Topic	HTML and CSS
Class Description	**Students learn how to create a basic html layout of a portfolio page using different html tags.**
Class	**C49**
Class time	**45 mins**
Goal	● Create a basic portfolio page layout using the html tags. ● Add some style to the tags using css selectors.

Resources Required	● Teacher Resources
	   ○ Laptop with internet connectivity
	   ○ Earphones with mic
	   ○ Notebook and pen
	
	● Student Resources
	   ○ Laptop with internet connectivity
	   ○ Earphones with mic
	   ○ Notebook and pen

Class structure	**Warm Up** **Teacher-led Activity** **Student-led Activity** **Wrap up**	**5 mins** **10 mins** **20 mins** **5 min**

Class Steps	Teacher Action	Student Action
Step 1: **Warm Up** **(5 mins)**	From class 1 to 48, you have learned how to create games using javascript. You have also learned how to create a web wrapper around a game and create a mobile app which can be published on playstore. However, these games were created	Student Listens and asks questions.

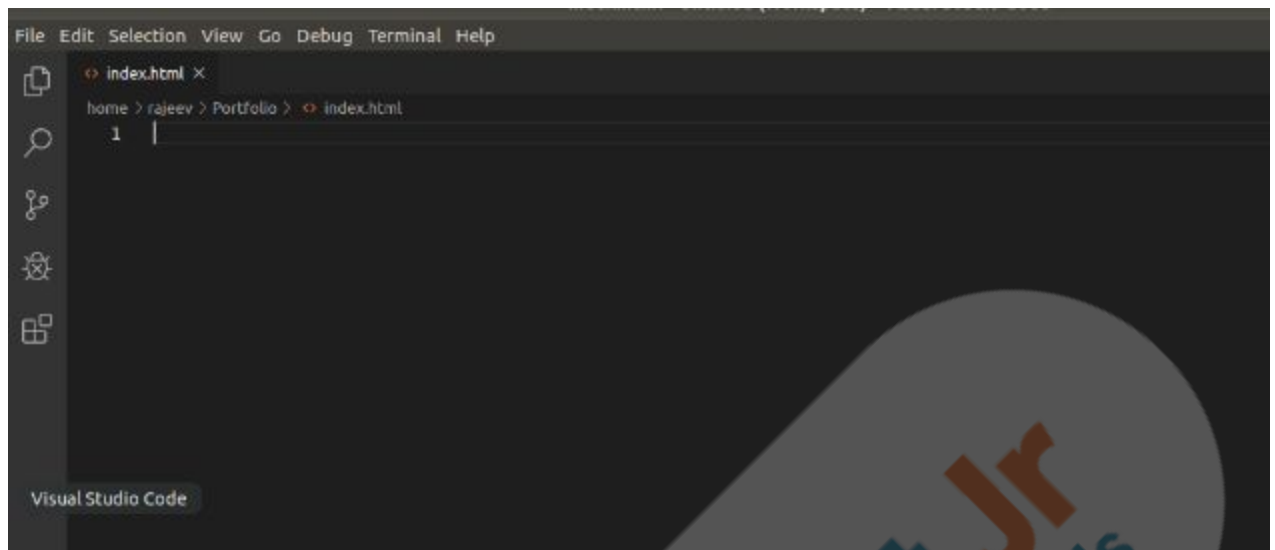|		
	for the computer - we adapted them to create mobile apps. We also could not use the different native features of the phone - like accelerometer, camera, GPS, etc. in our game. From classes 49-96, we will learn how to create a native mobile app - just like the ones you see on your phone! We will be able to create mobile apps which use the different native features of the phone like touch, phone sensors etc. Till now you were designing games. Now you will be even able to design applications which solve problems you or people around you are facing! Excited?	ESR: yes
	We will be using a modern framework to create native mobile apps - called React Native. React Native builds on the HTML, CSS and Javascript used for the web to create modern mobile apps. You have already learned Javascript. We will quickly learn how to use HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets). Using HTML and CSS, you will build a simple portfolio page (hosted online), where you can display all the games you have built so far!	Student listens and expresses what he/she knows about HTML and CSS

	Others can look at your portfolio page to see how you are growing as a programmer!! Note: Some students might already know HTML and CSS. Allow them to express what they know and what they have built using it	
	Let's get started.	

CHALLENGE ● **Create a basic portfolio layout using the HTML tags.**		
Step 2: Teacher-led Activity (10 mins)	HTML - Hyper Text Markup Language is very similar to Markdown in some ways. Do you remember Markdown and what we used it for? Do you remember how we created bold, italics, underline etc. in markdown? Great. In HTML we use tags instead of symbols. You can see the similarities between HTML and markdown as we learn more about HTML HTML is used to create content which is displayed on web pages.	Student remembers markdown and how he/she created reflection journals using markdown. ESR: We used *,**, __ before and after the word.
	We will create the content of our Portfolio page using HTML. Let's create a folder called 'Portfolio' where we will be creating our portfolio	Student watches.

page. Inside the folder create an empty file and name it as 'index.html' The name could be anything. We need to add '.html' at the end of the name to tell the computer that it is an html file.

Let's open the 'index.html' file in Visual code studio where we can write HTML.

Teacher opens Visual code studio.

Home	Portfolio
Recent	index.html
Home	
Desktop	
Documents	
Downloads	
Music	
Pictures	
Videos	
Trash	
Other Locations	

		Remember, in markdown, we used symbols to tell how we wanted to format text content.	Student observes and asks questions.
		In HTML, we use tags to tell the computer how we want to display the content.	
		First, we write the tag <!DOCTYPE HTML> to tell the computer that this is going to be an HTML page. This informs the browser that it is going to read an HTML page. This is a must do for all HTML pages.	
		All our HTML content comes inside the opening <html> tag and closing </html> tag.	

```
File  Edit  Selection  View  Go  Debug  Terminal  Help

         <> index.html ×

     home > rajeev > Portfolio > <> index.html > ⊘ html
        1    <!DOCTYPE HTML>
        2    <html>
        3        <head>
        4            <title>My Portfolio page</title>
        5        </head>
        6
        7        <body>
        8        </body>
        9    </html>
```

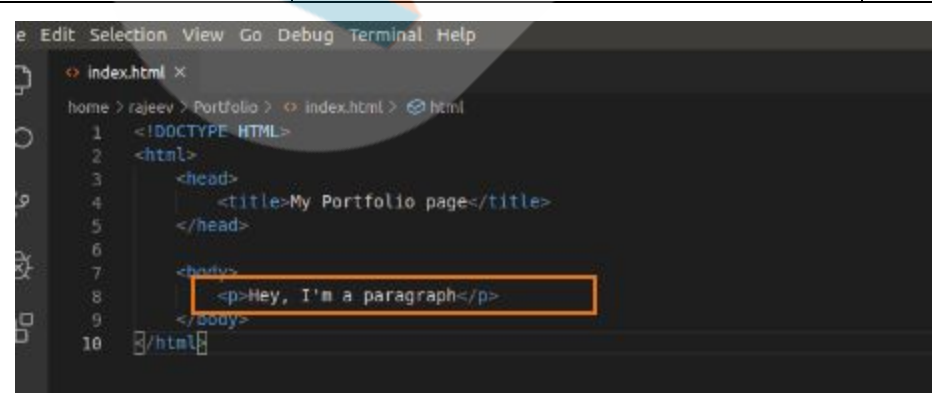|	Inside <html> tags, we can have <head> tags and <body> tags.	Student observes and asks questions.
	Inside <head> tags, we store information about the page. Inside <body> tags we write content which is displayed on the web page.	
	Indentations are also followed while writing html to keep everything organized.	
	For example, we can write the title of our page inside <head> tags. It is displayed at the top of the browser when you open the web page. To tell the computer that it is a title, we enclose it under <title> tags. Teacher writes the title and shows the output by opening the index.html in a browser.	
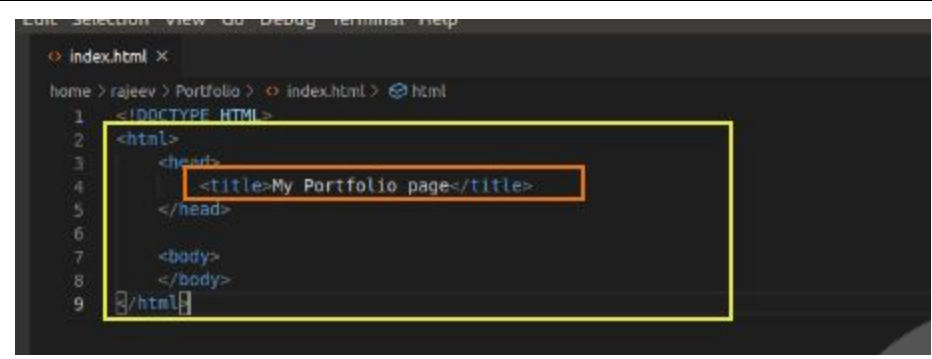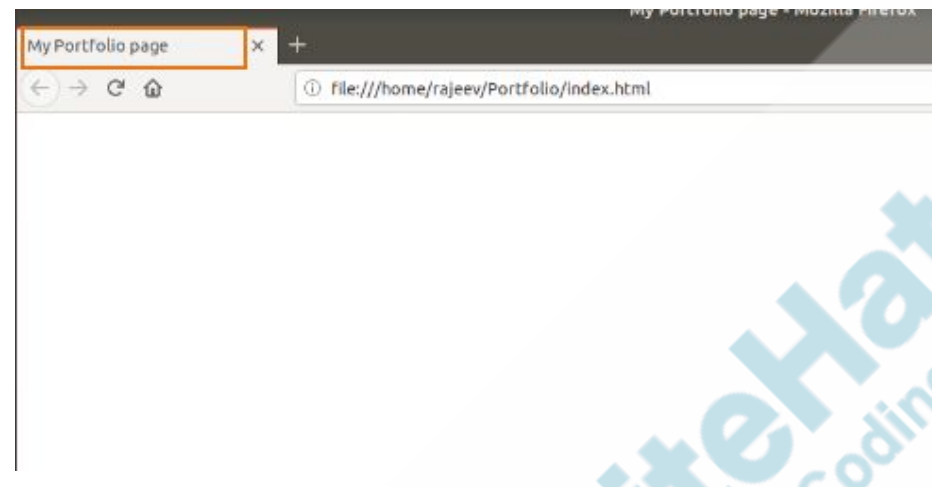
```
 Edit Selection View Go Debug Terminal Help
 ◇ index.html ✕
home > rajeev > Portfolio > ◇ index.html > ❸ html
     1   <!DOCTYPE HTML>
     2   <html>
     3       <head>
     4           <title>My Portfolio page</title>
     5       </head>
     6
     7       <body>
     8       </body>
     9   </html>
```


		We can write any kind of content inside the <body> tags in the html page. For example, to write a paragraph, we use the <p> tags. Teacher uses <p> tags in the html page and shows it to the student.	Student observes and asks questions.

```
e Edit Selection View Go Debug Terminal Help
 ◇ index.html ✕
home > rajeev > Portfolio > ◇ index.html > ❸ html
     1   <!DOCTYPE HTML>
     2   <html>
     3       <head>
     4           <title>My Portfolio page</title>
     5       </head>
     6
     7       <body>
     8           <p>Hey, I'm a paragraph</p>
     9       </body>
    10   </html>
```

My Portfolio page

file:///home/rajeev/Portfolio/index.html

Hey, I'm a paragraph

	Ok, now that you know the basic structure of how an HTML is created, I want you to create the portfolio page for yourself. I will keep telling you about the tags which you need to add in the page! Ready for the challenge?	Yes!!
	Now it's your turn. Please share your screen with me.	

ACTIVITY

- **Use HTML tags to create a portfolio of games the student has built during the course.**
- **Add some style using css.**

Step 3: Student-Led Activity (20 mins)	Guide the student to create the 'Portfolio folder' and 'index.html' file inside it. Guide the student to write the start-up code inside index.html file	Student creates the folder and opens the file in visual code studio. Student creates the start-up code (written by the teacher earlier)

8

	Ok, We need a header on our web page to display the name of our web page. It could be your name! We use <h1> tags to create a BIG header. <h2>, <h3>, <h4> tags could be used to create SMALLER headers. Guide the student to create header using <h1> tag inside html body	The student creates a header using <h1> tags. He/She also experiments with different header tags <h2>, <h3> etc.

```
<> index.html ×

home > rajeev > Portfolio > <> index.html > <> html
   1   <!DOCTYPE HTML>
   2   <html>
   3       <head>
   4           <title>My Portfolio page</title>
   5       </head>
   6
   7       <body>
   8           <h1>Student Name</h1>
   9       </body>
  10   </html>
```
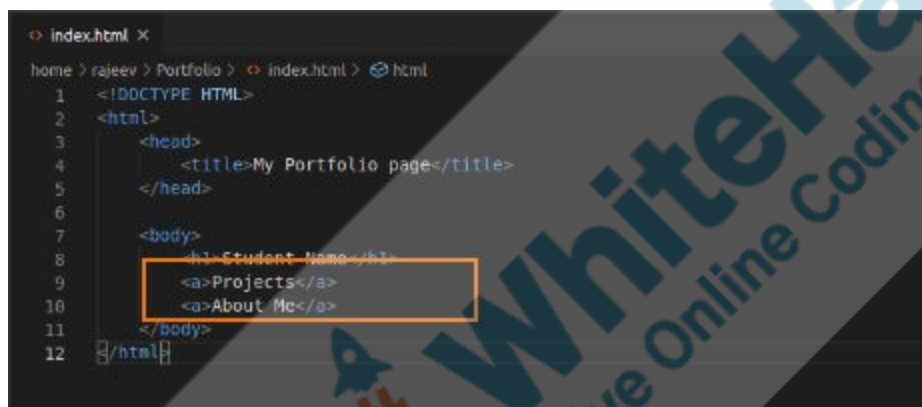
My Portfolio page   × +

← → C ⌂   ⓘ file:///home/rajeev/Portfolio/index.html

Student Name

	Have you ever seen portfolio websites of others online? What does it contain?	ESR: It contains links to projects they have done, about me pages etc.
	Amazing! Our webpage needs to have some navigation menu as well which can lead to other webpages. These are called hyperlinks. We use <a> tag to create hyperlinks. Let's create two hyperlinks - Projects and About Me.	The student creates two <a> tags with 'Projects' and 'About Me' labels.


```
⟨⟩ index.html  ✕
home > rajeev > Portfolio > ⟨⟩ index.html > 🌐 html
 1    <!DOCTYPE HTML>
 2    <html>
 3        <head>
 4            <title>My Portfolio page</title>
 5        </head>
 6
 7        <body>
 8            <h1>Student Name</h1>
 9            <a>Projects</a>
10            <a>About Me</a>
11        </body>
12    </html>
```
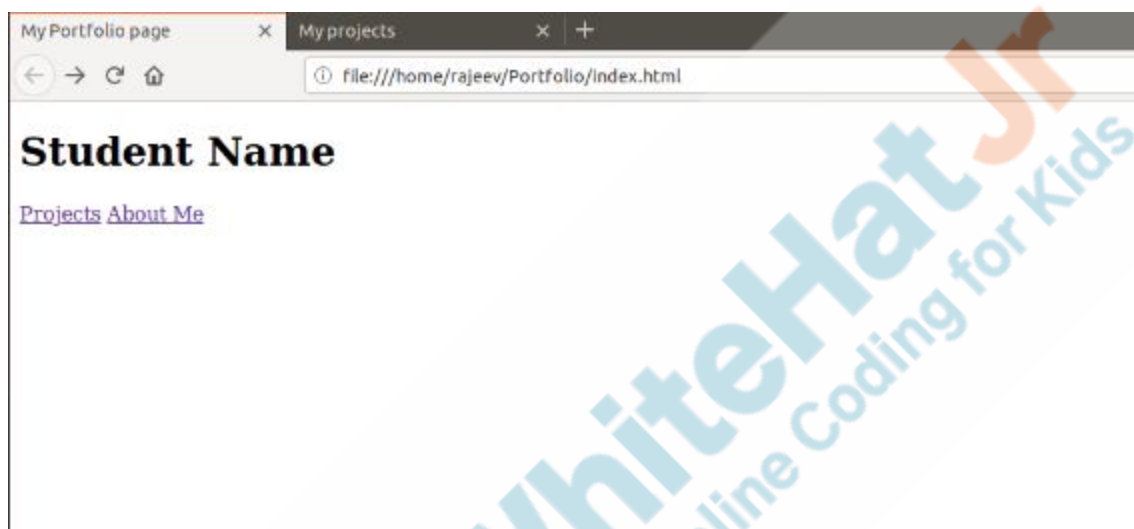
	Great! We need to point these tags to the respective pages. This is done using 'attributes'. Each tag has some attributes. <a> tag has an attribute called 'href' (hypertext reference) which is used to point the tag to other pages. Guide the student to use 'href' attribute to point it to hyperlinks.	The student uses the href attribute inside <a> tag to create a hyperlink. The student also creates an empty aboutme.html page for the hyperlink. Student runs the code and checks the output.

```
index.html  ×
home > rajeev > Portfolio > <> index.html > ⊘ html
   1    <!DOCTYPE HTML>
   2    <html>
   3        <head>
   4            <title>My Portfolio page</title>
   5        </head>
   6
   7        <body>
   8            <h1>Student Name</h1>
   9            <a href="index.html">Projects</a>
  10            <a href="aboutme.html">About Me</a>
  11        </body>
  12    </html>
```


My Portfolio page   ×   My projects   × +

← → C ⌂   ⓘ file:///home/rajeev/Portfolio/index.html

Student Name

Projects About Me

	You can create a sub-heading using <h2> tags (remember smaller than h1 tags). You can create a description using <p> tag which is used to write text in a paragraph.	The student uses h2 and p tags to create sub-heading and description.

11

```
<> index.html ×

home > rajeev > Portfolio > <> index.html > ⊘ html > ⊘ body > ⊘ p
  1    <!DOCTYPE HTML>
  2    <html>
  3        <head>
  4            <title>My Portfolio page</title>
  5        </head>
  6
  7        <body>
  8            <h1>Student Name</h1>
  9            <a href="index.html">Projects</a>
 10            <a href="aboutme.html">About Me</a>
 11
 12            <h2>These are some games designed by me</h2>
 13            <p>Games use p5.js, p5.play and matter.js libraries in javascript</p>
 14        </body>
 15    </html>
```

sual Studio Code

| My Portfolio page | × | My projects | × | + |

① file:///home/rajeev/Portfolio/index.html

Student Name

Projects About Me

These are some games designed by me

Games use p5.js, p5.play and matter.js libraries in javascript

	Now let's add images of the games you have created. We use <img/> tag to add images. <img/> is a self-closing tag - we do not need opening and closing tags for < img/>. The 'src' (source) attribute is used to give link to the image. You can add your images of your games in the same folder and use it in the src attribute.	The student creates the <img> tag inside <a> tag. He/She adds the src attribute for the img tag and href attribute for the a tag. The student runs the code and tests the output.

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For now, we will use placeholder images for these games.

But we also want our images to be hyperlinks - that means clicking them should take them to our games hosted on github or p5!

Not surprisingly, tags can be enclosed inside each other. This means the <img> tag can be enclosed inside <a> tag.

Guide the student to use <img> tag inside <a> tag.


```html
<!DOCTYPE HTML>
<html>
    <head>
        <title>My Portfolio page</title>
    </head>

    <body>
        <h1>Student Name</h1>
        <a href="index.html">Projects</a>
        <a href="aboutme.html">About Me</a>

        <h2>These are some games designed by me</h2>
        <p>Games use p5.js, p5.play and matter.js libraries in javascript</p>

        <a href = "https://editor.p5js.org/whitehatjr/present/ePJrHCACM"><img src="https://via.placeholder.com/300"/></a>

    </body>
</html>
```

My Portfolio page   ×   My projects   ×   +

← → C ⌂   ⓘ file:///home/rajeev/Portfolio/index.html

Student Name

Projects About Me

These are some games designed by me

Games use p5.js, p5.play and matter.js libraries in javascript

300 x 300

Powered by HTML.COM

	Let's add a <p> tag below to add a name for the game.	The student adds the <p> tag for the name of the game.


```html
<> index.html ×
home > rajeev > Portfolio > <> index.html > ⊘ html > ⊗ body > ⊘ p
1    <!DOCTYPE HTML>
2    <html>
3        <head>
4            <title>My Portfolio page</title>
5        </head>
6
7        <body>
8            <h1>Student Name</h1>
9            <a href="index.html">Projects</a>
10           <a href="aboutme.html">About Me</a>
11
12           <h2>These are some games designed by me</h2>
13           <p>Games use p5.js, p5.play and matter.js libraries in javascript</p>
14
15           <a href = "https://editor.p5js.org/whitehatjr/present/ePJrHCACM"><img src="https://via.placeholder.com/300"/></a>
16           <p>Trex Runner Game</p>
17
18       </body>
19   </html>
```

14

Student Name

Projects About Me

These are some games designed by me

Games use p5.js, p5.play and matter.js libraries in javascript

Trex Runner Game

	You can add many images for the games you have made. Note: src will contain the image name if the student has added the images in the same folder as the index.html file. Else, it will contain the path of the image.	The student adds multiple image hyperlinks and game names.

```
<> index.html ×

home > rajeev > Portfolio > <> index.html > ⊘ html > ⊘ body > ⊘ p
  1   <!DOCTYPE HTML>
  2   <html>
  3       <head>
  4           <title>My Portfolio page</title>
  5       </head>
  6
  7       <body>
  8           <h1>Student Name</h1>
  9           <a href="index.html">Projects</a>
 10           <a href="aboutme.html">About Me</a>
 11
 12           <h2>These are some games designed by me</h2>
 13           <p>Games use p5.js, p5.play and matter.js libraries in javascript</p>
 14
 15           <a href = "https://editor.p5js.org/whitehatjr/present/ePJrHCACM"><img src="https://via.placeholder.com/300"/></a>
 16           <p>Trex Runner Game</p>
 17
 18           <a href = "#"><img src="https://via.placeholder.com/300"/></a>
 19           <p>Name of game 2</p>
 20
 21           <a href = "#"><img src="https://via.placeholder.com/300"/></a>
 22           <p>Name of game 3</p>
 23
 24           <a href = "#"><img src="https://via.placeholder.com/300"/></a>
 25           <p>Name of game 4</p>
 26
 27           <a href = "#"><img src="https://via.placeholder.com/300"/></a>
 28           <p>Name of game 5</p>
 29
 30       </body>
 31   </html>
```

My Portfolio page   ×   My projects   × +

← → C ⌂   ⓘ file:///home/rajeev/Portfolio/index.html   ···

Student Name

Projects About Me

These are some games designed by me

Games use p5.js, p5.play and matter.js libraries in javascript

300 x 300

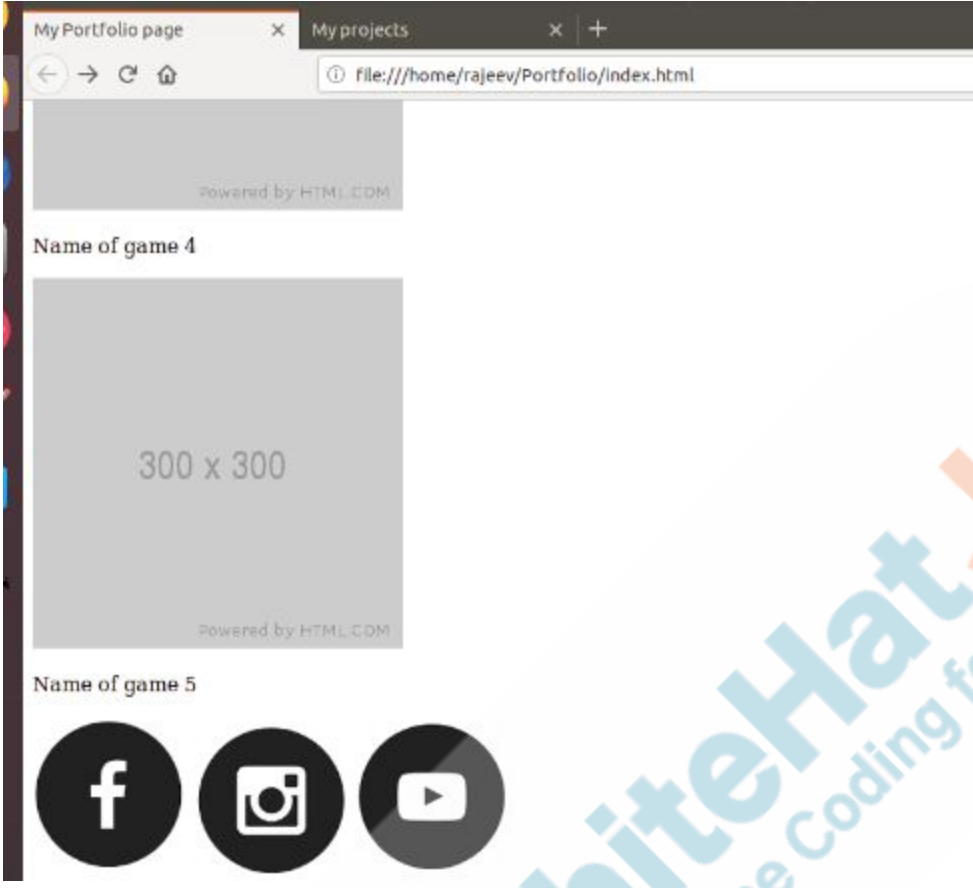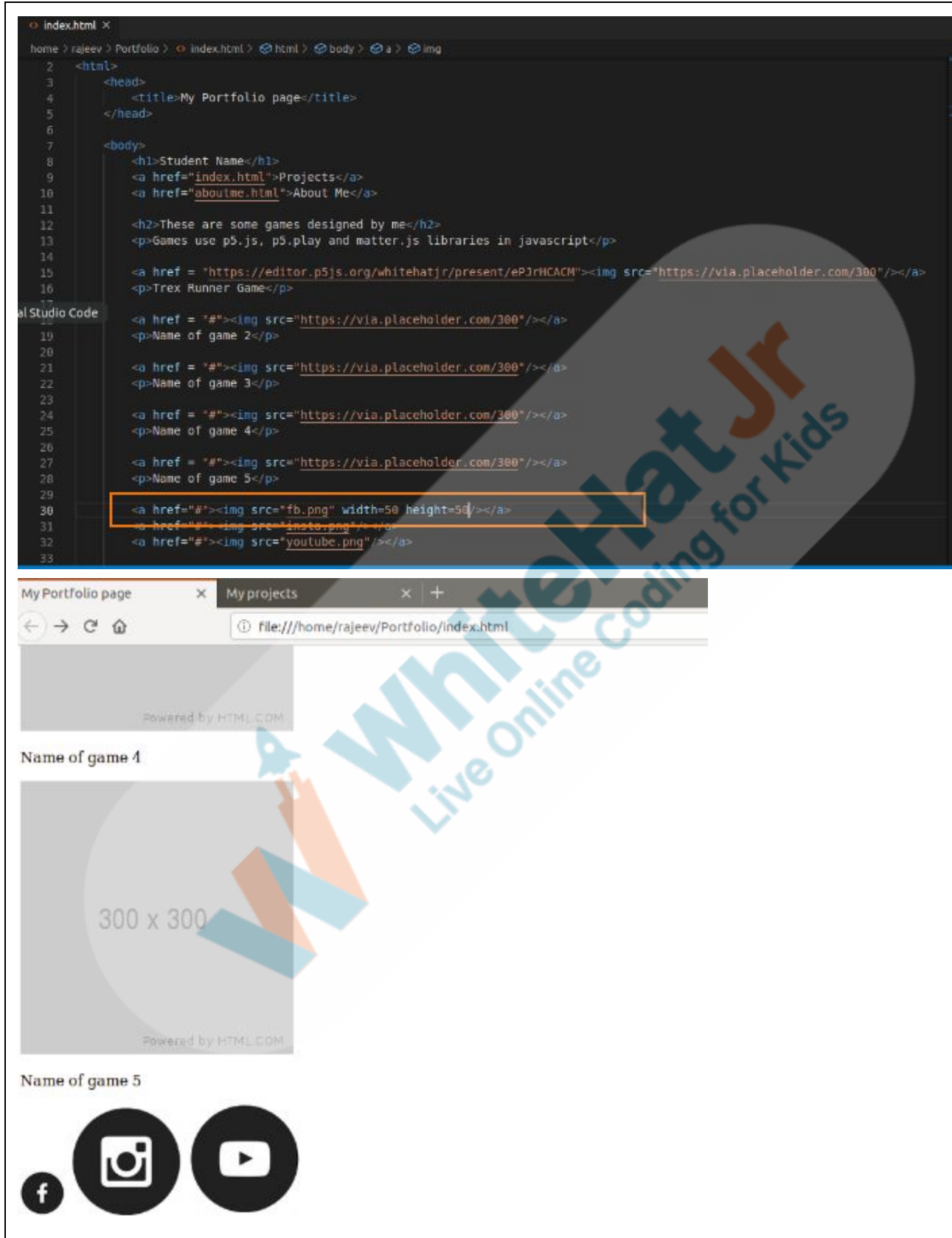Powered by HTML.COM

Trex Runner Game

	Awesome! Let's say we want people visiting our page to find us through our social media pages including - Facebook, Youtube, Instagram. Let's add these icons at the end of the web page and link them to our social media pages.	The student downloads Facebook, Instagram and Youtube icons from the internet (Google Images) and uses them in the img src for the image hyperlinks.

```
<> index.html ×
home > rajeev > Portfolio > <> index.html > </> html > </> body > </> a > </> img
  2    <html>
  3        <head>
  4            <title>My Portfolio page</title>
  5        </head>
  6
  7        <body>
  8            <h1>Student Name</h1>
  9            <a href="index.html">Projects</a>
 10            <a href="aboutme.html">About Me</a>
 11
 12            <h2>These are some games designed by me</h2>
 13            <p>Games use p5.js, p5.play and matter.js libraries in javascript</p>
 14
 15            <a href = "https://editor.p5js.org/whitehatjr/present/ePJrHCACM"><img src="https://via.placeholder.com/300"/></a>
 16            <p>Trex Runner Game</p>
 17
 18            <a href = "#"><img src="https://via.placeholder.com/300"/></a>
 19            <p>Name of game 2</p>
 20
 21            <a href = "#"><img src="https://via.placeholder.com/300"/></a>
 22            <p>Name of game 3</p>
 23
 24            <a href = "#"><img src="https://via.placeholder.com/300"/></a>
 25            <p>Name of game 4</p>
 26
 27            <a href = "#"><img src="https://via.placeholder.com/300"/></a>
 28            <p>Name of game 5</p>
 29
 30            <a href="#"><img src="fb.png"/></a>
 31            <a href="#"><img src="insta.png"/></a>
 32            <a href="#"><img src="youtube.png"/></a>
 33
```

	These icons might be larger than we expect.	The student uses the width and height attribute of <img> tag to adjust the image size.
	<img> tag also has width and height attributes which can be used to set the width and height of the images.	

```
<html>
    <head>
        <title>My Portfolio page</title>
    </head>

    <body>
        <h1>Student Name</h1>
        <a href="index.html">Projects</a>
        <a href="aboutme.html">About Me</a>

        <h2>These are some games designed by me</h2>
        <p>Games use p5.js, p5.play and matter.js libraries in javascript</p>

        <a href = "https://editor.p5js.org/whitehatjr/present/ePJrHCACM"><img src="https://via.placeholder.com/300"/></a>
        <p>Trex Runner Game</p>

        <a href = "#"><img src="https://via.placeholder.com/300"/></a>
        <p>Name of game 2</p>

        <a href = "#"><img src="https://via.placeholder.com/300"/></a>
        <p>Name of game 3</p>

        <a href = "#"><img src="https://via.placeholder.com/300"/></a>
        <p>Name of game 4</p>

        <a href = "#"><img src="https://via.placeholder.com/300"/></a>
        <p>Name of game 5</p>

        <a href="#"><img src="fb.png" width=50 height=50/></a>
        <a href="#"><img src="insta.png"/></a>
        <a href="#"><img src="youtube.png"/></a>
```
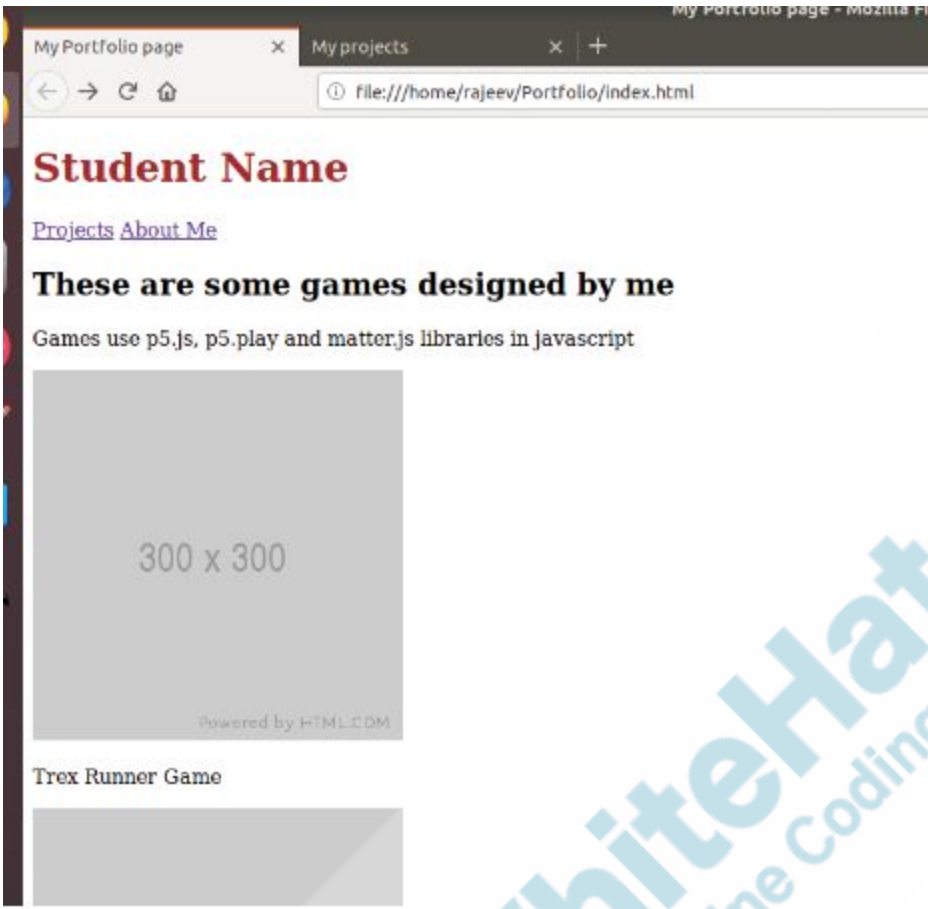
	Great! We have almost all the content / design elements on our portfolio page almost ready using HTML language. What do you think are we missing?	There is no styling. All the content is left-aligned and not in their proper places.
	Yes! We need styling for our web page. There are many ways to do styling. One way is to use <style> tags. Inside style tags, we can add styling for any content on our page. Guide the student to use style tag and give a different color to the h1 tag.	The student changes the color of h1 inside <style> tag.

```
<> index.html ●

home > rajeev > Portfolio > <> index.html > ⬡ html > ⬡ head > ⬡ style > ⬡ h1
1    <!DOCTYPE HTML>
2    <html>
3        <head>
4            <title>My Portfolio page</title>
5            <style>
6                h1 {
7                    color: brown;
8                }
9            </style>
10       </head>
11
12       <body>
13           <h1>Student Name</h1>
14           <a href="index.html">Projects</a>
15           <a href="aboutme.html">About Me</a>
16
17           <h2>These are some games designed by me</h2>
18           <p>Games use p5.js, p5.play and matter.js libraries in javascript</p>
19
20           <a href = "https://editor.p5js.org/whitehatjr/present/ePJrHCACM"><img src="https://via.placeholder.com/300"/></a>
21           <p>Trex Runner Game</p>
22
23           <a href = "#"><img src="https://via.placeholder.com/300"/></a>
24           <p>Name of game 2</p>
25
26           <a href = "#"><img src="https://via.placeholder.com/300"/></a>
27           <p>Name of game 3</p>
28
```

	We can also apply a style to all the content. We use '*' if we want a style to be applied to all the content. Let's add a border around each content on the page. Guide the student to add a solid border around each content on the webpage.	The student adds a solid border around each content on the webpage.

```html
<!DOCTYPE HTML>
<html>
    <head>
        <title>My Portfolio page</title>
        <style>
            h1 {
                color: brown;
            }

            * {
                border: solid;
            }
        </style>
    </head>

    <body>
        <h1>Student Name</h1>
        <a href="index.html">Projects</a>
        <a href="aboutme.html">About Me</a>

        <h2>These are some games designed by me</h2>
        <p>Games use p5.js, p5.play and matter.js libraries in javascript</p>

        <a href = "https://editor.p5js.org/whitehatjr/present/ePJrHCACM"><img src="https://via.placeholder.com/300"/></a>
        <p>Trex Runner Game</p>

        <a href = "#"><img src="https://via.placeholder.com/300"/></a>
        <p>Name of game 2</p>

        <a href = "#"><img src="https://via.placeholder.com/300"/></a>
        <p>Name of game 3</p>
```

	As you can see, all the content is made up of boxes. These boxes cover the entire width of the screen. We need to find some way to rearrange these boxes on the webpage. We do this using a style concept called "flexboxes". We will learn about using flexboxes and other advanced concepts of styling in the next class.	-

FEEDBACK
- **Encourage the student to make reflection notes in the markdown format.**
- **Complement the student for her/his effort in the class.**
- **Encourage the student to create an About Me page using HTML**

Step 4: **Wrap-Up** **(5 min)**	Can you recollect what we learned in today's class?	- We learned about some of the html tags - html. head, body, title, img, p, a, etc. - We learned about the different attributes of img and a tag. - We learned how to create hyperlinks and how to resize an image using html attributes. - We learned how html elements can be styled.
	These are only some of the html tags which we have explored in this class. There are several html tags which you can try exploring on your own through the reference link given in the chapter.	Student listens. ESR: Yes!

	You do not need to memorize them all. You can look at them and use them when you want.	
	You get a "hats off". As an assignment, do you think you can create your own aboutme.html - About Me page using html tags? Alright. I will look forward to seeing how you create your content. We will be doing the styling for the html page in the next class.	Make sure you have given at least 2 Hats Off during the class for: Creatively Solved Activities +10 Great Question +10 Strong Concentration +10
Project Overview	**Origami Website Design Part 1** **Goal of the Project:** Today, you have learnt to add different HTML tags. In this project, you will have to use multiple tags like lists, images, links and various styling properties to add some color and definition for our website. **Story:** Honey has an origami studio. She always wanted to show her creativity online. So she has decided to make a website of her own. I am very excited to see your project solution and I know you both will do really well. Bye Bye!	Students engage with the teacher over the project.

	Teacher Clicks ✖ End Class	

Additional Activities	Encourage the student to write reflection notes in their reflection journal using markdown.
	
	Use these as guiding questions:
	
	● What happened today?
	  - Describe what happened
	  - Code I wrote
	● How did I feel after the class?
	● What have I learned about programming and developing games?
	● What aspects of the class helped me?
	● What did I find difficult?
		The student uses the markdown editor to write her/his reflection in a reflection journal.

Activity	Activity Name	Links
Teacher Activity 1	Reference	https://github.com/whitehatjr/portfolio/blob/master/index.html
Student Activity 1	Icons	https://whitehatjrcontent.s3.ap-south-1.amazonaws.com/curriculum/PRO+Asset/Icons-20201201T093024Z-001.zip
Student Activity 2	Commonly used HTML tags	http://www.thuto.org/ubh/web/html/tags1.htm