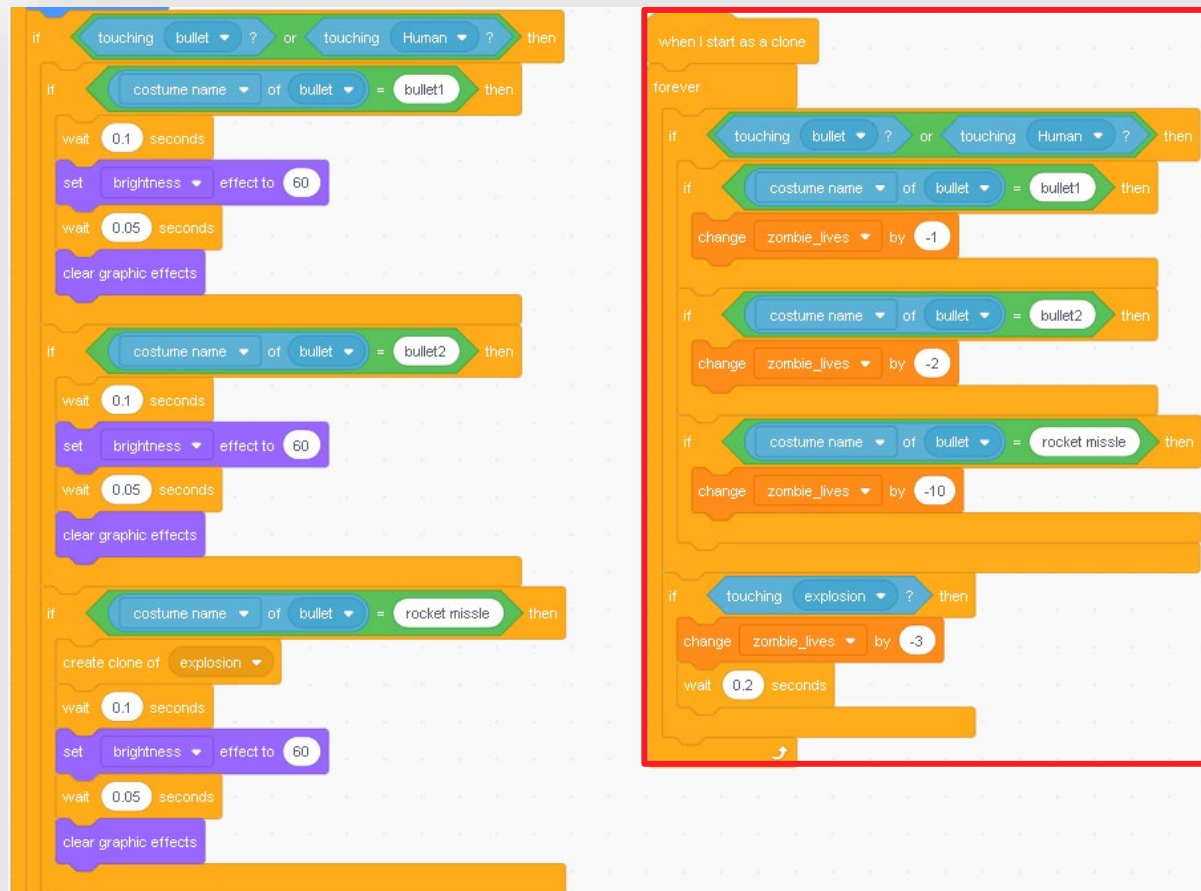
# Click to Fire – Bullet Script



**As different weapon has different bullet and firing rate, so I will define a make block, then just input value to the make block to define the fire rate & bullet used for specific weapon.**



# Damage to Zombie – Zombie Script

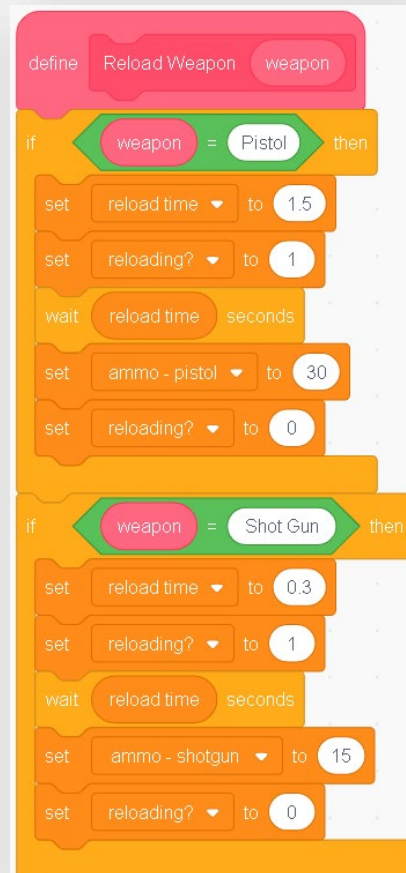
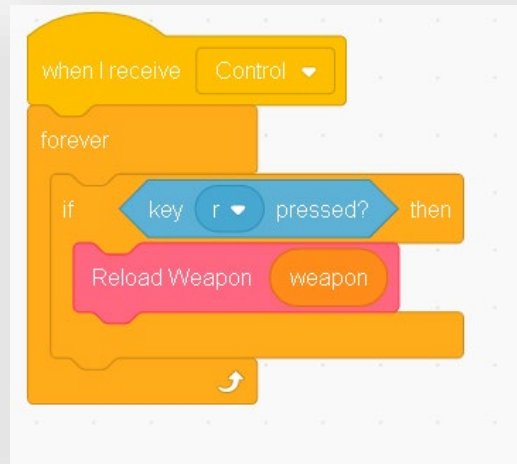


**Different weapon will deal different damages to the zombie.**

**Therefore, I will need to deduct the live from zombie based on the damage dealt to the zombie.**



## Reload weapon– Human Script

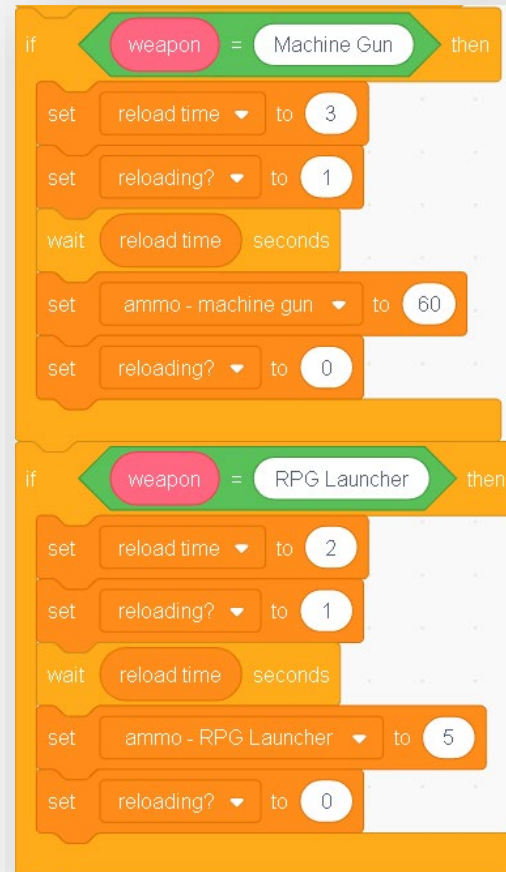
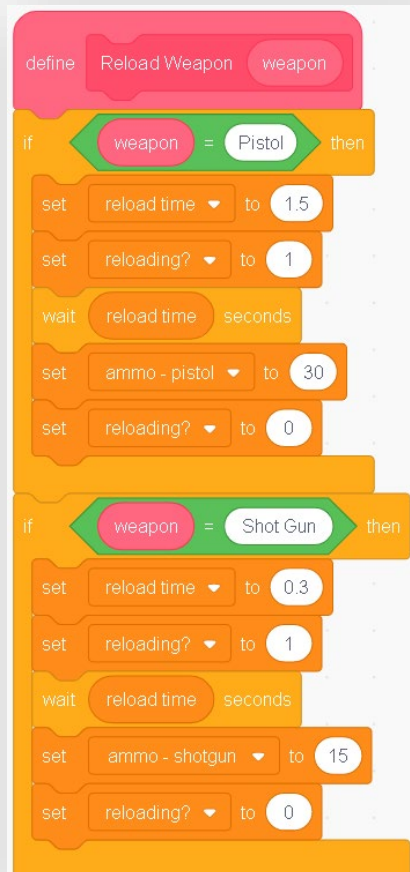


**Each weapon has its own reload speed, Pistol is normal speed, Shot Gun is faster, Machine Gun very long, and RPG Launcher is around 2 seconds.**





## Reload weapon– Human Script



Pistol → 1.5 seconds reload,  
***carried ammo = 30***

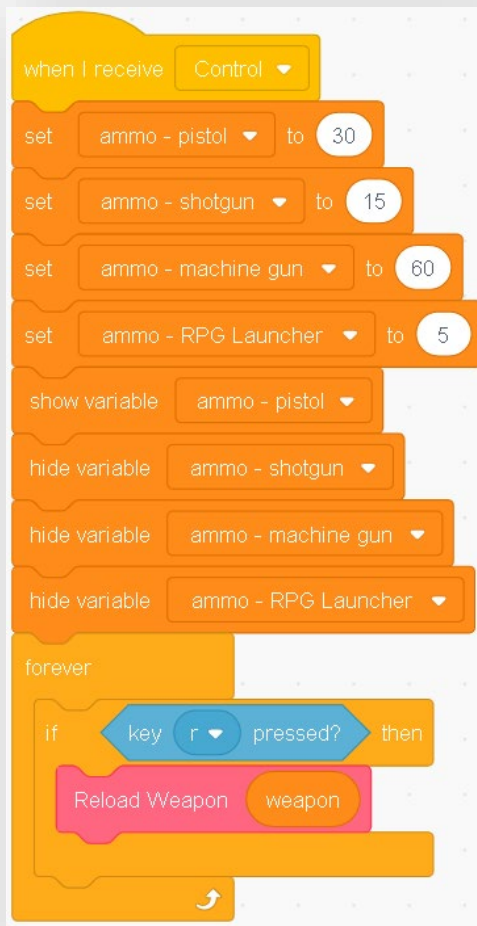
Shot Gun → 0.3 seconds reload,  
***carried ammo = 15***

Machine Gun → 3 seconds reload,  
***carried ammo = 60***

RPG Launcher → 2 seconds reload,  
***carried ammo = 5***



## Carried Ammo – Human Script



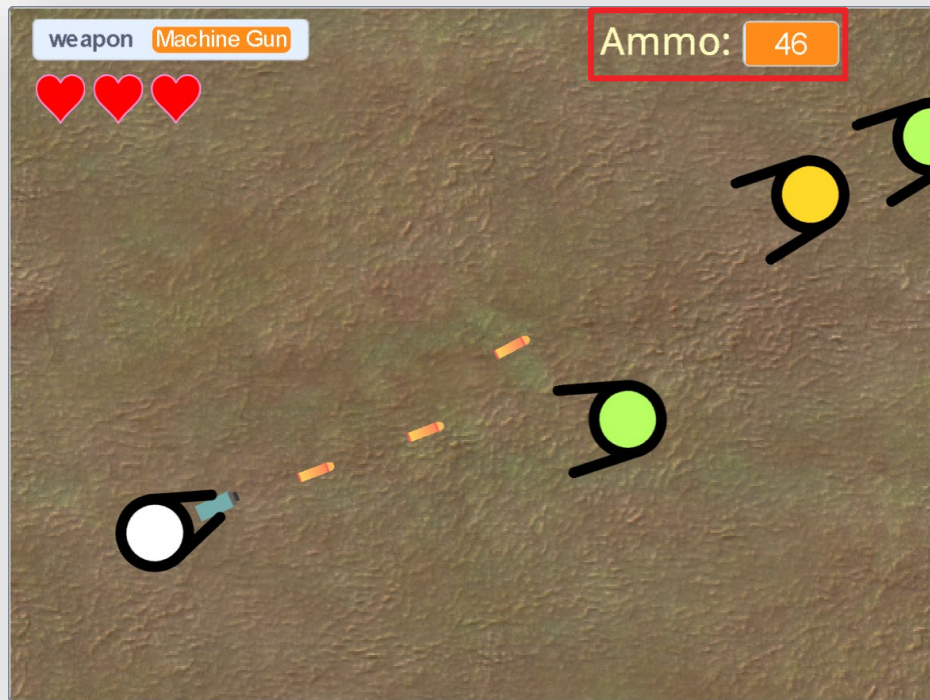
Since carried ammo is different in every weapon, so we can't just set "ammo" variable for all weapon.

Each weapon should have each own ammo count.

I will add "ammo – pistol", "ammo – Shot Gun", "ammo – Machine Gun", "ammo – RPG Launcher" to record the ammo left in each weapon.



## Show Ammo Balance – Human Script



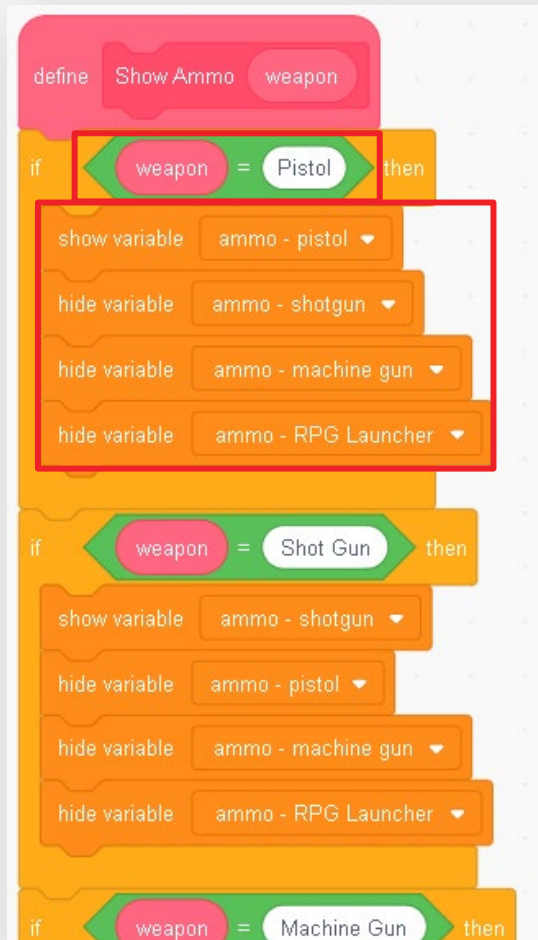
We want to show the ammo left in the weapon current in use at the top right.

We will still be using the “ammo – ” variable to show, but with the large mode.

The “Ammo:” word is the new sprite I created.



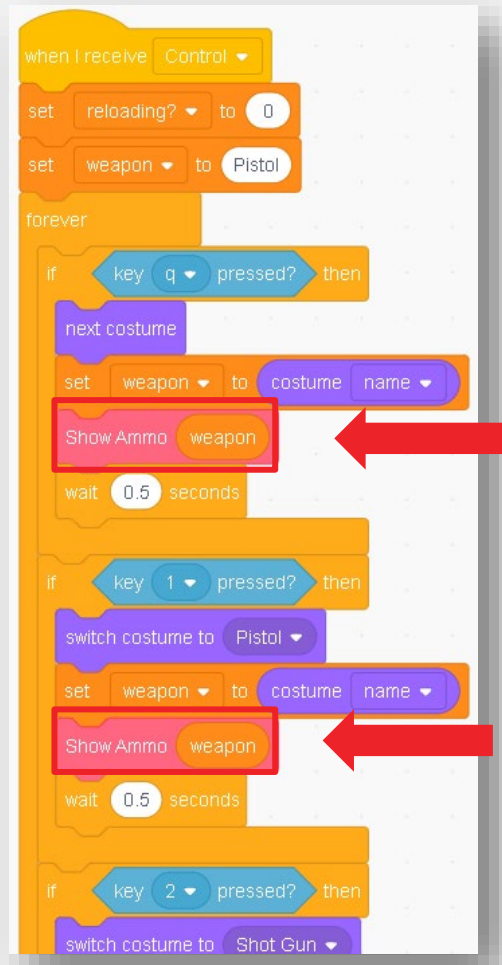
## Show Ammo Balance – Human Script



**While switching to other weapon, I will hide other ammo's variables and only show the current one.**



## Show Ammo Balance – Human Script



In your weapon switching keys there, you should add in “Show Ammo” blocks when doing weapon switching.



## Ammo Reduction After Firing – Bullet Script



**And at last, in your bullet script, the ammo to be reduced after firing shouldn't be "ammo", it should reduce the ammo with specific ammo variable such as "ammo – pistol", "ammo – Shot Gun", "ammo – Machine Gun", "ammo – RPG Launcher".**

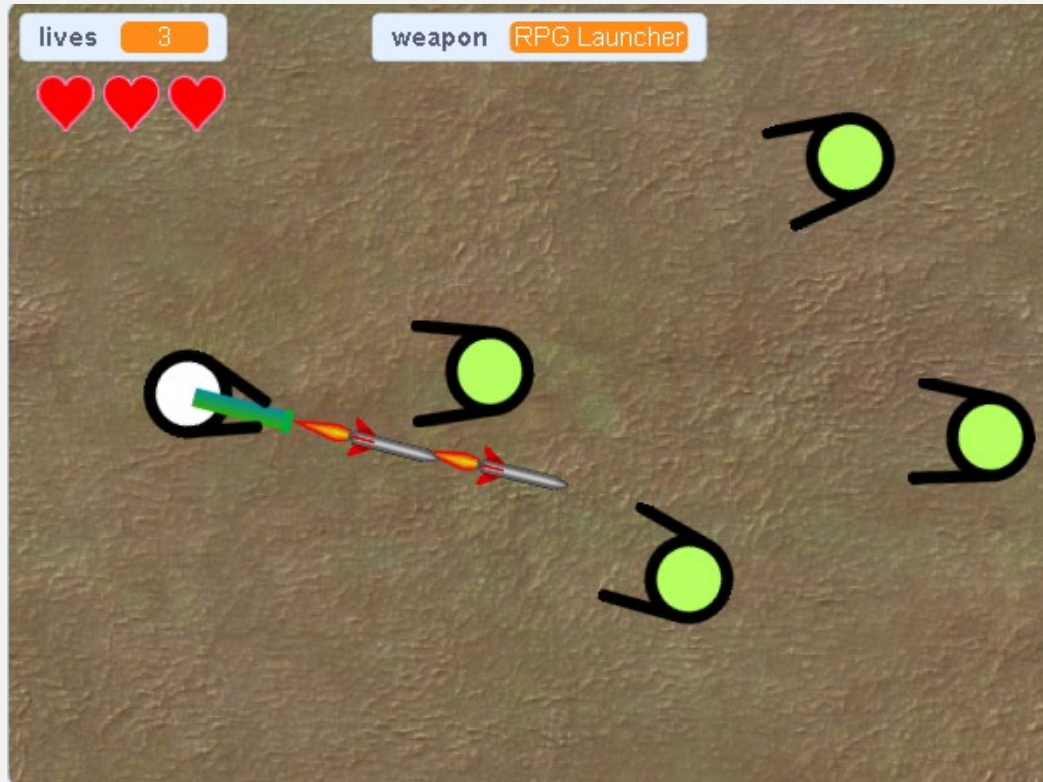




# **ASSIGNMENT *for***

## ***Lesson 2-11***





## L2-11 – Mission

Program your weapon switching options and take into accounts of below conditions:

1. Reload Speed
2. Carried ammo
3. Shooting Damage
4. Fire rate
5. Speed of bullets
6. Accuracy & handling



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 :)