



Topic	Computer Program	
Class Description	This class establishes the importance of learning to code in today's context of robots powered by Artificial Intelligence. Students start designing the game "Pong" by drawing and positioning shapes for the paddles and the ball.	
Class	Pro-T	
Class time	45 mins	
Goal	<ul style="list-style-type: none"> Establish the philosophy behind the course. Interpret a program as a set of instructions issued to a computer to do a particular task. Understand how instructions issued to a computer are different from instructions issued to a human. Start designing a simple Pong Game. Create all the objects of the game and animate the paddle. 	
Resources Required	<ul style="list-style-type: none"> Teacher Resources <ul style="list-style-type: none"> Earphones with mic A water bottle Notebook and pen Student Resources <ul style="list-style-type: none"> Laptop with internet connectivity Earphones with mic Notebook and pen 	
Class structure	Warm Up Teacher-led Activity Student-led Activity Wrap up	10 mins 15 min 10 min 5 mins
<div> <div></div> <div> CONTEXT <ul style="list-style-type: none"> Make a connection with the student. Interpret a program as a set of instructions issued to a computer to do a particular task. Understand how instructions issued to a computer are different from instructions issued to a human. </div> </div>		

Class Steps	Teacher Action	Student Action
Step 1: Warm Up (10 mins)	<p>Hi <student's name>! I am <Instructor's name>.</p> <p>I am going to be your instructor in this program. Let's get to know each other a little bit before we start. Tell me a little bit about yourself.</p>	<p><i>Encourage the student to share about him/herself, his/her interests etc.</i></p> <p><i>Also share a little about yourself.</i></p>
	<p>So <student's name>, why do you want to learn to code?</p>	<p><i>Explore all the reasons why the student wants to learn to code.</i></p> <p><i>Some of the things the student might talk about are robotics, creating games, writing softwares and apps and so on.</i></p> <p><i>Appreciate the reasons given by the student by using words like "amazing", "awesome", "cool" and so on.</i></p>
	<p>I would also like to add a reason why anyone would want to learn to code today.</p> <p>Have you heard of "Artificial Intelligence" and how computers are becoming as smart as humans? Today in workplaces, we mostly work with other fellow humans. However, 10-15 years down the line, we might be working with computers and robots. And we must know how to</p>	

	<p>give instructions to the computer to get things done. Giving instructions to the computer is very different from giving instructions to a human.</p> <p>Let me give you a demo to help you understand how issuing instructions to a computer is different from issuing instructions to a human.</p>	<p><i>Place a water bottle next to you so that it is visible to the student through the webcam.</i></p>
	<p>I am a human. Give me instructions to drink water from this bottle.</p>	<p><i>Follow the simple instructions given by the student to drink water from the bottle.</i></p>
	<p>Now imagine I am a robot. Now give me instructions to drink water from the bottle.</p>	<p><i>Follow all the instructions literally.</i></p> <p><i>Some examples:</i></p> <ul style="list-style-type: none"> • <i>The student might ask you to drink water from the bottle. You will try to drink water without opening the bottle.</i> • <i>The student might ask you to open the bottle. You will try to uncap the bottle without rotating the cap first.</i> • <i>The student might ask you to rotate the cap of the bottle. You will try to rotate the cap in the clockwise direction - which tightens the cap further.</i>

		<i>Make the situation hilarious for the student.</i>
	<p>Q: What do you think was the difference between giving instructions to a human vs giving instructions to a robot/computer?</p> <p>A: A robot needed more precise/exact instructions to complete a task. A human could understand us without the exact instructions.</p>	<i>Encourage the student to decode the difference between instructions given to humans vs instructions given to robots.</i>
	<p>Did you see how you struggled to give exact instructions to the robot in English?</p> <p>The languages we normally speak - English, Hindi, Marathi, Kannada, Tamil etc. are meant for humans. We have different languages which computers understand.</p> <p>Do you know the names of any computer languages?</p>	<p><i>Encourage the student to share any computer languages they might know or use.</i></p> <p><i>The student might mention JAVA, HTML, Q-BASIC, Python etc.</i></p>
	<p>We are going to learn one such language in which we can give instructions to the computer - Javascript. In fact, we are going to use this language to give instructions to the computer to design a game for us!!</p> <p>Are you feeling excited about designing a game?</p>	<i>Make the student feel excited about writing their first game.</i>

	Let's start. I am going to share my screen with you. You will see what's happening on my screen from now on.	
Teacher Initiates Screen Share		
<p style="text-align: center;"><u>CHALLENGE</u></p> <ul style="list-style-type: none"> • Show how powerful Javascript code can be. • Decode the meaning of the numbers inside the rectangle instruction. • Set up for drawing and positioning the paddle and the ball using rectangle instruction. 		
Step 2: Teacher-led Activity (15 min)	<p>Before we start learning javascript and how to program using Javascript, I want to show you a small trick which will show you how powerful the Javascript Language is.</p> <p>Do you or your family shop online? Which shopping site do you use?</p>	<p>ESR: Amazon, Flipkart etc.</p>
	<p>Ok, let me open Amazon.com on my browser.</p> <p><i>Teacher opens Amazon.com.</i></p> <p>Let's try to buy something from Amazon. What about an Xbox? I love games. Do you love games?</p>	<p>ESR: Yes</p>

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Microsoft 1 TB Xbox One S Console- Forza Horizon 4 Bundle

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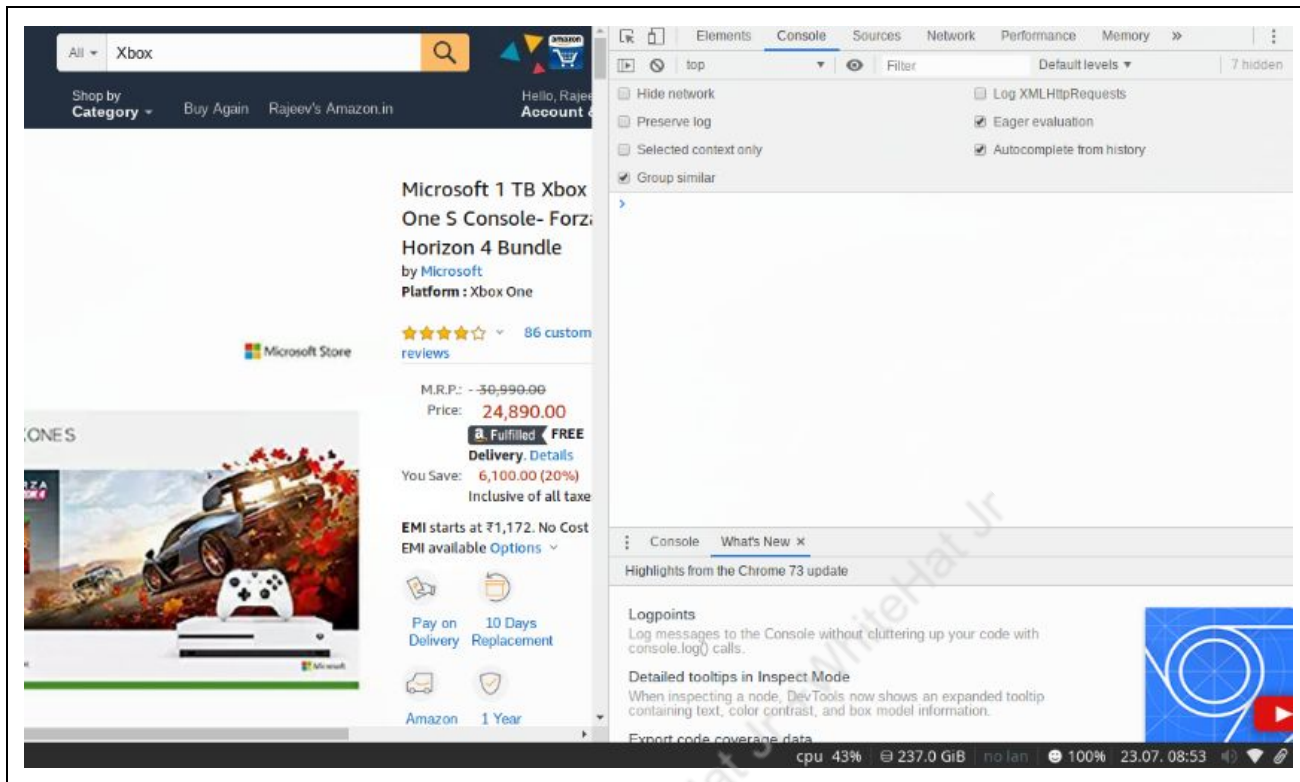
Omg! That's expensive.

Let's write a computer program to make it look more affordable.

Teacher presses Ctrl + Shift + J on the amazon tab to open the console window in chrome.

This console is one of the places where we can write code.

The student observes carefully.



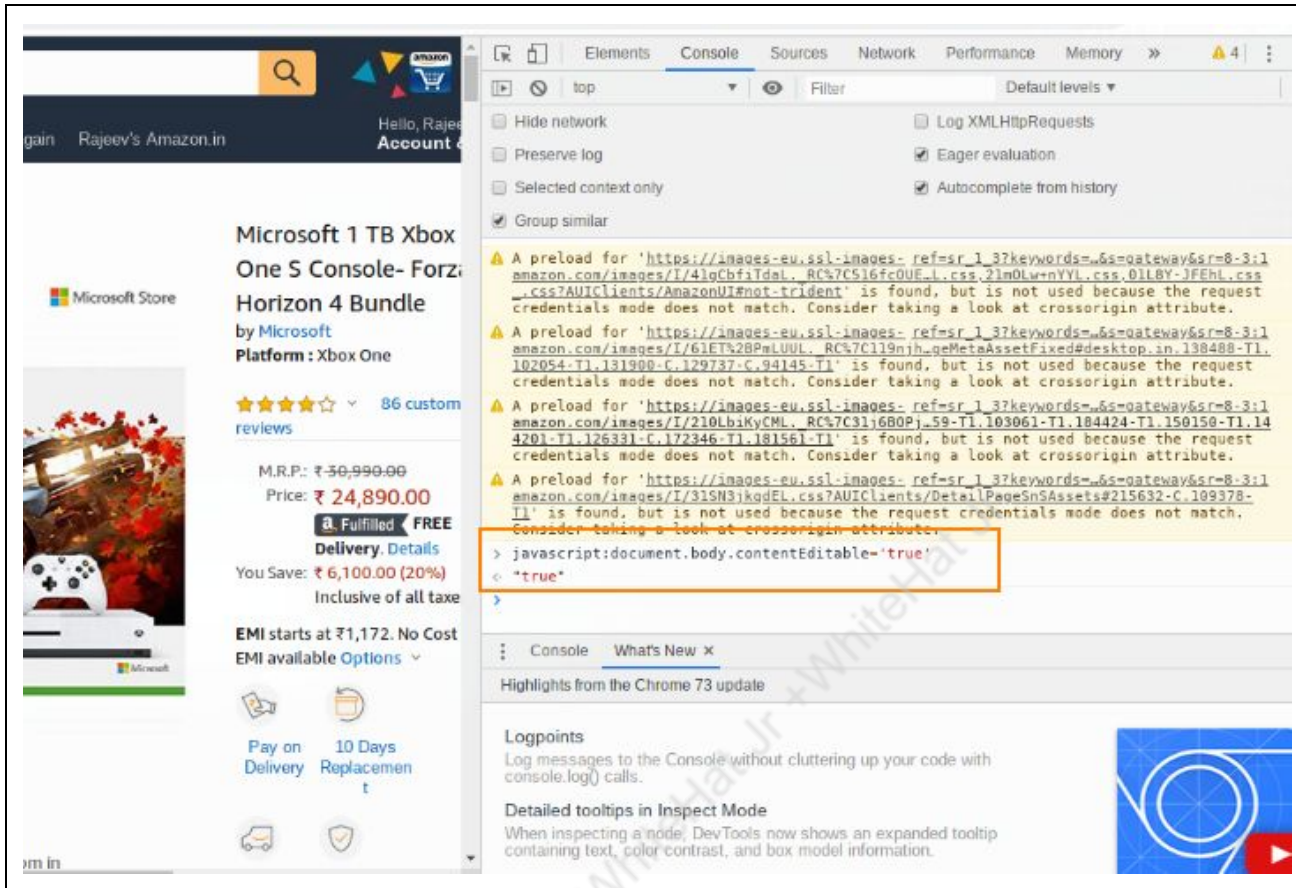
Let us write a small one-line program on the console window.

javascript:document.body.contentEditable='true'

This program basically tells the computer to allow me to edit the contents of this document.

Teacher closes the console after writing the program.

The student observes carefully.




Let's now change the price of the Xbox. Let's remove a few digits from the left and make this Xbox more affordable.

Isn't it fun, what just one line of code could do! You can do this on any website and change its content.

Note: The change in price is reflected only on the frontend of the website. It doesn't change the price of the item.

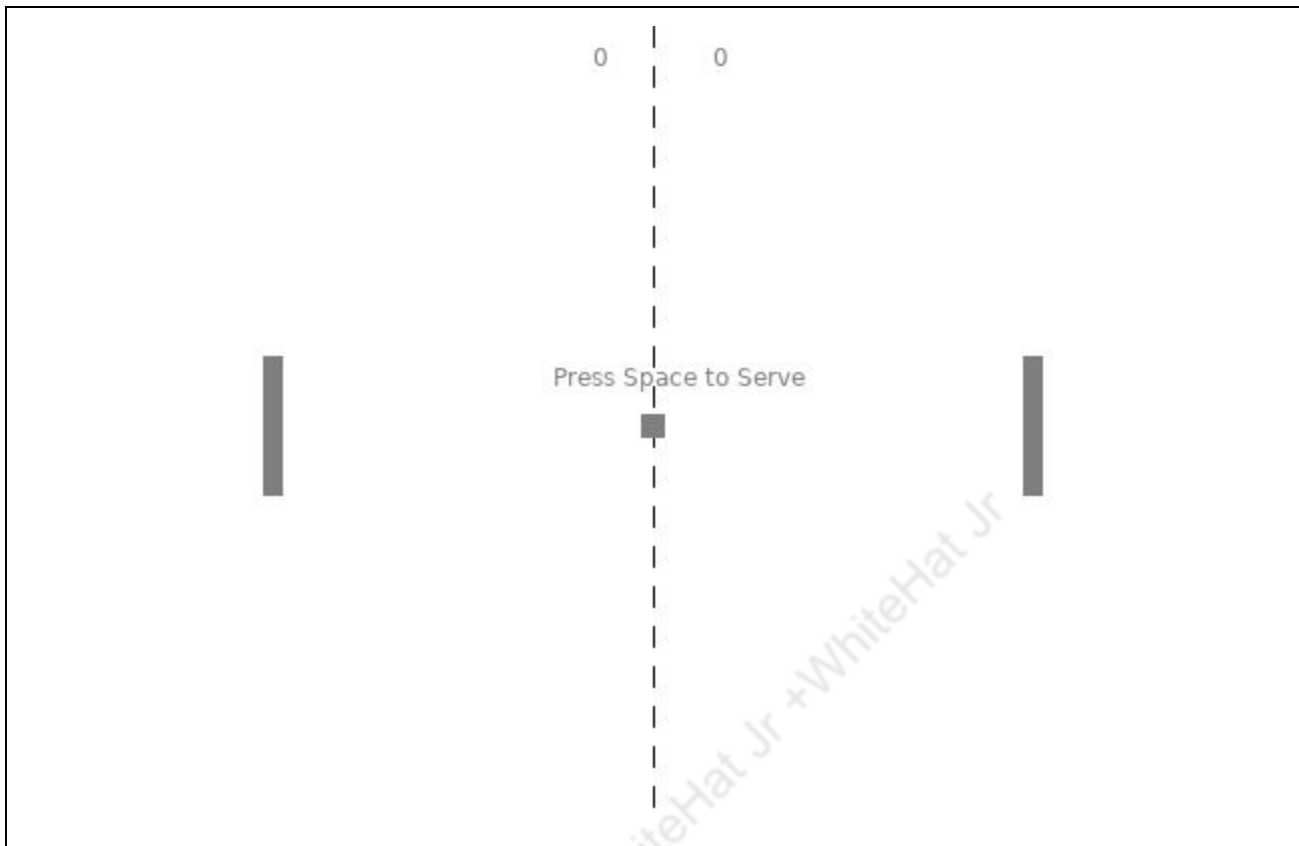
Allow the student to do this on their own system if they want to.

ESR:
Yes

	<p>Microsoft 1 TB Xbox One S Console- <u>Forza Horizon 4 Bundle</u> by Microsoft Platform : Xbox One ★★★★☆ 86 customer reviews</p> <p>M.R.P.: ₹30,990.00 Price: ₹90.00 Fulfilled FREE Delivery. Details You Save: ₹6,100.00 (20%) Inclusive of all taxes</p> <p>EMI starts at ₹1,172. No Cost EMI available Options ▾</p> <p>Pay on Delivery 10 Days Replacement Amazon Delivered 1 Year Warranty</p> <p>Only 2 left in stock. Guaranteed delivery to pincode 110095 - East delhi by Tomorrow 9pm with One-Day Delivery — Order in the next 3 hours and 22 minutes Details Sold by Zupitex (4.9 out of 5 61 ratings) and Fulfilled by Amazon.</p>	<p><i>The student listens and asks the questions.</i></p>
	<p>In this course, we will be learning to program using this powerful language - Javascript.</p> <p>We will start to learn how to program through designing games. Games offer us a lot of interesting and complex problems to solve as a programmer.</p> <p>After we learn how to design games, we will learn how to make mobile apps, learn about using Machine Learning (ML) and Artificial Intelligence (AI) in our programs.</p>	
	<p>We will start with building a simple game and then progressively build complex games after every few classes.</p>	

	<p>Let me show you the first few games we will be building in the course.</p> <p>Teacher shows the links for the 4 games:</p> <ul style="list-style-type: none"> • Pong [Teacher Activity 4] • Soccer Practice [Teacher Activity 1] • Trex Runner [Teacher Activity 2] • Angry Birds [Teacher Activity 4] • Multiplayer Car Racing Game [Teacher Activity 5] <p>- First time you are using multiplayer car racing game you have to create your username and password by Signing up.</p> <p>- Share same username and password with the student.</p> <p>- You can use the same username and password for each class</p> <p>After every class, you will also have self-work tasks. You will get a chance to create some of your own games and interesting projects.</p>	<p><i>The student explores the games he/she will be building through the student activity links.</i></p>
	<p>Let's look at the simplest game - Pong!</p>	

	<p><i>Teacher can open the Pong Game for the student.</i></p> <p>Do you know this was one of the first games made by computer programmers and was very popular at its time!</p> <p>Even a simple game like this one has a lot of challenging things to program. Can you name what are the different components of this simple game? <i>The teacher should show/tell about the functionalities of the game which do not get covered in the student response.</i> <i>*Use the following text to help you fill the gaps.</i></p> <p>If you look at the game, there are many things in it. There are two paddles, one paddle is controlled by the mouse, the other paddle has some "AI (Artificial Intelligence)" - it always follows the ball, there is a ball which is moving, the ball is bouncing off the walls, there are sounds....so many things! Where do we start??</p>	<p>ESR:</p> <ul style="list-style-type: none"> - There is a ball which is bouncing around. - There is a player paddle which moves with the mouse. - There is a computer paddle on the left which has some artificial intelligence. It knows where the ball is and hits it on its own. - There is a scoring system.
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Suddenly the game appears to be complex now!

While programming, we often have to deal with complex problems. We approach complex problems by breaking them down into several smaller simpler problems which we can solve.

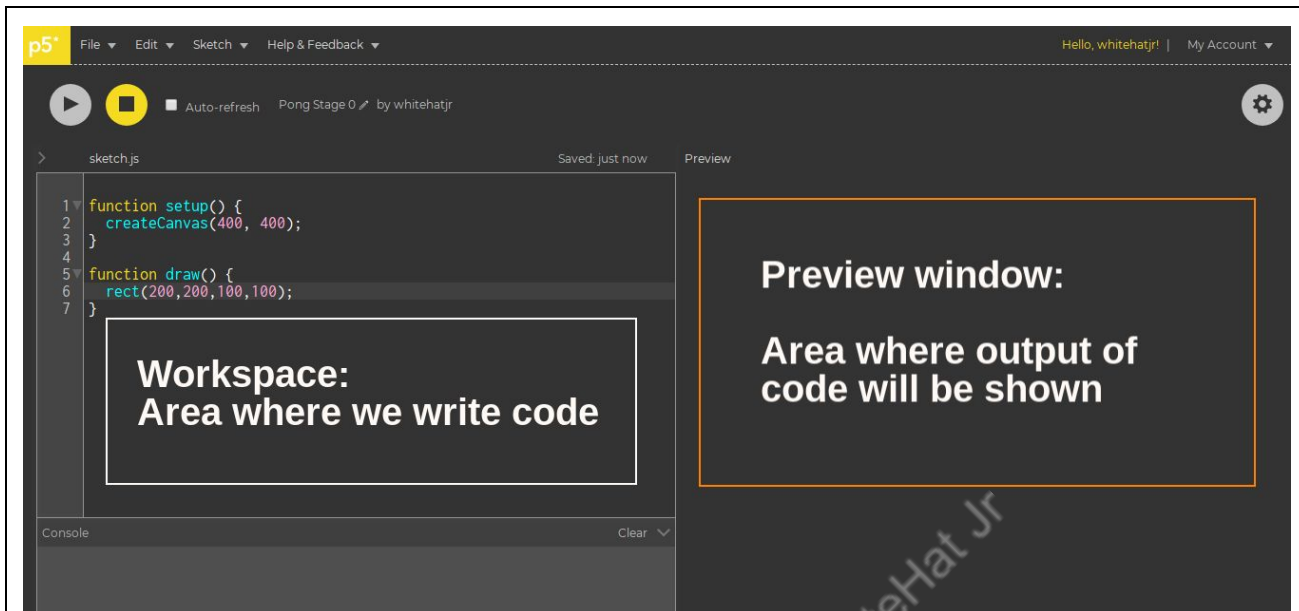
Remember, whenever you have a difficult and complex problem to solve, you must break it down into smaller problems - each of which is simple enough to be solved alone.

Q: What is the simplest thing we can do in this game of Pong?

ESR

Draw the shapes of the paddle and the ball.

	<p>Let's start by drawing all the objects in this game. What are the different objects in the Pong Game?</p> <p>Let's start by writing code to draw these objects.</p>	<p>ESR: Two rectangular paddles and a square ball.</p>
	<p>We will be using an online editor called p5 to write our game for this class.</p> <p><i>Teacher opens the p5 editor [Teacher Activity 6] and introduces the student to the different sections.</i></p> <p>Note: Teacher shows the p5 interface:</p> <ul style="list-style-type: none"> -> Workspace section: used to write code. -> Preview window: output screen -> Play and Stop button to run or stop the program. -> File> New to start a new project <p><i>Teacher can also get the student to change the theme (skin) of the editor using the settings menu on the right.</i></p>	<p><i>The student observes and learns.</i></p>



In this code, what do you think **createCanvas()** does?

createCanvas() is used to create a game area of 400 pixels wide and 400 pixels length.

What do you think, the **rect()** instruction does?

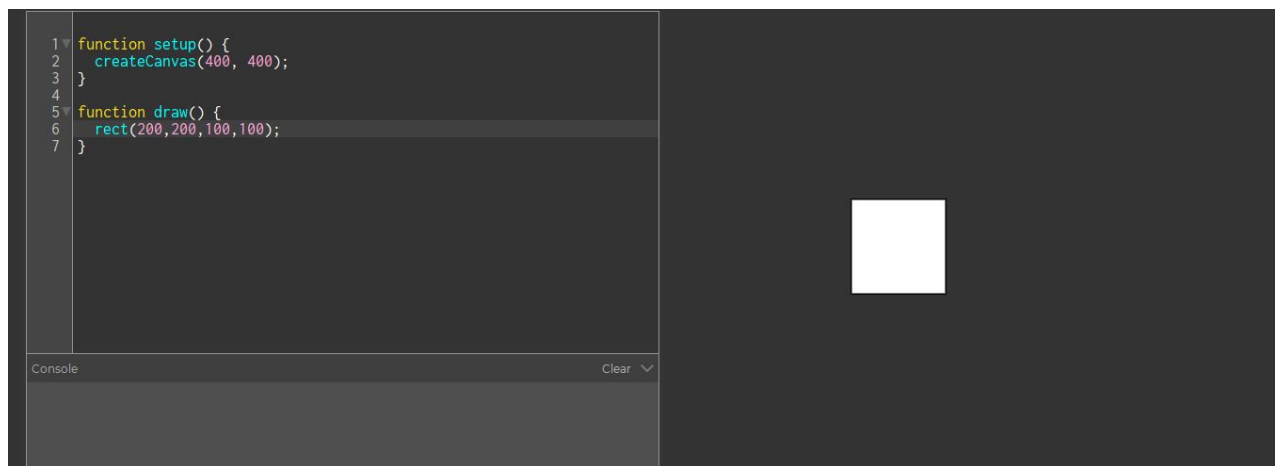
Let's run and find out.

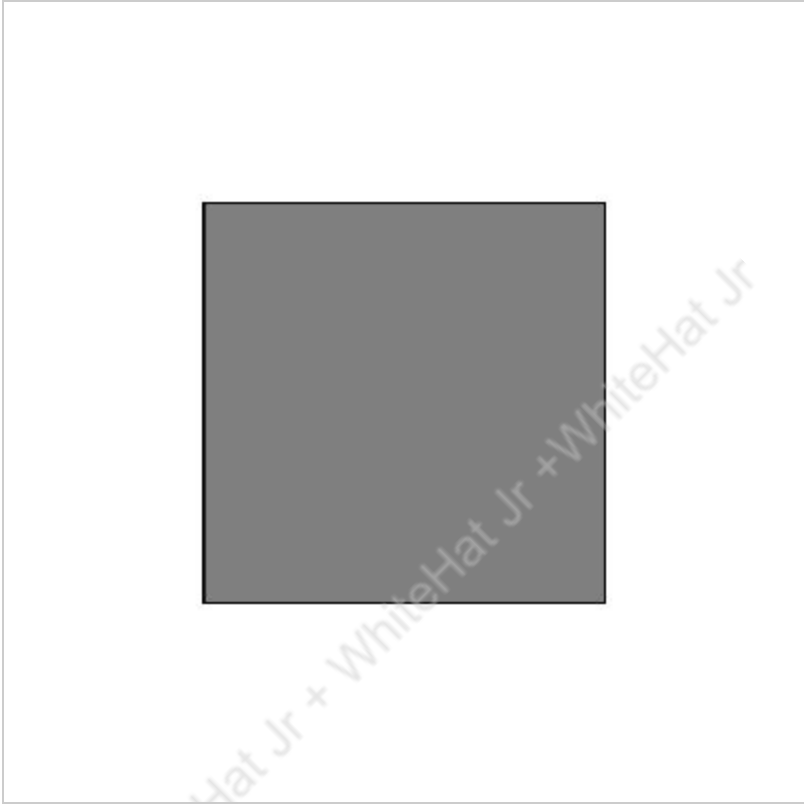
ESR:


It creates the area where we are going to design the game.

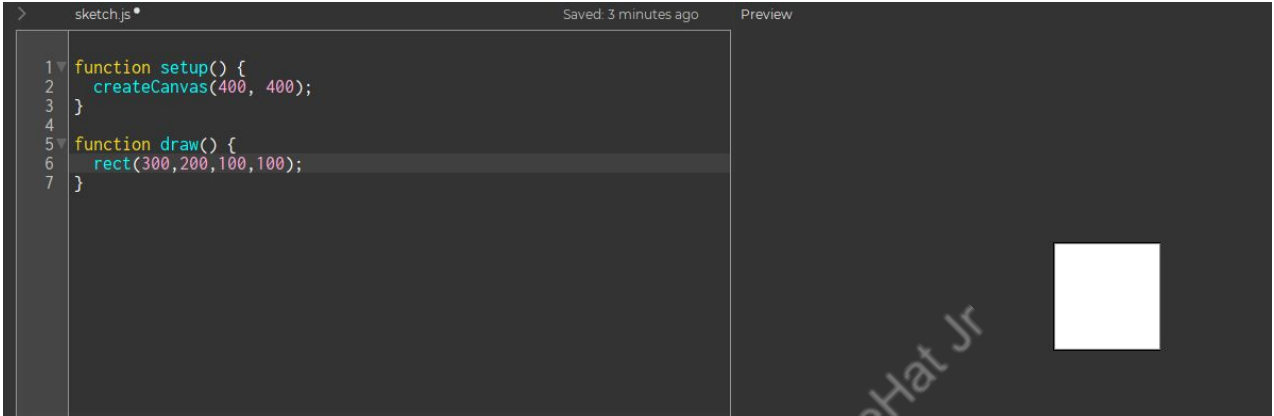
ESR:

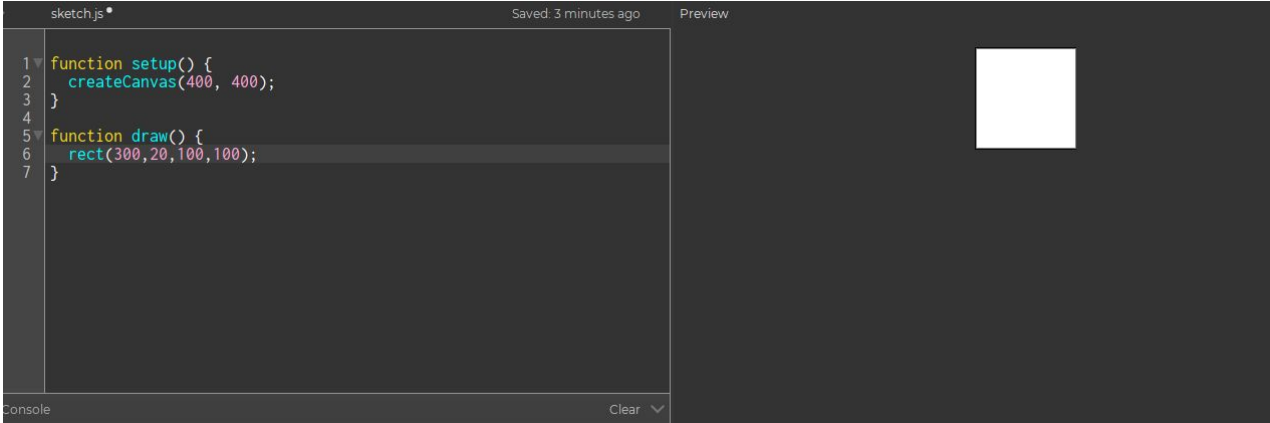
It will draw a rectangle.



	Great! we have a rectangle on the screen. But we want a rectangle of different sizes for the paddles and the ball, right? How do we do that?	ESR: We can change the numbers inside the rectangle instruction.
		
	How? What do these numbers mean?	<i>The student takes some guess about what the numbers inside rect() mean.</i>
	You know the best thing about coding is that you don't have to wait for someone else to give you the right answers. You can experiment, try things out, see the result and find the right answers on your own.	

	Let's experiment with these numbers ONE BY ONE and try to find out what they mean.	
	<p><i>Take input from the student on what the first number could be.</i></p> <p><i>Teacher runs the code with the first number reduced.</i></p> <p>What happened?</p>	<p><i>The student gives input on what the first number could be.</i></p> <p><i>He/She reduces the first number.</i></p> <p>ESR: The rectangle shifted to the left.</p>
<div> <pre> 1 function setup() { 2 createCanvas(400, 400); 3 } 4 5 function draw() { 6 rect(20, 200, 100, 100); 7 } </pre>  </div>		
	<p>Let's increase the number and see what happens?</p> <p>Can you give me a higher number?</p> <p>What happened?</p> <p>What do you think the first number stands for?</p>	<p><i>The student gives a higher number for the first number.</i></p> <p>ESR: The rectangle shifted to the right.</p> <p>ESR: To position the rectangle left or right in the horizontal direction.</p>

	Yes! The first number stands to move the rectangle left or right OR on the X-Axis.	
		
	<p><i>Teacher repeats the above steps for the second number.</i></p> <p>What do you think the second number stands for?</p> <p><i>Change the second number similar to first number</i></p> <ul style="list-style-type: none"> • <i>Reduce it first and run the program.</i> • <i>Increase it and run the program.</i> • <i>Ask the student to verify if their guess was correct.</i> 	<p>ESR:</p> <p>The second number can be used to move the rectangle up and down.</p>

		
	<p>Let us experiment with the third and fourth numbers and see what happens to our rectangle.</p> <p><i>Teacher repeats the above steps with the third and fourth numbers.</i></p>	<p><i>The student gives inputs on what numbers she/he would like to test for the third and fourth numbers.</i></p>

```

1 function setup() {
2   createCanvas(400, 400);
3 }
4
5 function draw() {
6   rect(200, 200, 10, 100);
7 }
  
```

Console Clear

```

1 function setup() {
2   createCanvas(400, 400);
3 }
4
5 function draw() {
6   rect(200, 200, 100, 10);
7 }
  
```

Console Clear

	<p>What do you think the third and fourth numbers stand for?</p> <p>Amazing!</p>	<p>ESR:</p> <p>The third and fourth numbers stand for the width and height of the rectangle.</p>
	<p>So, we now know how to draw a rectangle of different sizes and position them anywhere on the screen. Don't we?</p>	<p>ESR:</p> <p>Yes!</p>
	<p>Understanding the x and y positions can be sometimes tricky when we are positioning objects on the screen.</p>	

	<p>To resolve this, let's display the x,y positions wherever our mouse pointer is.</p> <p>To do that, we are going to use text() command.</p> <p><i>Teacher shows how to use the text() command to display the output.</i></p> <p>text("Pong Game", 200,20)</p> <p>text() command takes these as input:</p> <ul style="list-style-type: none"> ● "Pong Game" -> String which you want to display. ● 200 -> x position of the string which you want to display. ● 20 -> y position of the string which you want to display. 	<p><i>The student observes how to use the text() command.</i></p>
	<p>Do you think you can draw the paddles and the ball of the pong game now on your own?</p>	<p>ESR: "Yes" "Let me try..."</p>
	<p>Amazing!! I am going to stop sharing my screen.</p> <p>You will start sharing your screen with me now - so that I can see what you are doing. While you will be drawing the paddles and the ball, I can help and guide you.</p> <p>Does that sound good?</p>	<p>ESR: "Ok"</p>

	<p>Just make sure that you think loudly so that I can understand what's going on in your mind. Let's start!</p> <p><i>Teacher Stops sharing screen.</i></p>	<p><i>Student starts sharing her/his screen.</i></p>
Teacher Stops Screen Share		
	<p>Now it's your turn. Please share your screen with me.</p>	
<ul style="list-style-type: none"> • Ask Student to press ESC key to come back to panel • Guide Student to start Screen Share • Teacher gets into Fullscreen 		
<p align="center">ACTIVITY</p> <ul style="list-style-type: none"> • Draw and position the paddle and the ball. • Animate the Player paddle so that it moves along with the mouse. 		
<p>Step 3: Student-Led Activity (10 min)</p>	<p><i>Guide the student to use the p5 code editor.</i></p> <p><u>Ask them to sign in using their gmail id to login to the p5 editor first</u></p>	<p>Student Opens [Student Activity 6]</p> <p><i>Student logs in to the p5 editor.</i></p>
	<p><i>Guide the student to draw and position the right player paddle.</i></p> <p><i>Allow the student to experiment with the numbers. Let them adjust the width and height of the paddle first and then position them.</i></p> <p>DO NOT GIVE THEM THE NUMBERS RIGHT AWAY,</p> <p><i>Use Ctrl+S (or Cmd + S for Mac) to keep saving your project.</i></p>	<p><i>Student adjusts the width and height of the rectangle first and then positions it.</i></p> <p><i>Student runs the code.</i></p>

```

> sketch.js • Saved: 5 minutes ago Preview
1 function setup() {
2   createCanvas(400, 400);
3 }
4
5 function draw() {
6   rect(390,160,10,80);
7 }

```

Console Clear

Guide the student to draw and position the left computer controlled paddle.

Allow the student to experiment with the numbers.

DO NOT GIVE THEM THE NUMBERS RIGHT AWAY,

The student writes code to draw and position the left paddle.

Student runs the code.

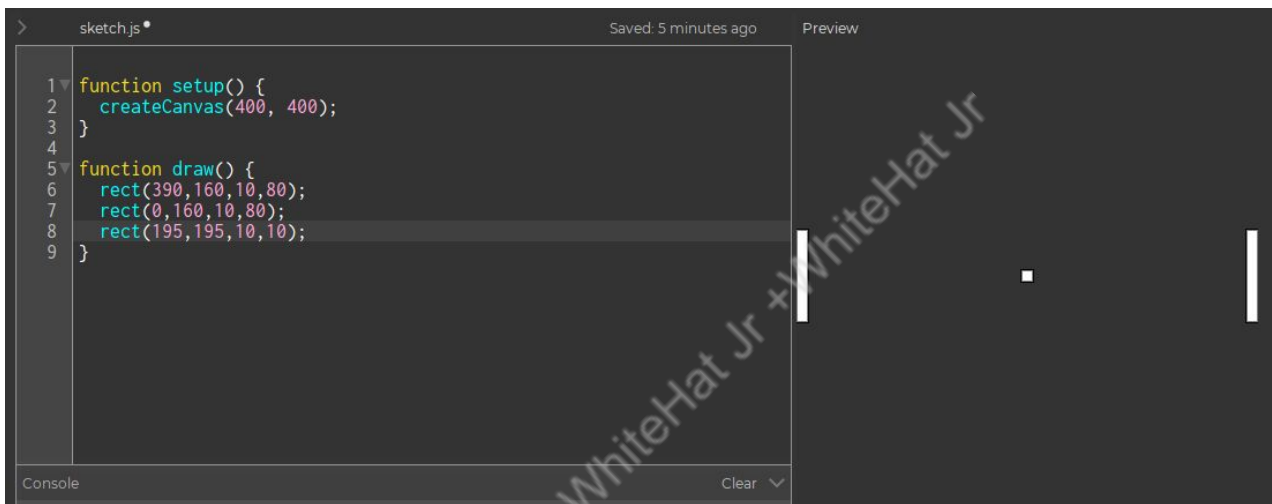
```

> sketch.js • Saved: 2 minutes ago Preview
1 function setup() {
2   createCanvas(400, 400);
3 }
4
5 function draw() {
6   rect(390,160,10,80);
7   rect(0,160,10,80);
8 }

```

Console Clear

	<p>Guide the student to draw and position the ball in the centre.</p> <p>Allow the student to experiment with the numbers.</p> <p>DO NOT GIVE THEM THE NUMBERS RIGHT AWAY,</p>	<p>The student writes code to draw and position the ball.</p> <p>Student runs the code.</p>
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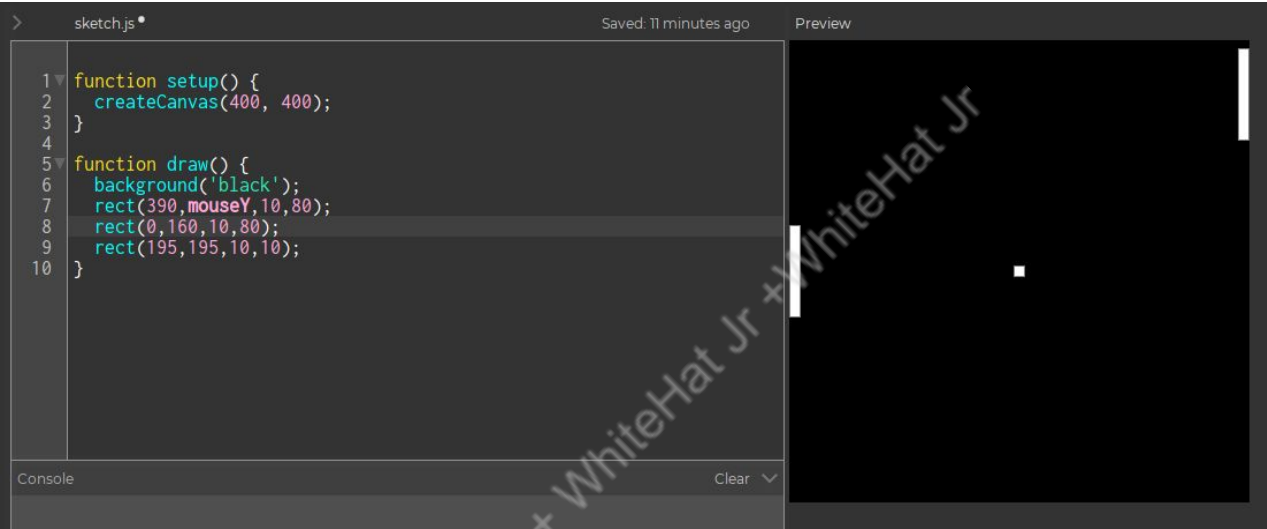
```

1 function setup() {
2   createCanvas(400, 400);
3 }
4
5 function draw() {
6   rect(390,160,10,80);
7   rect(0,160,10,80);
8   rect(195,195,10,10);
9 }
  
```

The screenshot shows a P5.js sketch editor with a dark theme. The code in the editor defines a 400x400 canvas. The setup function calls createCanvas(400, 400). The draw function contains three rect calls: rect(390,160,10,80), rect(0,160,10,80), and rect(195,195,10,10). The preview window on the right shows a small white square at the center of a dark canvas, representing the ball. The console at the bottom is empty.

	<p>Wow! You are getting so good at this.</p> <p>We have all the objects from the game - but none of them are moving.</p> <p>Let's say we want to move the right paddle with the mouse in the vertical direction. How do we go about doing this?</p>	<p>ESR: varied</p>
	<p>The right paddle is drawn at a fixed position in the vertical direction right now. What is its position?</p> <p>Instead of drawing the right paddle at a fixed position, we want to draw it at</p>	<p>ESR: 160</p>

	<p>different positions in the vertical direction - positions where the mouse pointer is.</p> <p>There is something here which stores the vertical position of the mouse. We call it mouseY.</p> <p>Y stands for vertical direction.</p> <p>X stands for horizontal direction.</p>	
	<p>In place of 160 for the vertical position of player paddle, let's put mouseY there and see what happens.</p> <p>What do you think will happen if we run the code?</p>	<p>ESR: <i>Student replaces the 160 with mouseY.</i></p> <p>The right paddle will move with the mouse.</p>
		
	<p>What's happening?</p> <p>How do we remove the older rectangles?</p>	<p>ESR: The paddle is moving with the mouse but the old rectangles are still on the screen.</p> <p>ESR: varied</p>

	<p>We can paint the screen black before drawing anything on the screen. This way we will paint black over the old rectangles and then draw a new one on the top.</p> <p><i>Guide the student to use background('black') instruction</i></p>	<p><i>The student writes the code and runs it.</i></p>
		
	<p><i>Complement the student.</i></p> <p>Wow! Amazing! The player paddle is now animated. It moves along with the mouse. You have done it! We have done quite a bit in one class.</p> <p>As a challenge, why don't you try moving the ball.</p> <p>We will be learning how to do this in the next class.</p>	<p><i>Allow the student to spend some time trying to move the ball.</i></p>

	Get the student to share the URL of the class on the whitehat jr dashboard.	The student shares the URL on the whitehat jr dashboard.
<p style="text-align: center;"><u>FEEDBACK</u></p> <ul style="list-style-type: none"> • Appreciate and compliment the student for trying and making strong progress to learn to code. • Get to know how they liked the session. • Review and check their understanding. • Challenge the student to make the ball move in the game on their own after the class. 		
Step 4: Wrap-Up (5 mins)	Complement the student for their work in the class today. Ask the student how they are feeling.	ESR: Feeling excited to work on the game in the next class.
	<p>Let's quickly review what we have learned in today's class.</p> <p>Can you quickly summarize all that you have learned today?</p> <p>You have done exceptionally well in today's class</p>	<p>ESR:</p> <ul style="list-style-type: none"> • It is important to learn to code. • Computers understand a different language - which can give exact instructions. • We learned about rect() instruction to draw a rectangle • We learned to move shapes with the mouse. • We drew paddles and the ball. <p>Give all the Hats Off to the student. Click the following icons on your panel and appreciate the student</p>

		<div>Creatively Solved Activities +10</div> <div>Great Question +10</div> <div>Strong Concentration +10</div>
	<p>Let me give you a quick summary of what we will be learning in the course. Our Course follows a Project based learning philosophy where kids apply the concepts they learn to build Apps and Games throughout the course. Creating apps and games makes their learning practical instead of theoretical.</p> <p>Our 144 class curriculum is divided into 3 modules of 48 classes each:</p> <p><u>1st module</u></p> <p>In the first module, we will learn programming while designing games! Within the 1st 8 Classes we will write code to build a Pong Game and you will become a certified Game Developer. You will then be building Trex and other more complex games like Angry Birds and Multiplayer Car Racing Games!</p> <p>On the way, you will learn how to write code for complex algorithms of</p>	<p><i>Student/Parent asks questions about the course/program.</i></p>

	<p>these games - like designing an infinite game world inside limited screen space or creating objects through code which follow the rules of physics. You will be able to publish your game to iOS Appstore & Android Playstore at the end of this module and become a <i>Certified App Developer</i></p> <p><u>2nd module</u></p> <p>The 2nd module is about Native App Design and Development. We will learn to create Apps through a modern app development framework - React Native.</p> <p>In this module, we will take 5 different case studies describing a problem and build apps to solve these problems.</p> <p>We will also learn how companies like Facebook, Snapchat, Amazon and Google use Game Design principles to make their app addictive for users!</p> <p>At the end of this module, you will be making apps like this one.</p> <p>[PlayStore link for Book Santa App] Username: student@whitehatjr.com Password: testuser</p> <p><u>3rd module</u></p> <p>In the 3rd Module, we explore data and how to use data to make complex decisions.</p>	<p><i>The student observes the Book Santa App on Playstore.</i></p>
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	<p>Any problem can be described with the help of data. We will use python programming in this course to visualize the data, analyze them and make decisions with the help of data. We will also learn a few machine learning and AI algorithms to predict the future events based on the past data!</p> <p>You will be able to build something like this - [Sentiment Analyzer].</p> <p>You can write how you found today's class and watch how the sentiment analyzer rates the class based on your input.</p> <p>Top kids in the course who do the best classes and projects get a chance to visit Silicon Valley where they meet top Google scientists and entrepreneurs.</p> <p>We will also be using data from space to predict space events like the collision of an asteroid with a planet!</p> <p>Overall, at the end of the course, our aim is to impart you all the skills to be able to become a true tech entrepreneur.</p> <p>You will be able to study any problem, collect data around the problem, analyze it to understand the root cause. You will be able to use design</p>	<p><i>The student uses the Sentiment Analyzer to give feedback and see the class get rated.</i></p>
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	<p>thinking skills to design an application or software to solve the problem. You will also be able to use game design elements in your app to drive consistent usage of your app!</p> <p>There are quite a few examples of students in our course, who have used technology to solve problems in their lives or lives of people connected to them.</p> <p>One of our students, Jishnu, studied in a school where he and his classmates had to carry heavy bags to school everyday. Jishnu created an app for his teachers and classmates to help his teachers empathize with this problem.</p> <p>Watch this small video to see what Jishnu did - Jishnu's App Video</p> <p>We have had other students build different tech solves for problems they saw- sign language app for special needs, an app designed for eye testing, an app designed to report bullying and the list goes on.</p> <p>These Apps have been featured widely in international media and it's amazing that young kids like you are creating apps like these within just 40 hours of learning to code. During the course your kid will also be creating full entrepreneur ready, industry grade apps</p>	
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Teacher Guides Student to Stop Screen Share

We are just getting started on this exciting journey of coding. I am eagerly looking to teach you more in the next class.

Meanwhile you can experiment with different colors in the **background()** instruction and try to move the ball.

Remember, in programming we can experiment and learn a lot of stuff.”

To provide you more details about the course as well as answer any questions that you may have our academic counselor will get in touch with you.

My schedule is almost full but I'd love to have your kid as my student since your kid is exceptionally bright with true entrepreneurial entrepreneurship potential!

Thank you for your time today. Kindly stay on the panel and do not close this page when I end the class--our entire curriculum along with the details will be displayed on the panel.

Teacher Clicks

✕ End Class

Challenge the student to move the ball and the other paddle in the Pong Game on their own.

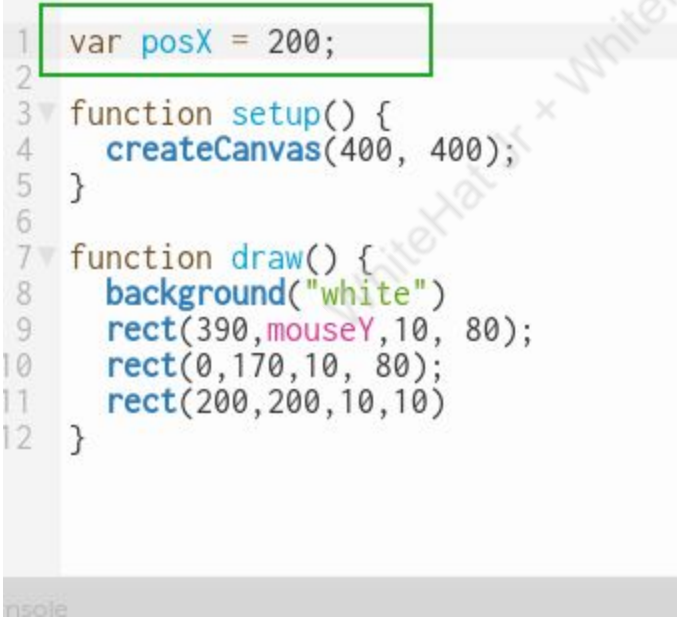
Do not share any code or help the student. Just keep encouraging the student with statements like:


“What do you think we can do to move the ball / make it bounce etc.?”

“Seems like a good idea..Let's see what happens when you do this.”

Additional Activity 1	<p>Understanding the x and y positions can be sometimes tricky when we are positioning objects on the screen. To resolve this, let's display the x,y positions wherever our mouse pointer is.</p> <p>To do that, we are going to use text() command.</p> <p><i>Teacher shows how to use text() command to display the output</i></p> <p><i>text("Pong Game", 160,20)</i></p> <p><i>text() command takes these as input:</i> <i>"Pong Game" -> String which you want to display</i></p> <p><i>160 -> x position of the string which you want to display</i></p> <p><i>20 -> y position of the string which you want to display</i></p> <p><i>You can also join two texts using +</i></p>	<p><i>The student learns how to use text() command.</i></p>
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<div><div>sketch.js</div><div><div>1</div><div>function setup() {</div><div>2</div><div> createCanvas(400, 400);</div><div>3</div><div>}</div><div>4</div><div>5</div><div>function draw() {</div><div>6</div><div> background("white")</div><div>7</div><div> rect(200,200,100,100);</div><div>8</div><div> text("Pong Game", 160,20);</div><div>9</div><div>}</div><div>10</div></div></div>	<div>Preview</div> <div><div>Pong Game</div><div></div></div>
	<div>Can you now use text() instruction to display the position of the mouse as the mouse moves?</div> <div>Student writes code to display the position of mouse pointer (using mouseX and mouseY) wherever the mouse moves</div>
<div><div>sketch.js</div><div><div>1</div><div>function setup() {</div><div>2</div><div> createCanvas(400, 400);</div><div>3</div><div>}</div><div>4</div><div>5</div><div>function draw() {</div><div>6</div><div> background("white")</div><div>7</div><div> rect(200,200,100,100);</div><div>8</div><div> text(mouseX + ", " + mouseY, mouseX, mouseY);</div><div>9</div><div>}</div><div>10</div></div></div>	
<div>Additional Activity 2</div>	<div>Just like we moved the player paddle, let's see if we can make the ball move.</div> <div>How does the ball move in the game?</div> <div>ESR: The ball moves on its own.</div>

	<p>For moving the paddle, we changed the y of the rect to mouseY. mouseY stores the y position of the mouse pointer.</p> <p>We need to store the position of the ball somewhere and change whatever is stored inside it.</p> <p>If we want to store anything in our game, we use variable (var) to store it.</p> <p>Let's store the x position of our ball in a variable called posX.</p> <p><i>Teacher shows how to create a variable posX and store a number in it.</i></p>	
 <pre> 1 var posX = 200; 2 3 function setup() { 4 createCanvas(400, 400); 5 } 6 7 function draw() { 8 background("white") 9 rect(390, mouseY, 10, 80); 10 rect(0, 170, 10, 80); 11 rect(200, 200, 10, 10) 12 } </pre>		
	<p>For the x position of the ball, we can write posX. However, the posX is not changing right now. Hence the ball is not moving.</p>	

	<p>We can increase the posX by 1 every time a frame is drawn. Let's do that... We can do this by writing posX = posX + 1</p> <p><i>Teacher writes the code.</i></p> <p>What do you think will happen if I run the code now?</p>	<p>ESR: The ball will move horizontally</p>
 <pre> 1 var posX = 200; 2 3 function setup() { 4 createCanvas(400, 400); 5 } 6 7 function draw() { 8 background("white") 9 rect(390, mouseY, 10, 80); 10 rect(0, 170, 10, 80); 11 posX = posX + 1 12 rect(posX, 200, 10, 10) 13 } </pre>		
	<p>The ball is moving only horizontally. What would I do, if I want the ball to move both horizontally and vertically?</p> <p>Can you write a code for that?</p>	<p>ESR: We would create variables to store both x and y positions of the ball and then change them.</p> <p><i>Student writes the code to move the ball both horizontally and vertically.</i></p>

```

> sketch.js
1  var posX = 200;
2  var posY = 200;
3
4  function setup() {
5    createCanvas(400, 400);
6  }
7
8  function draw() {
9    background("white")
10   rect(390,mouseY,10, 80);
11   rect(0,170,10, 80);
12   posX = posX + 1
13   posY = posY + 1
14   rect(posX,posY,10,10)
15 }

```

Can you try to make the ball move faster?

The student writes code to make the ball move faster.

```

1  var posX = 200;
2  var posY = 200;
3
4  function setup() {
5    createCanvas(400, 400);
6  }
7
8  function draw() {
9    background("white")
10   rect(390,mouseY,10, 80);
11   rect(0,170,10, 80);
12   posX = posX + 2
13   posY = posY + 2
14   rect(posX,posY,10,10)
15 }

```

	You can see the ball bouncing off the screen. We can make the ball bounce off the walls instead. We will learn how to do that in the future classes	
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WhiteHat Jr + WhiteHat Jr + WhiteHat Jr

Activity	Activity Name	Links
Teacher Activity 1	Soccer Practice Game	https://studio.code.org/projects/gamelab/ZbLA0dnxMi_i_n_NGXsYhRtL7k15AD94-AATjT843Prk
Teacher Activity 2	Trex Runner Game	https://editor.p5js.org/whitehatjr/present/ePJrHCACM
Teacher Activity 3	Angry Birds Game	https://whitehatjr.github.io/AngryBirds-1/
Teacher Activity 4	Pong Game Complete	https://studio.code.org/projects/gamelab/l8gg2lD9B0WIHEEJqGS0jzX3nZ6XMF7Nz6oNYaaqcy4
Teacher Activity 5	Multiplayer Car Racing Game	https://vishalgaddam873.github.io/p5-multiplayer-car-race-game
Teacher Activity 6	Blank teacher activity	https://editor.p5js.org/whitehatjr/sketches/Vj4rLU9hV
Student Activity 1	Soccer Practice Game	https://studio.code.org/projects/gamelab/ZbLA0dnxMi_i_n_NGXsYhRtL7k15AD94-AATjT843Prk
Student Activity 2	Trex Runner Game	https://editor.p5js.org/whitehatjr/present/ePJrHCACM
Student Activity 3	Angry Birds Game	https://whitehatjr.github.io/AngryBirds-1/
Student Activity 4	Pong Game Complete	https://studio.code.org/projects/gamelab/l8gg2lD9B0WIHEEJqGS0jzX3nZ6XMF7Nz6oNYaaqcy4
Student Activity 5	Multiplayer Car Racing Game	https://vishalgaddam873.github.io/p5-multiplayer-car-race-game
Student Activity 6	Blank student activity	https://editor.p5js.org/whitehatjr/sketches/Vj4rLU9hV
Student Activity 7	Sentiment Analyzer	https://sentimental.whitehatjr.com/
Student Activity 8	Jishnu's Light Bag App	https://www.youtube.com/watch?v=Hx_YocjRYvs

Student Activity 9	Book Santa App Screenshots	https://play.google.com/store/apps/details?id=com.w hitehatjr.booksanta
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