

6. Enemy Mechanics

Series

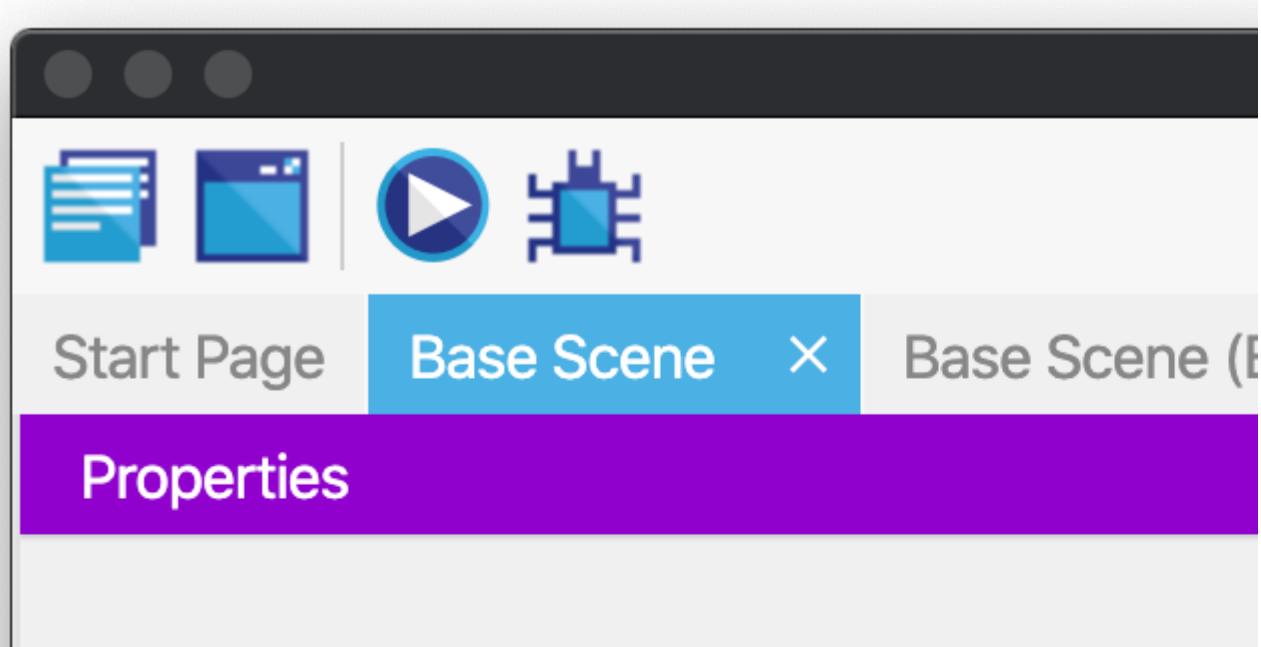
You are reading **Part 6** of the [Space Shooter Tutorial](#).

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In this chapter, we will learn how to give different mechanics to enemies.

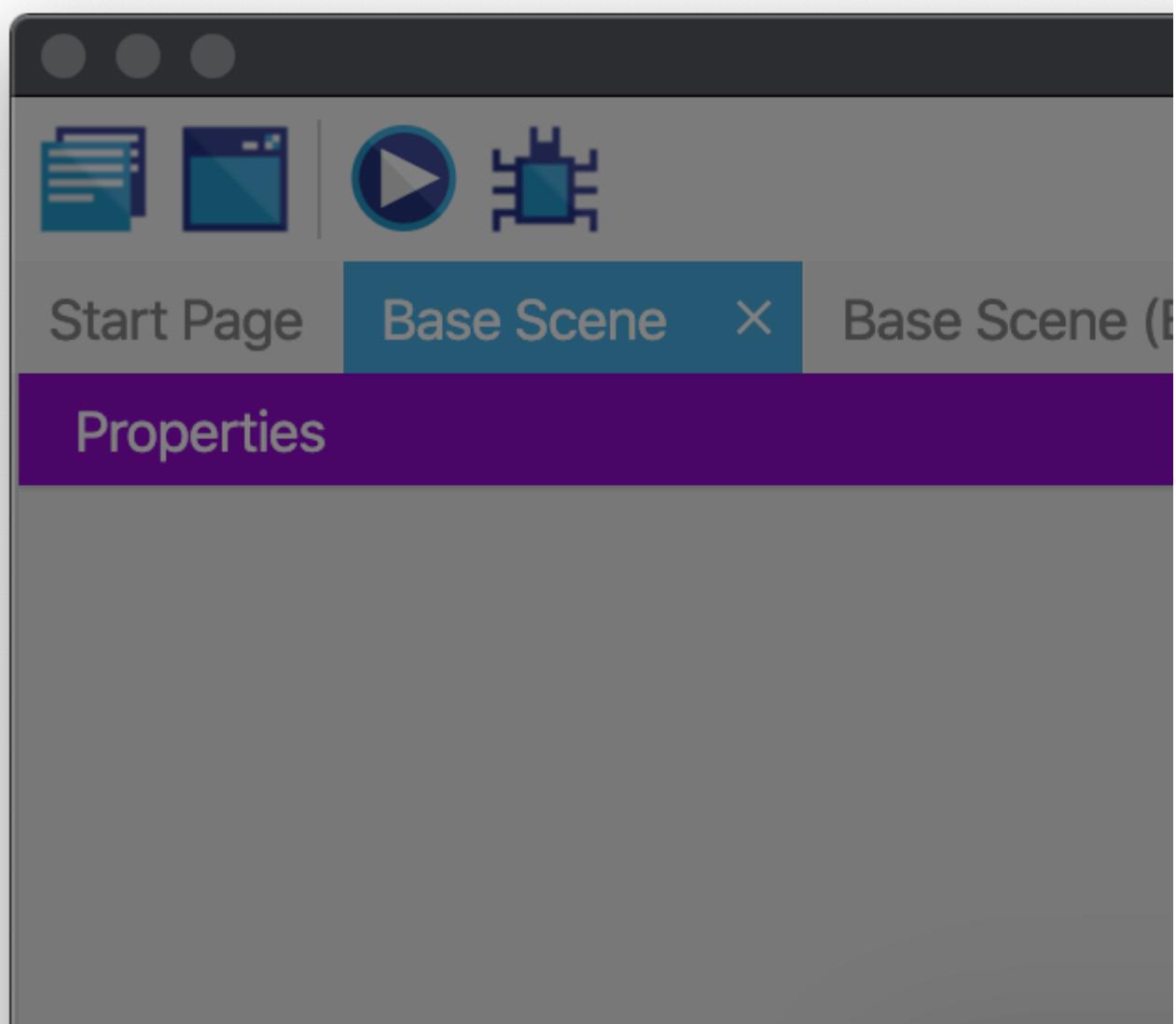
Shooting the player

We will add **a new bullet** object and give the shooting ability to **Enemy2**, so our enemies can also shoot the player. Add a new object called “**BulletEnemy**” and select the image as **laser_enemy.png** from the assets folder.



Click on an instance in the scene to display its properties

Then, add **Destroy when outside of the screen** behavior to this object. In the end, you should see:



Object name

BulletEr

Behavior

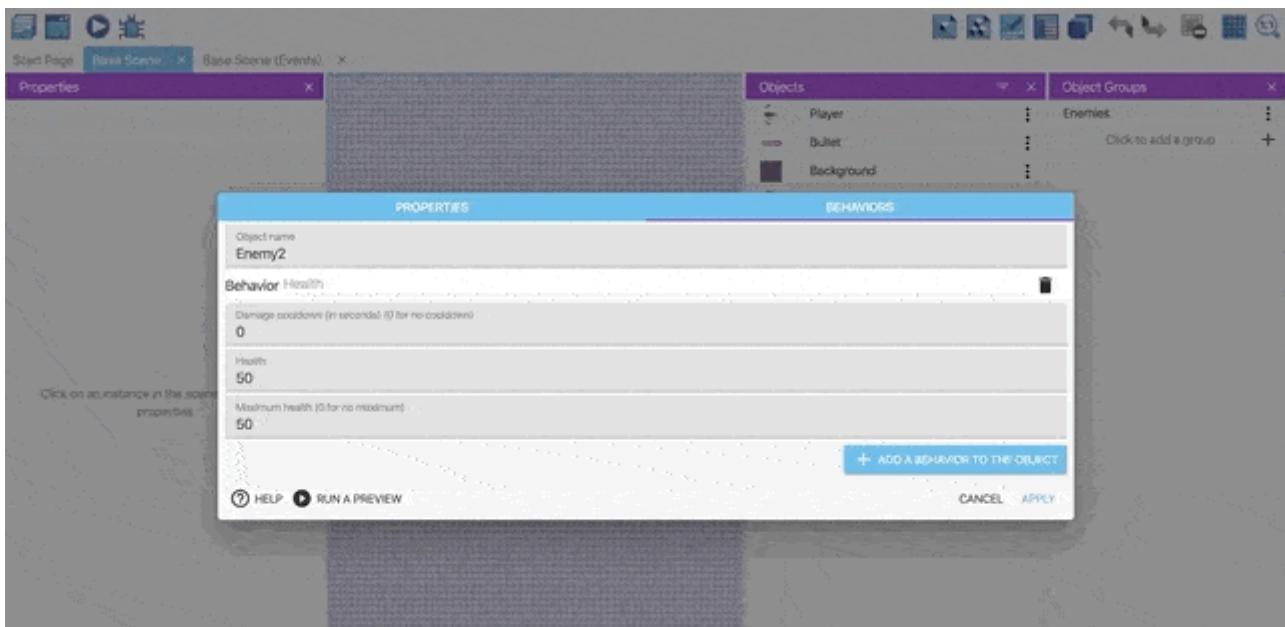
Margin be

0

Click on an instance in the scene
properties

② HELP

We need to give fire ability to **Enemy2**. Hence, follow the same steps to add the **Fire Bullet** behavior to **Enemy2**.



Now, we are ready to prepare our conditions and actions. Open the **Events** page and copy-paste the condition in which we determine the enemies' position. Then, drag and drop to the under of the original condition to make **a condition in a sub-event**.

By doing that, the inside condition will be checked only if the first condition is satisfied.

In the new condition, change the **Camera.X() + 450** to **Camera.X() + 150**

```

graph TD
    UpKey[Up key is pressed] --> AddForce[Add to Player an instant force, angle: 270 degrees and length: 400 pixels]
    DownKey[Down key is pressed] --> AddForce
    SpaceKey[Space key is pressed] --> Timer[The timer "FireBegin" is greater than 0.3 seconds]
    Timer --> FireBullet[Fire a bullet from Player, at position Player.X() + 60; Player.Y() + 30, with angle 0 and speed 600 px/s]
    FireBullet --> ResetTimer[Reset the timer "FireBegin"]
    FireBullet --> ChangeScalePlayer[Change the scale of Player: set to -0.6]
    FireBullet --> ChangeScaleEnemies[Change the scale of Enemies: set to 0.6]
    FireBullet --> ChangeXBackground[Change the X offset of Background: add 40 * TimeDelta()]
    FireBullet --> ChangeXCamera[Change the X position of camera (layer: 3): add 150 * TimeDelta()]
    FireBullet --> AddForcePlayer[Add to Player an instant force of 160 p/s on X axis and 0 p/s on Y axis]
    
    PlayerCollision[Player is in collision with Enemies] --> ChangeIsDamaged[Change the scene variable IsDamaged: set to 40]
    PlayerCollision --> DeleteEnemies[Delete Enemies]
    
    IsDamaged[The scene variable IsDamaged >= 1] --> DamagePlayer[Damage Player, removing Variable(IsDamaged) from its health]
    IsDamaged --> ChangeIsDamaged[Change the scene variable IsDamaged: set to 0]
    IsDamaged --> ChangeScene[Change to scene "Base Scene"]
    
    PlayerDead[Player is dead] --> DeleteEnemies[Delete Enemies]
    
    EnemiesCollision[Enemies is in collision with Bullet] --> DeleteEnemies[Delete Enemies]
    EnemiesCollision --> DamageEnemies[Damage Enemies, removing 50 from its health]
    EnemiesCollision --> DeleteEnemies[Delete Enemies]
  
```



Then, create a new condition in a sub-event condition under the original condition to check the scene timer's value. Fill the **time in seconds** with **1** and the **timer's name** with **EnemyFire**.

The screenshot shows the Construct 3 event editor with a sub-event condition. The first condition is "Space key is pressed". The second condition is "The timer "FireBegin" is greater than 0.3 s".

Below the conditions, there is a list of non-object conditions:

- Time scale
- Timers and time
- Value of a scene timer
- Scene timer paused

A red box highlights the "Value of a scene timer" option, indicating it is the selected condition for the sub-event.



Layer time scale

Layers and cameras/Time



HELP FOR THIS CONDITION

Add condition

The X position of **Enemies** ≤ CameraX() +

Add condition

The X position of **Enemies** ≤ CameraX() -

Add condition

Add condition

Add a new event

Now, we want **Enemy2** to shoot **Player**. Hence, we will add a new action to fire a bullet.



Sta

Search

OBJECTS



Player



Bullet



Background



Enemy1



Enemy2



Enemy3

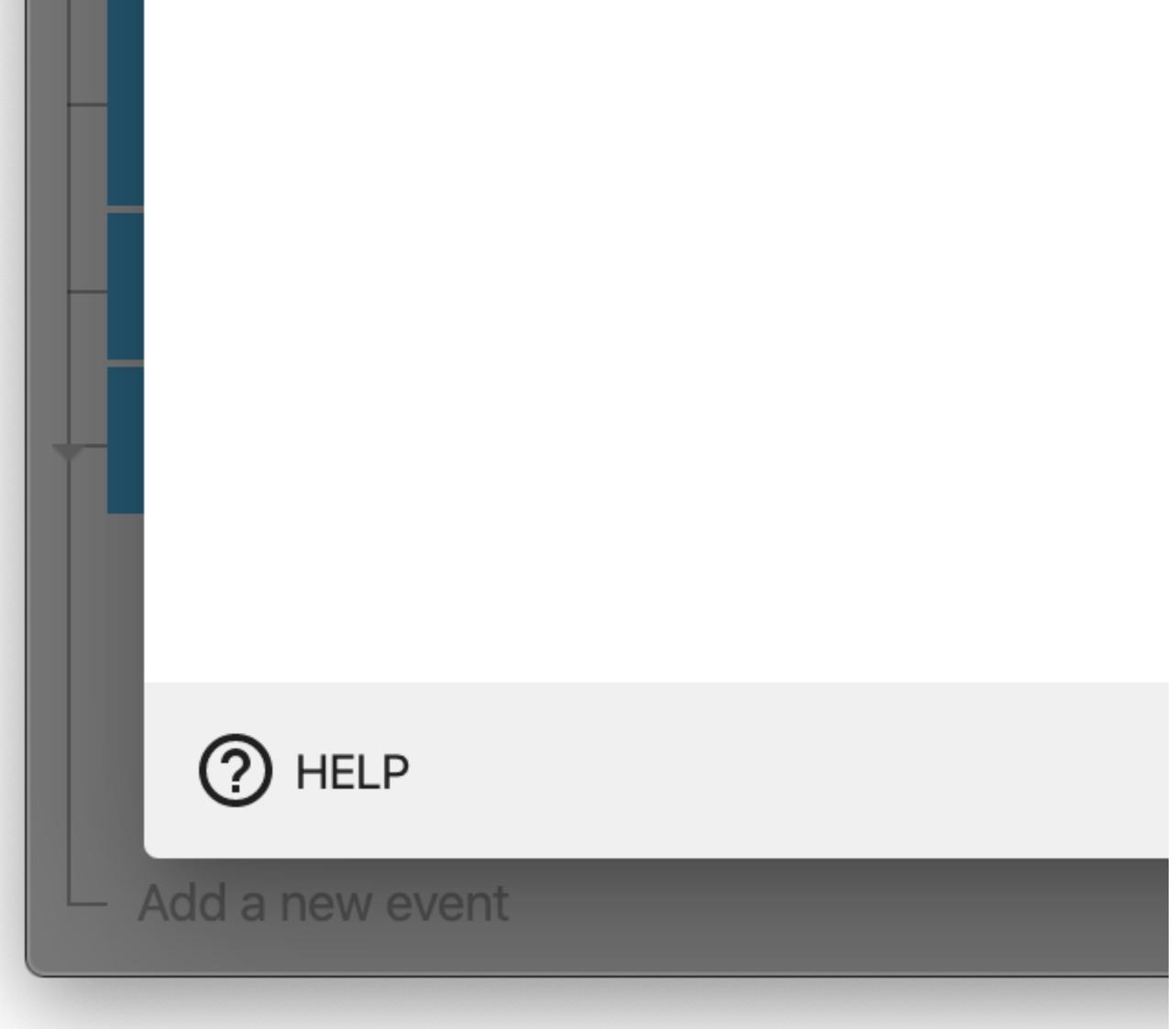


BulletEnemy

OBJECT GROUPS



Enemies



HELP

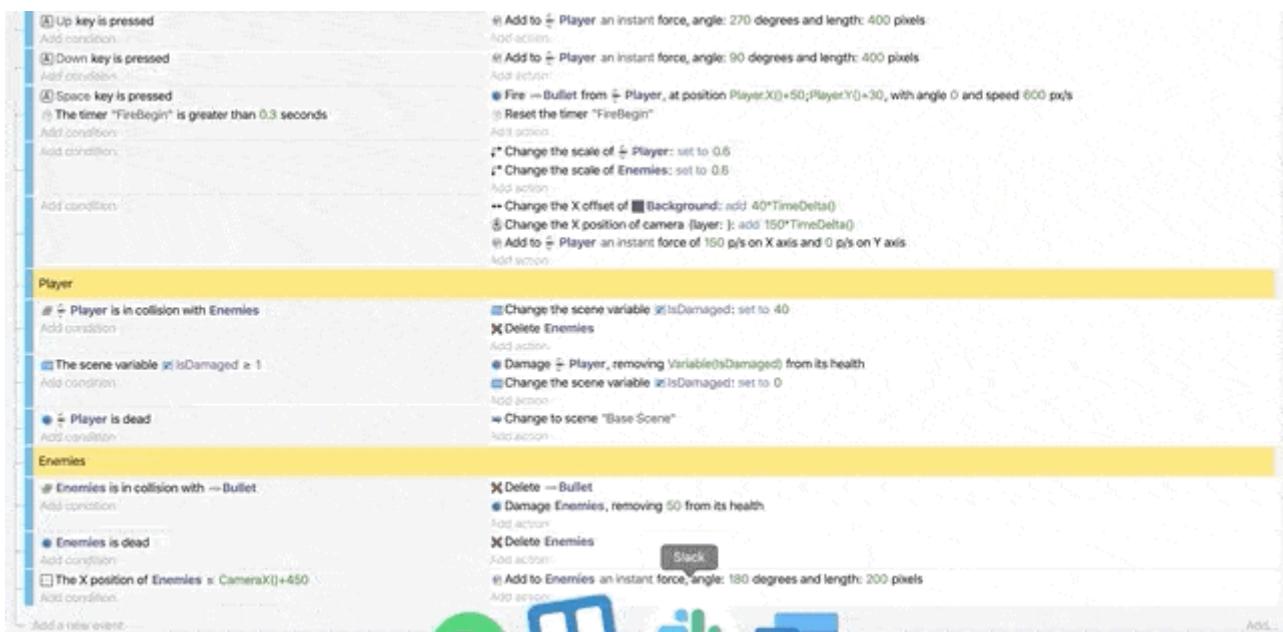
Add a new event

Then, we have to **reset the timer** to prevent unexpected problems. In the end, you should see:

- The X position of **Enemies** ≤ CameraX() + 450
 - Add condition
- The X position of **Enemies** ≤ CameraX() + 150
 - Add condition
- The timer "EnemyFire" is greater than 1 second
 - Add condition

Getting damages when hit by a bullet

Now, our **Enemy2** can fire bullets toward the player. However, we did not define the effect of being shot by these bullets. We will add a new condition to check the collision between the **Player** and the **BulletEnemy**. Please select the **event** and **copy-paste** it. You need to change the **in collision with** to **BulletEnemy**, and change the **IsDamaged** value to **30**. Finally, change deleting **Enemies** to **BulletEnemy** objects.



Your actions should look like this:

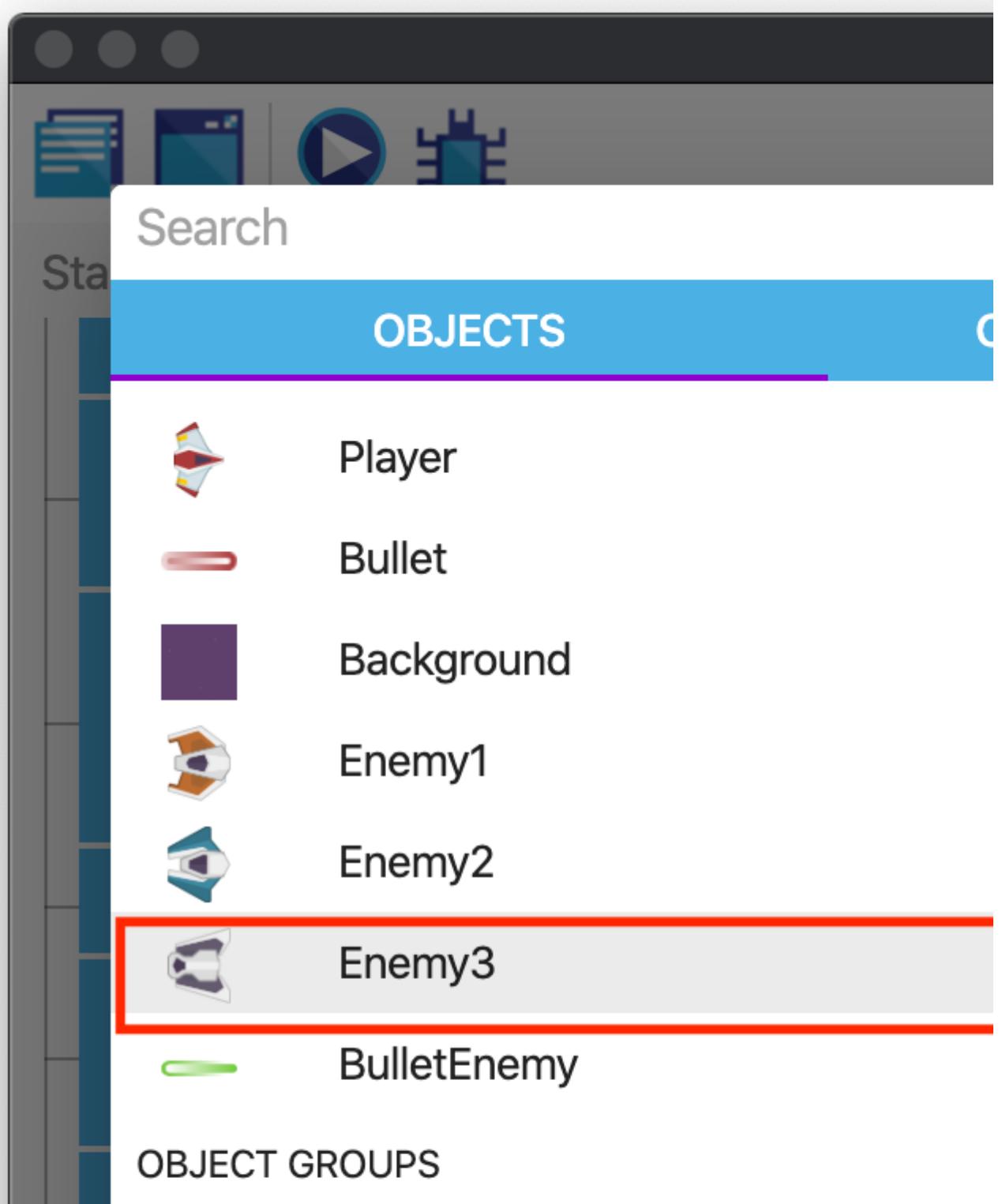
The screenshot shows the Player's event with four conditions listed vertically:

- Player**: "Player is in collision with Enemies" (with "Add condition" link)
- Player**: "Player is in collision with BulletEnemy" (with "Add condition" link)
- Var**: "The scene variable IsDamaged ≥ 1" (with "Add condition" link)
- Player**: "Player is dead" (with "Add condition" link)

Add condition

Moving enemy to the center of the screen

We will add a new mechanic, moving enemy to the center of the screen, to **Enemy3**. Firstly, we need to have the position of **Enemy3**. Thus, we will create some conditions to make a move smoothly. Create a new condition in a sub-event (**Camera.X() +150**). Select **Enemy3**, **Compare Y position** and check if the **value is greater than or equal to 300**.





Enemies



HELP FOR THIS CONDITION

Add a new event

We will use the same condition four times, so instead of writing every condition again, just **copy-paste the condition** like below and **modify**

them.

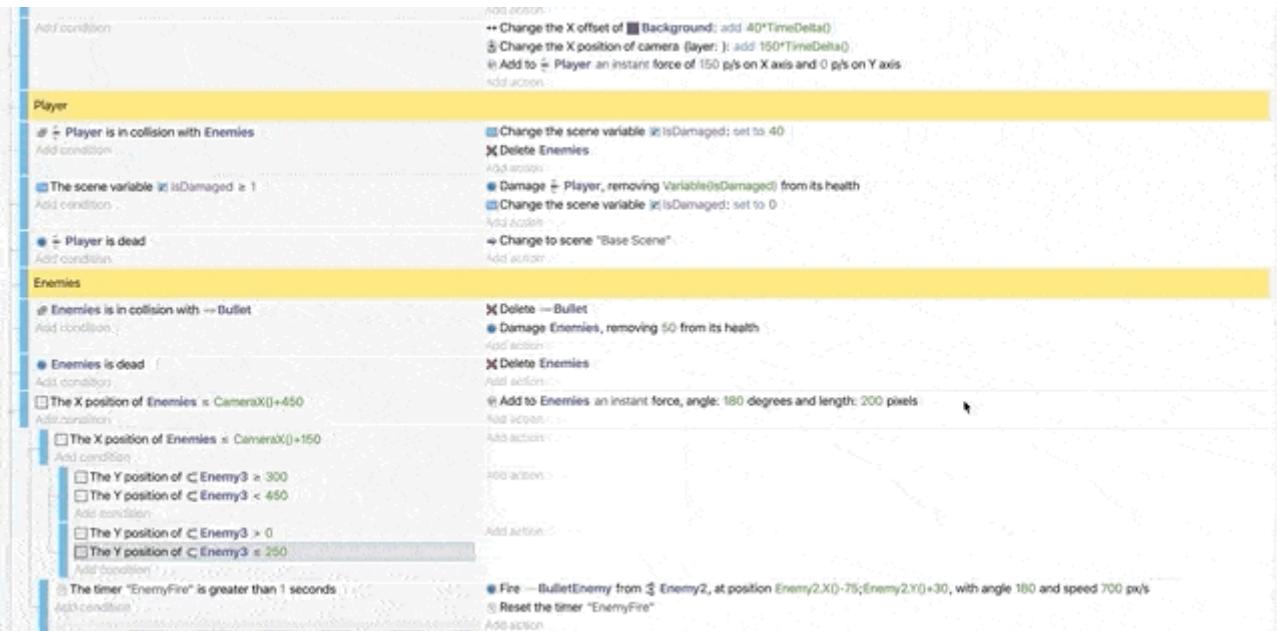
The screenshot shows a Scratch script editor with a complex script. The script starts with a condition for the Player being in collision with Enemies. It then branches into two cases: 'Player is in collision with Enemies' and 'Player is dead'. The 'Player is in collision with Enemies' case contains several actions: changing the scale of the Player and Background, changing the X offset of the Background, changing the X position of the camera, and adding a force to the Player. The 'Player is dead' case contains actions to change the scene variable 'IsDamaged' to 40, delete Enemies, damage the Player, and change the scene to 'Base Scene'. The script also includes conditions for Enemies being in collision with a Bullet or being dead, and a timer 'EnemyFire' greater than 1 second. The final action is to fire a bullet from an enemy at a specific angle and speed.

In the end, you will have:

This screenshot shows a detailed view of the 'Enemies' condition from the previous script. It is a complex AND condition involving multiple nested conditions. The main condition is 'The X position of Enemies ≤ CameraX() + 450'. This is followed by three nested 'Add condition' steps: 1) 'The X position of Enemies ≤ CameraX() + 150', 2) 'The Y position of Enemy3 ≥ 300' and 'The Y position of Enemy3 < 450' (both of which are currently selected), and 3) 'The Y position of Enemy3 > 0' and 'The Y position of Enemy3 ≤ 250'. Finally, there is another 'Add condition' step for 'The timer "EnemyFire" is greater than 1 second'.

We are ready to add movement to these conditions. Use the Enemies movement

action and modify it to move **Enemy3** with an angle of **-90** and speed of **300**.



Repeat the same process for the condition below. Just change the angle to **90**. In the end, you should see:

The screenshot shows a simplified event for the Enemies object. It starts with a condition where **Enemies** is in collision with **Bullet**. This triggers an action where the bullet is deleted. Below this, there is a condition where **Enemies** is dead, which triggers an action to reset the timer "EnemyFire".

Below these, there is a condition where the **X position of Enemies** is less than or equal to **CameraX() + 450**. This condition has three nested sub-conditions: **The X position of Enemies** is less than or equal to **CameraX() + 150**, **The Y position of Enemy3** is greater than or equal to **300**, and **The Y position of Enemy3** is less than **450**. The final condition is **The Y position of Enemy3** is greater than **0**.

The Y position of  **Enemy3** ≤ 250

Add condition

The timer "EnemyFire" is greater than **1** second

Add condition

Testing out

Now we are ready to play our game. Hit the run button.

If you want to play longer, you can put new enemy objects on the scene.



Next step

[Space Shooter, Part 7](#)