


Topic	Hexadecimal numbers and color design	
Class Description	Students learn about hexadecimal number system and use hexadecimal numbers to design colors. They also learn about the different CSS selectors and CSS properties which can be modified in a website.	
Class	C51	
Class time	45 mins	
Goal	<ul style="list-style-type: none"> • Learn about hexadecimal numbers and how to convert hexadecimal to decimal number systems and vice versa. • Learn to design different colors using a hexadecimal number system. • Use different CSS selectors and their properties to add a personalized touch to the portfolio website. 	
Resources Required	<ul style="list-style-type: none"> • Teacher Resources <ul style="list-style-type: none"> ○ Laptop with internet connectivity ○ Earphones with mic ○ 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	5 mins 15 min 15 min 5 min
WARM-UP SESSION - 5 mins		
<p style="text-align: center;"><u>CONTEXT</u></p> <ul style="list-style-type: none"> • Differentiate between HTML and Javascript. • Introduce JSX for coding apps using React Native. 		
<div style="text-align: center;">  <p>Teacher starts slideshow from slides 1 to 21</p> <p>Refer to speaker notes and follow the instructions on each slide.</p> </div>		
Activity details		Solution/Guidelines

Hey <student's name>. How are you? It's great to see you!
Are you excited to learn something new today?

ESR: Hi, thanks, Yes I am excited about it!

Run the presentation from slide 1 to slide 5

Click on the slide show tab and present the slides

Following are the WARM-UP session deliverables:

- Greet the student.
- Revision of previous class activities.
- Quizzes

QnA Session

Question

Answer

Identify the correct option to link style.css to the website.

A

- A. `<link rel="stylesheet" type="text/css" href="styles.css">`
 B. `<linktype="text/css" href="styles.css">`
 C. `<link rel="stylesheet" type="text/css" a href="styles.css">`
 D. `<link rel="stylesheet" type="text/css" ref="styles.css">`


Which of the following is the correct option to place the grid elements one beside the other to make the website look better?

D

The image displays eight web technologies arranged in two rows. Each technology is represented by an icon, a name, and a list of three key points.

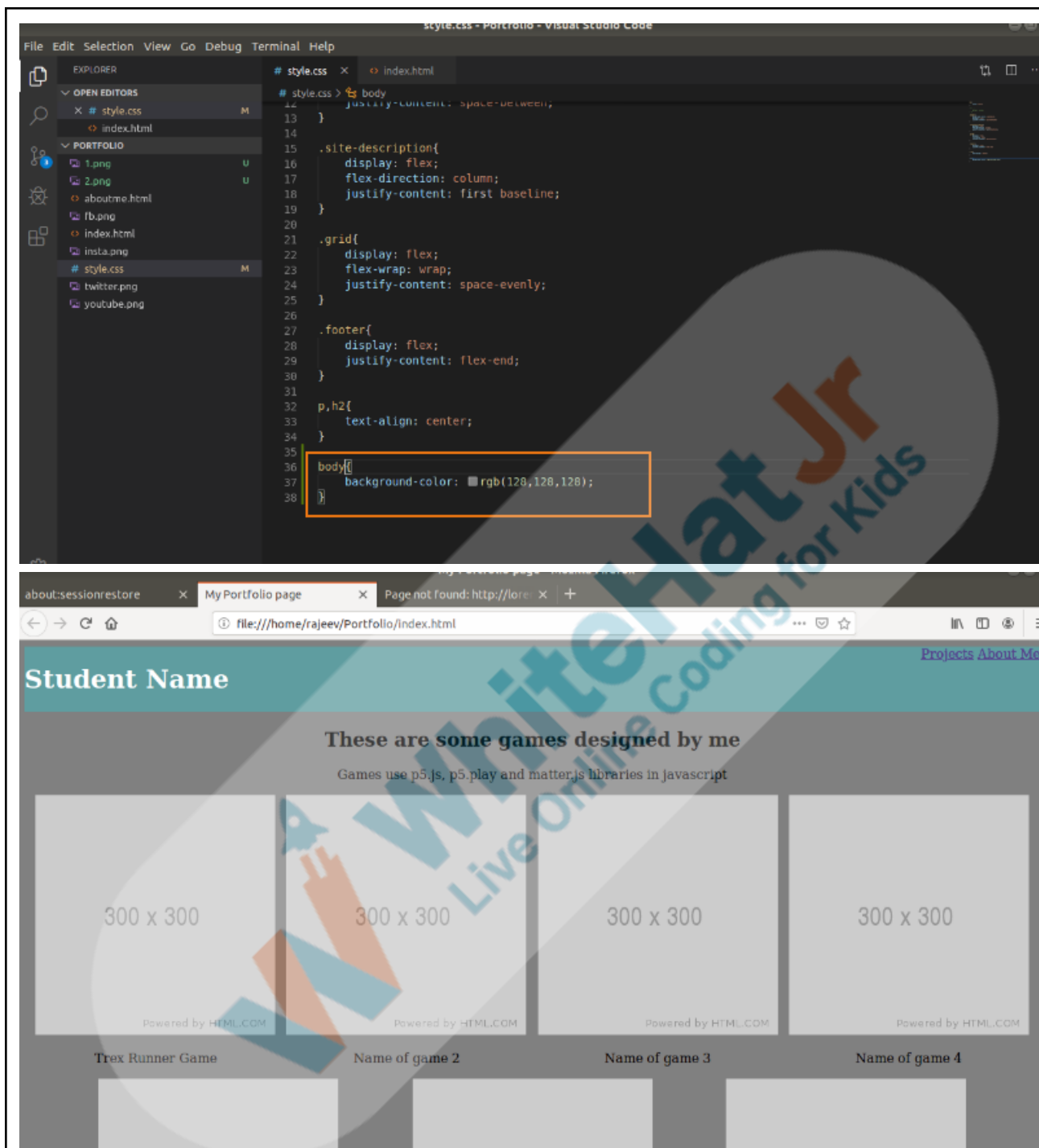
- HTML:** 1. HTML is the standard markup language for creating web pages. 2. HTML describes the structure of a web page. 3. HTML consists of a series of elements.
- CSS:** 1. CSS is the language we use to style an HTML document. 2. CSS describes how HTML elements should be displayed. 3. CSS saves a lot of work. It can control the layout of multiple web pages all at once.
- JavaScript:** 1. JavaScript is the programming language of the Web. 2. JavaScript is easy to learn.
- PHP:** 1. PHP 7 is the latest stable release. 2. It is a powerful tool for making dynamic and interactive web pages. 3. PHP is widely used, fast, and efficient alternative to competitors such as Microsoft's ASP.
- Python:** 1. Python can be used on a server to create web applications. 2. Python can be used alongside software to create websites. 3. Python has a simple syntax similar to the English language.
- React Native:** 1. React Native supports iOS and Android platform. 2. With React Native, you don't build a native app, an HTML app, or a hybrid app.
- Bootstrap:** 1. Bootstrap is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile first websites. 2. Bootstrap is completely free to download and use!
- p5.js:** 1. p5.js is a JavaScript library for creative coding, and inclusive for artists, designers, beginners, and anyone else! 2. p5.js is free and open-source because we believe software, and the tools to learn it, should be accessible to everyone.

- A. display: row
 B. flex: display
 C. display = flex
 D. display: flex

Continue the WARM-UP session		
Activity details		Solution/Guidelines
<p>Run the presentation from slide 6 to slide 21 to set the problem statement.</p> <p>Following are the WARM-UP session deliverables:</p> <ul style="list-style-type: none"> • Appreciate the student. • Explain HexaDecimal number system 		<p>Narrate the story by using hand gestures and voice modulation methods to bring in more interest in students.</p>
<p style="text-align: center;">Teacher ends slideshow</p> 		
TEACHER-LED ACTIVITY - 15 mins		
Teacher Initiates Screen Share		
<p style="text-align: center;"><u>CHALLENGE</u></p> <ul style="list-style-type: none"> • Add suitable colors (background, font colors etc.) to the portfolio website using hexadecimal numbers 		
<p>Step 2: Teacher-led Activity (15 min)</p>	<p>Do you remember how any color can be generated using red, green and blue colors?</p> <p>Note: Get the student to recall the generation of color using RGB values.</p>	<p>ESR: Each color - red, green and blue has 256 different shades ranging from 0 to 255. When different shades of red, green and blue are combined, different colors are generated.</p>
	<p>Awesome! Great recollection!</p> <p>Let's quickly try to use them once again.</p> <p>Let's generate some color to set the background for the image gallery using rgb.</p>	<p>Student listens.</p>

	Teacher clones and opens the portfolio website - Teacher Activity 1 .	
	<p>Teacher opens the index.html and style.css pages on visual code studio.</p> <p>Can you figure out which css selector we will use if we want to turn the entire website of a particular background color?</p>	ESR: body
	<p>How do you think we can add a background color to the body? Which CSS selector property can we use?</p> <p>You can refer to the CSS property list on your student activity link.</p>	<p>ESR: Student refers to the Student Activity Link 1 CSS selector: body CSS property: background-color</p>
	<p>Great! Which color should we use for the body background? I would also like you to think why would you choose that particular color?</p>	<p>ESR: The student comes up with different responses.</p>
	<p>There is a whole science to the choice of colors in a website. In fact, there are color engineers whose job is to choose colors for different projects.</p> <p>The choice of color ranges from how different colors make people feel to the effect the colors have on the content of the website. You can choose any color which you like or colour that makes your portfolio site look good.</p> <p>I will go for a more scientific use of color. For example: White background color reflects more light to our eyes. It</p>	

	<p>makes our iris close a little bit to allow only limited light inside our eyes. Since our eyes allow limited light, images on the website will appear a little darker than they are. Images on white background will appear to be darker.</p> <p>Do you want to guess what happens when the background color is black?</p>	<p>ESR:</p> <p>Black background color reflects no light. It allows our iris to open wider to allow more light to come in. Images on black background color will appear lighter than they are.</p>
	<p>To make the images appear as they are, we can go for 50% gray.</p> <p>Do you know how to make the background 50% gray? Make a guess?</p> <p>Hint: If you combine all the colors with their darkest shade, you get white. If you combine 0 of all the colors, you get black.</p>	<p>ESR:</p> <p>50% of each color red, green and blue maximum is 255 - so each color could be 128, 128 and 128.</p>
	<p>Awesome! So in rgb color scheme, we could write: background-color: rgb(128,128,128)</p> <p>Teacher writes code to change the background color of the website.</p>	<p>Student observes and learns.</p>



For computer programmers and color designers, it is faster to use hexadecimal numbers to represent colors.

The student observes, learns and asks questions.

We add '#' before a hexadecimal number to tell the computer that it is hexadecimal.

0 in hexadecimal is 00

255 in hexadecimal is FF

The first two digits are used to represent red, the next two digits are used to represent green and the last two digits are used to represent blue.

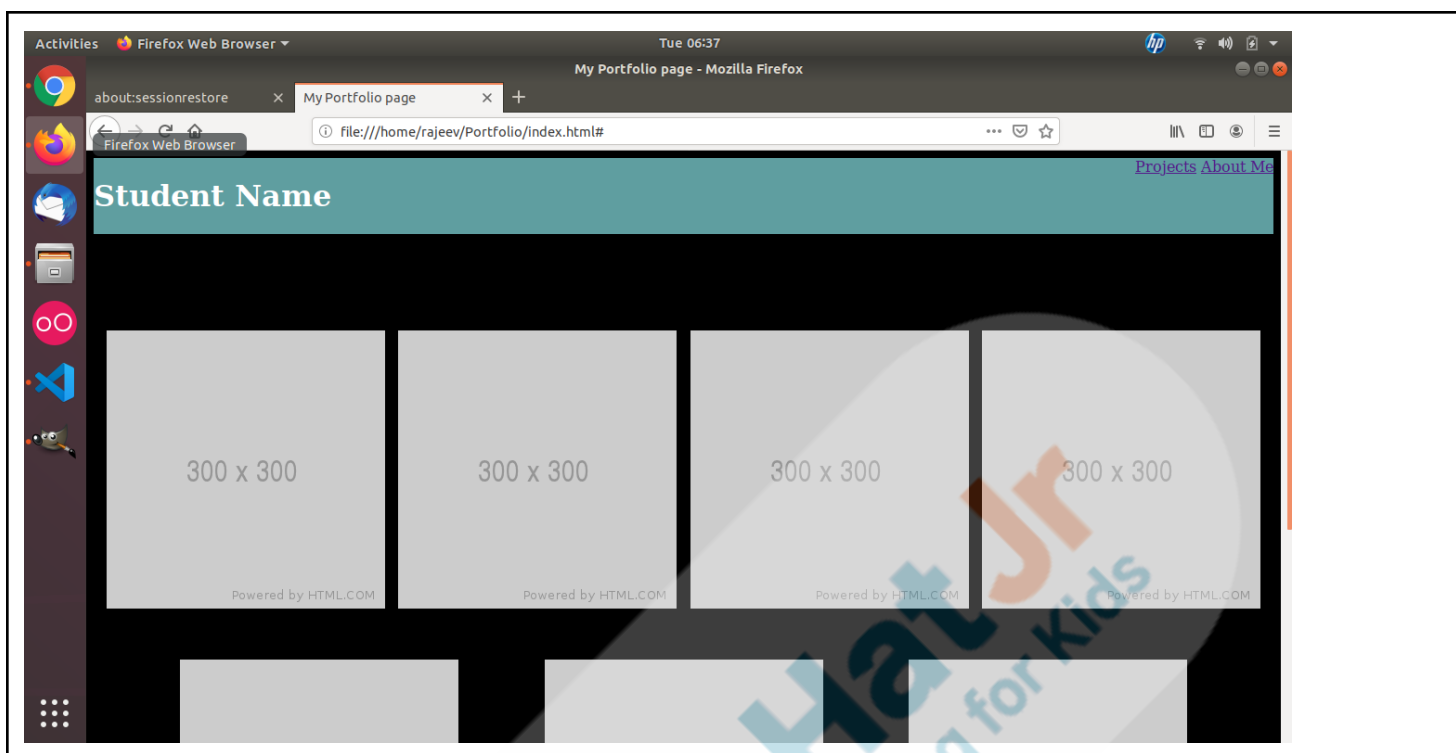
In hexadecimal:

Black is represented as : #000000

White is represented as: #FFFFFF

Note: Show the student through practical examples by changing the color of the website.






	<p>Ok, now I want you to think and change the background color of the website to 50% gray using hexadecimal.</p> <p>Ready?</p>	<p>ESR: yes!</p>
Teacher Stops Screen Share		
STUDENT-LED ACTIVITY - 25 mins		
	<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>ACTIVITY</p> <ul style="list-style-type: none"> Change the colors on the portfolio website using hexadecimal numbers 		



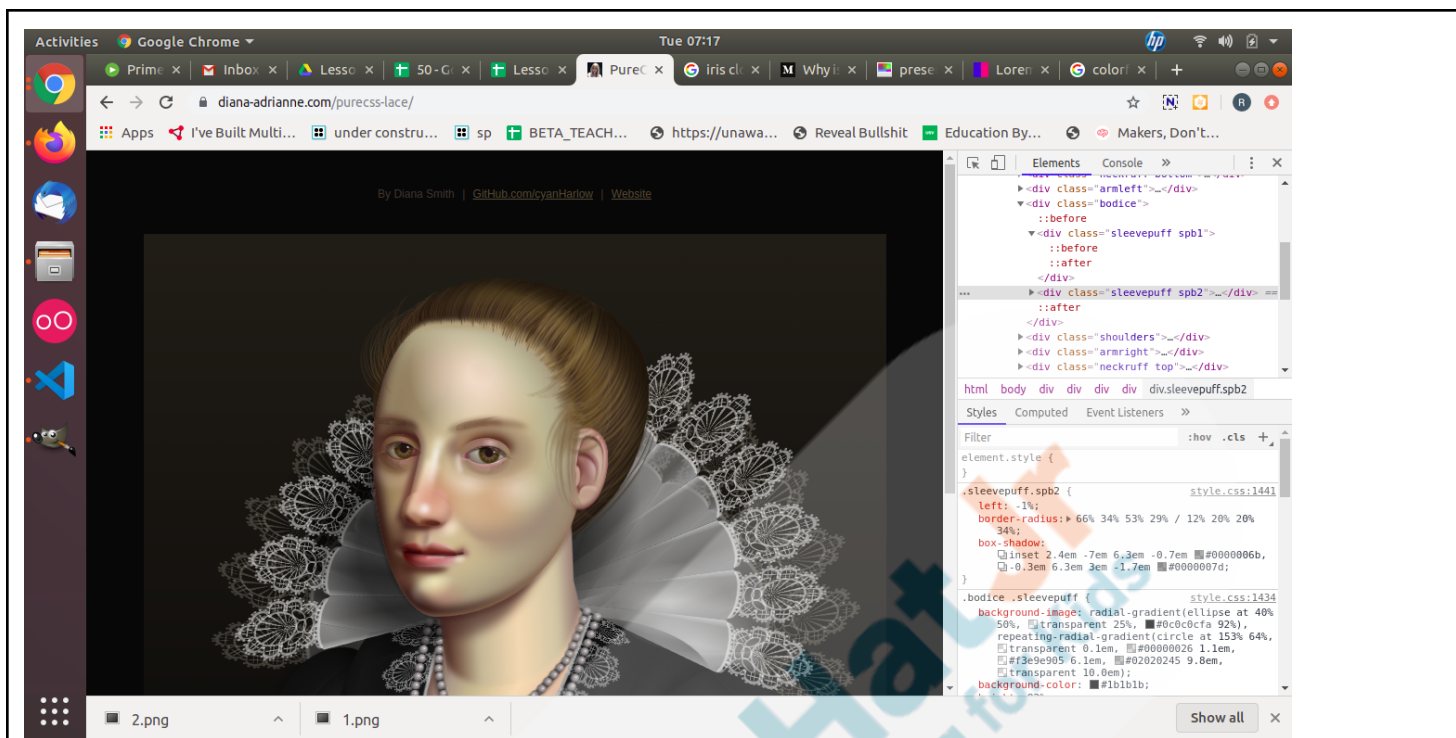
Teacher starts slideshow :Slide 22 to 23

Refer to speaker notes and follow the instructions on each slide.

Step 3: Student-Led Activity (15 min)	Teacher guides the student to open their portfolio project from the previous class.	The student continues with his/her portfolio website. He/She opens up the code on Visual Code Studio
	So you have to represent <code>rgb(128,128,128)</code> in the hexadecimal number system. How would you represent 128?	ESR: Divide 128 with 16 Q: 8 R: 0 Hexadecimal number: 80
	Each of the colors - red, green and blue should be 80 then. How would you represent it in hexadecimal system?	ESR: #808080
	Let's do it.	Student changes the color and checks the output.
	Ok, now you know the use of hexadecimal numbers and how they are used to generate colors. I want you to use them to change the other colors on your portfolio website. You could change the color of the header to your choice. You can also choose the colors for the fonts used in the website.	The student spends some time playing with the colors of the portfolio website.
	Once the student is done playing with colors, help the student explore some random CSS properties by applying them on their portfolio website.	-


	<p>Some CSS properties which you could help the child explore:</p> <ul style="list-style-type: none"> - background - border - margin - padding - font-color - font-size 	
Teacher Guides Student to Stop Screen Share		
WRAP-UP SESSION - 5 Mins		
<p>Teacher starts slideshow  from slide 24 to slide 35</p>		
Activity details		Solution/Guidelines
<p>Run the presentation from slide 24 to slide 35</p> <p>Following are the wrap-up session deliverables:</p> <ul style="list-style-type: none"> ● Explain the facts and trivias ● Next class challenge ● Project for the day ● Additional Activity 		<p>Guide the student to develop the project and share with us.</p>
Quiz time - Click on in-class quiz		
Question		Answer
<p>Hexadecimal number system is based on _____ digits.</p> <p>A. 2 B. 16 C. 10 D. 6</p>		B.
<p>What is the hexadecimal equivalent of 0?</p> <p>A. #808080</p>		D.

<p>B. #101010 C. #FFFFFF D. #000000</p>	
<p>What would the number AB mean in the hexadecimal number system?</p> <p>A. 170 B. 171 C. 172 D. 173</p>	<p>B.</p>
<p>End the quiz panel</p>	
<p><u>FEEDBACK</u></p> <ul style="list-style-type: none"> ● Encourage the student to make reflection notes in markdown format. ● Complement the student for her/his effort in the class. ● Encourage the student to experiment with other CSS selectors and find out what they do. 	
	<p>Today, you also personalized your website to use the colors you would like in your portfolio website.</p> <p>Colors are a great tool to give different effects to your website. I want to show you something amazing. Click on the Student Activity Link 2.</p> <p>The portrait that you see is not an image. It is completely drawn using CSS.</p> <p>Note: Teacher can ask the student to right click and press "Inspect" to show the student the different div and their colors.</p> <p>Student checks the link and presses 'Inspect' to see the colors of different components.</p>



	<p>Other than colors, which different CSS properties did you explore today?</p>	<p>Student lists down the different CSS properties explored after color exploration.</p>
	<p>In the next class, we will use CSS properties to add the game name OVER the image. We will program it so that when we hover our mouse on the image, the name of the game is visible.</p> <p>We will also explore the use of margin and padding, two important css properties to adjust spacing on our website.</p> <p>Till then, you can continue to explore more css properties. You can also re-design your “about me” page to add the color scheme of your choice.</p>	<p>-</p>

<p>Project Overview</p>	<p>*This Project will take only 30 mins to complete. Motivate students to try and finish it immediately after the class.</p> <p>Origami Website Design-1</p> <p>Goal of the Project:</p> <p>In Class 51, you have learnt how to work with customized colors using hexadecimal codes and more advanced properties like margins and paddings.</p> <p>In this project, we will use the same concepts to make a more efficient website. Also, experiment with hexadecimal colors for the website</p> <p>Story:</p> <p>Michelle has an origami studio. She is creating a website to explain the process of making origami. She has already made the basic structure of the website and then improved on its design. She wants your help to make the website more user-friendly with different colors and margins!</p> <p>I am very excited to see your project solution and I know you both will do really well.</p>	<p>Note: You can assign the project to the student in class itself by clicking on the Assign Project button which is available under the projects tab.</p> <p>Students engage with the teacher over the project.</p>
	<p>Brace yourself! The capstone class is here!</p> <p>In the upcoming class, we will add margins, padding and mouse hover functionalities to complete the Portfolio Webpage.</p>	

	Please request your parents to join the class.	
	Bye Bye!	
<div>Teacher ends slideshow </div>		
<div>Teacher Clicks ✕ End Class</div>		
Additional Activities	Help the student experiment and explore the different CSS properties.	Student explores additional CSS properties using Student Activity Link 1
	Encourage the student to modify the about me page to add a thoughtful color scheme.	Student adds a thoughtful color scheme to their website

Activity	Activity Name	Links
Student Activity 1	CSS Properties	https://html5dog.com/references/css/properties/
Student Activity 2	A portrait using css	https://diana-adrianne.com/purecss-lace/
Teacher Activity 1	Previous class link	https://github.com/whitehatjr/StudentPortfolio1.0
Project Solution Link	DESIGN ORIGAMI WEBSITE - 1	https://priyapandey2020.github.io/js/djbsjdvhsvhahvfhsjds2332/

Teacher Reference visual aid link	Visual aid link	https://curriculum.whitehatjr.com/Visual+Project+Asset/PRO_VD/BJFC_PRO_V3_C51_withcues.html
Teacher Reference In-class quiz	In-class quiz	https://s3-whjr-curriculum-uploads.whjr.online/c5e823f6-e01a-4569-81a4-c75eabd3d9df.pdf

