WhiteHat Jr
Live Online Coding for Kids

INSTRUCTIONS:

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Goal of the Project:

In Class 17, you have learnt how to organise your project in javascript and html files.

In this project, you will have to practice and apply what you have learnt in the class and create a **One Player Squash Game with a Paddle** which allows the user to bounce a ball.

Story:

Your close friend loves to play the game of squash. Unfortunately during his recent gameplay at the court, she injured her leg and is not able to go out and play.
You wish to cheer her up and use your coding skills to make a squash game for her.
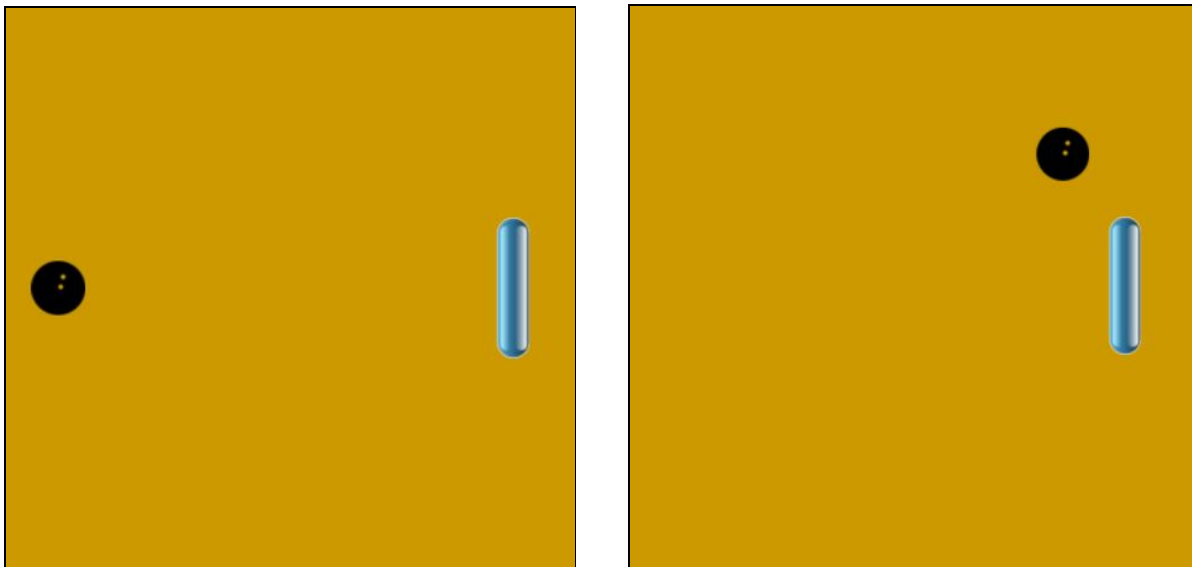
*This is just for your reference. We expect you to apply your own creativity in the project.

Getting Started:

1. Login to https://editor.p5js.org
2. Click on the following link: https://editor.p5js.org/rupin/sketches/dtJYFF--p
3. Click on "**Duplicate**" under the **File menu**. This will create a copy of the sample project in your account.
4. Click on "**Save**" under the **File menu** to save your project.
5. Rename the project to **Project 17** instead of **Project: Bouncy Paddle** and click on **Save**.

Specific Tasks to complete the Project:

1. In the **preload()** function:
   - Preload your images of the ball and the paddle. These are saved in the project as **ball.png** and **paddle.png**.
2. In the **setup()** function:
   - Create the **Ball and the Paddle Sprites**, assign them the preloaded images.
   - Give the ball an **initial horizontal velocity** of 9.
3. In the **draw()** function:
   a. Create **Edge Sprites.**
   b. Allow the ball sprite to **bounceOff** the left, top and bottom edges only, leaving the right edge of the canvas to be open.
   c. Allow the ball to **bounceOff** of the paddle.
   d. As the ball bounces off the paddle, you want to assign it a **random vertical velocity**.
   e. When the **Up arrow** or **Down arrow** is pressed, the paddle should move down or up by **20 pixels**.
4. Click on "**PLAY**" once to check if it is working.

*Refer to the images given above for reference.

Submitting the Project:

1. Click on "**Save**" under the **File menu** to save your project.
2. Create a sharable link on the P5.js editor by clicking on **File** and then clicking on "**Share**".
3. Copy this link and submit it in the Student Dashboard Projects panel against the correct class number.

Hints:

1. See a video of this game in action [here](#).

2. Use the second argument of the **bounceOff** function to detect the collision. See more details in the bounceOff documentation [here](#).

bounceOff (target , callback) Boolean
Defined in lib/p5.play.js:2918

Checks if the the sprite is overlapping another sprite or a group. If the overlap is positive the sprite will bounce with the target(s) treated as immovable.

The check is performed using the colliders. If colliders are not set they will be created automatically from the image/animation bounding box.

A callback function can be specified to perform additional operations when the collision occours. If the target is a group the function will be called for each single sprite colliding. The parameter of the function are respectively the current sprite and the colliding sprite.

Parameters:

- `target` Object
  Sprite or group to check against the current one

- `[callback]` Function optional
  The function to be called if overlap is positive

Returns:

Boolean:
True if overlapping

Example:

```
sprite.bounceOff(otherSprite, explosion);

function explosion(spriteA, spriteB) {
  spriteA.remove();
  spriteB.score++;
}
```

3. You can selectively **assign the bounceOff to specific edges** by using the following syntax. The edges variable is an array with 4 elements.

```
edges=createEdgeSprites();
//Bounce Off the Left Edge only
ball.bounceOff(edges[0]);
```

REMEMBER... Try your best, that's more important than being correct.
After submitting your project your teacher will send you feedback on your work.

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