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GitHub link:

[https://github.com/LukeT11/WebMobileProgramming/tree/main/Web\\_Lessons/Web\\_ICP3](https://github.com/LukeT11/WebMobileProgramming/tree/main/Web_Lessons/Web_ICP3)

## Web ICP 3

### Bootstrap, JavaScript, Responsive Web Design

#### Introduction

Responsive Web Design (RWD) is a design process when creating web pages that allows for rendering different screen sizes while keeping the usability of the web page. It allows you to set minimum and maximum heights.

Bootstrap is an open-source CSS framework that contains predefined classes aimed at responsive web design that allows for consistency in web design and mobile-first front-end web development.

JavaScript a programming language that is used mainly for the behavior elements of web pages. It allows for the manipulation of HTML and CSS content.

#### Tasks

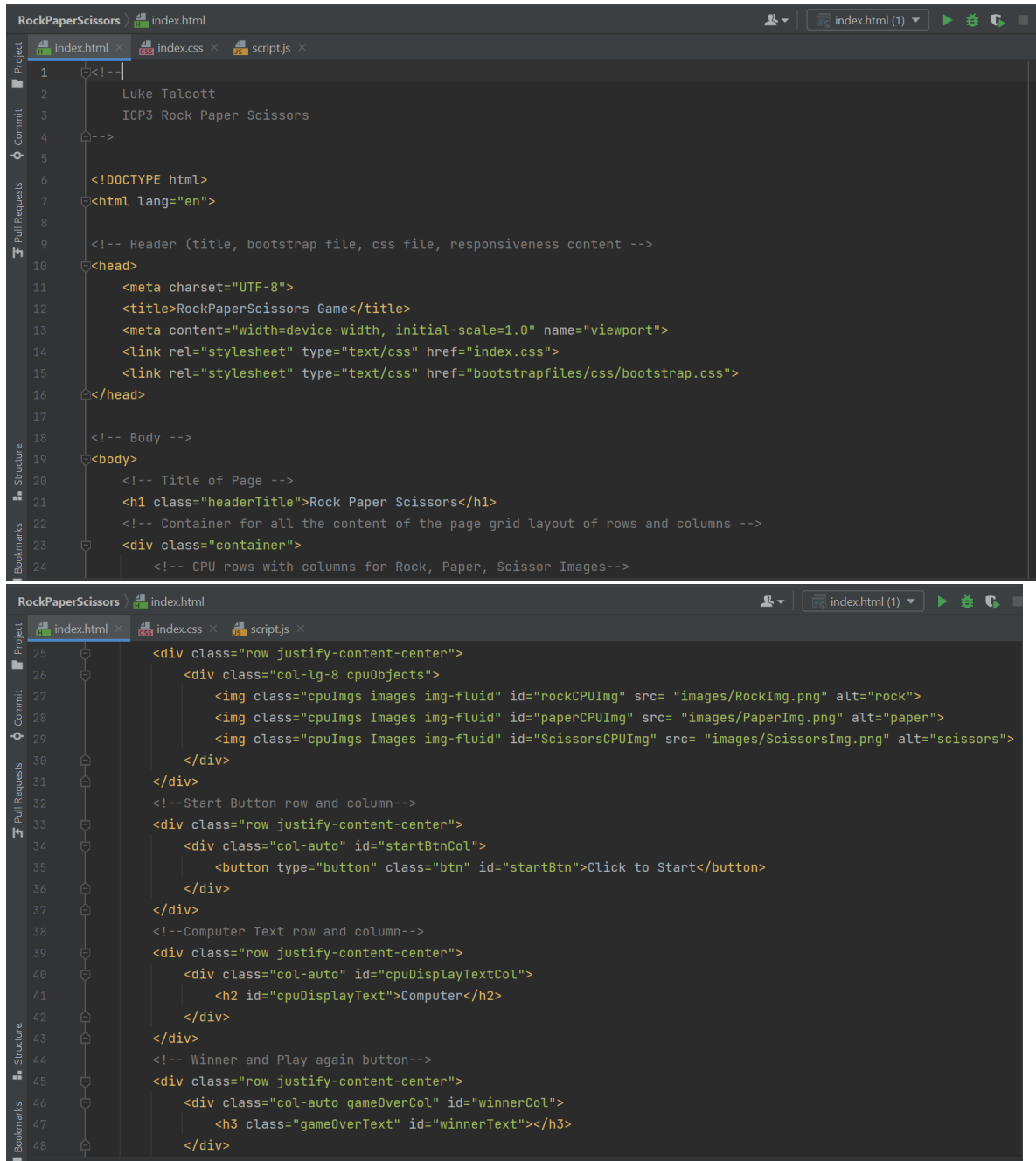
ICP3 tasks, description and example uses.

ICP3 Tasks (JavaScript and RWD):

- Rock-Paper-Scissors
  - Build the game of rock paper scissors using JavaScript
  - Basic UI
  - Random number generator and conditional statements
- RWD Task
  - Create a similar mockup and follow the TODO instructions (i.e., similar font, colors, etc.)
  - Make the page responsive to different sizes

## Rock Paper Scissors

- HTML



```
RockPaperScissors index.html
index.html x index.css x script.js x
1 <!--
2 Luke Talcott
3 ICP3 Rock Paper Scissors
4 -->
5
6 <!DOCTYPE html>
7 <html lang="en">
8
9 <!-- Header (title, bootstrap file, css file, responsiveness content -->
10 <head>
11 <meta charset="UTF-8">
12 <title>RockPaperScissors Game</title>
13 <meta content="width=device-width, initial-scale=1.0" name="viewport">
14 <link rel="stylesheet" type="text/css" href="index.css">
15 <link rel="stylesheet" type="text/css" href="bootstrapfiles/css/bootstrap.css">
16 </head>
17
18 <!-- Body -->
19 <body>
20 <!-- Title of Page -->
21 <h1 class="headerTitle">Rock Paper Scissors</h1>
22 <!-- Container for all the content of the page grid layout of rows and columns -->
23 <div class="container">
24 <!-- CPU rows with columns for Rock, Paper, Scissor Images-->
25 <div class="row justify-content-center">
26 <div class="col-lg-8 cpuObjects">
27 
28 
29 
30 </div>
31 </div>
32 <!--Start Button row and column-->
33 <div class="row justify-content-center">
34 <div class="col-auto" id="startBtnCol">
35 <button type="button" class="btn" id="startBtn">Click to Start</button>
36 </div>
37 </div>
38 <!--Computer Text row and column-->
39 <div class="row justify-content-center">
40 <div class="col-auto" id="cpuDisplayTextCol">
41 <h2 id="cpuDisplayText">Computer</h2>
42 </div>
43 </div>
44 <!-- Winner and Play again button-->
45 <div class="row justify-content-center">
46 <div class="col-auto gameOverCol" id="winnerCol">
47 <h3 class="gameOverText" id="winnerText"></h3>
48 </div>
```

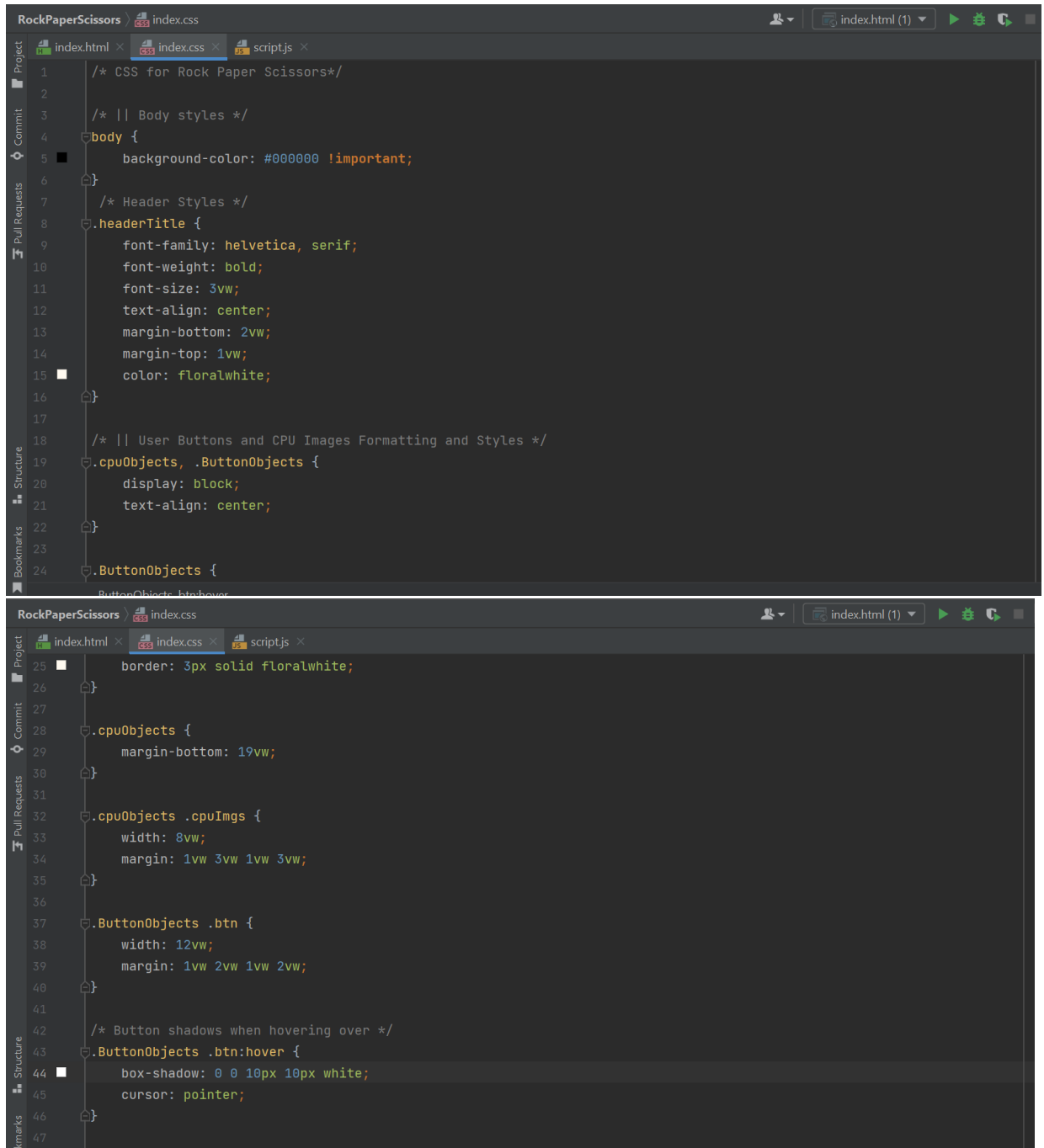
```
RockPaperScissors > index.html
index.html x index.css x script.js x

49 <div class="col-auto gameOverCol" id="playAgainCol">
50 <button type="button" class="btn gameOverText" id="playAgain">Play Again</button>
51 </div>
52 </div>
53 <!-- Middle text for Choosing an option-->
54 <div class="row justify-content-center">
55 <div class="col-auto" id="userOptionCol">
56 <h4 id="userOption">Choose Rock, Paper or Scissors</h4>
57 </div>
58 </div>
59 <!-- Button choices for User to chooser from Rock, Paper or Scissors-->
60 <div class="row justify-content-center">
61 <div class="col-lg-9 ButtonObjects">
62 <button type="button" class="btn" id="rockUser">
63 <img class="images img-fluid" id="rockUserImg" src= "images/RockImg.png" alt="rock">
64 </button>
65 <button type="button" class="btn" id="paperUser">
66 <img class="images img-fluid" id="paperUserImg" src= "images/PaperImg.png" alt="paper">
67 </button>
68 <button type="button" class="btn" id="scissorsUser">
69 <img class="images img-fluid" id="ScissorsUserImg" src= "images/ScissorsImg.png" alt="scissors">
70 </button>
71 </div>
72 </div>
```

```
RockPaperScissors > index.html
index.html x index.css x script.js x

61 <div class="col-lg-9 ButtonObjects">
62 <button type="button" class="btn" id="rockUser">
63 <img class="images img-fluid" id="rockUserImg" src= "images/RockImg.png" alt="rock">
64 </button>
65 <button type="button" class="btn" id="paperUser">
66 <img class="images img-fluid" id="paperUserImg" src= "images/PaperImg.png" alt="paper">
67 </button>
68 <button type="button" class="btn" id="scissorsUser">
69 <img class="images img-fluid" id="ScissorsUserImg" src= "images/ScissorsImg.png" alt="scissors">
70 </button>
71 </div>
72 </div>
73 </div>
74
75 <!-- JS script files -->
76 <script src="script.js"></script>
77 <script src="bootstrapfiles/js/bootstrap.bundle.js"></script>
78 </body>
79 </html>
```

- CSS



```
RockPaperScissors index.css
index.html x index.css x scriptjs x
1 /* CSS for Rock Paper Scissors*/
2
3 /* || Body styles */
4 body {
5     background-color: #000000 !important;
6 }
7
8 /* Header Styles */
9 .headerTitle {
10     font-family: helvetica, serif;
11     font-weight: bold;
12     font-size: 3vw;
13     text-align: center;
14     margin-bottom: 2vw;
15     margin-top: 1vw;
16     color: floralwhite;
17 }
18
19 /* || User Buttons and CPU Images Formatting and Styles */
20 .cpu0bjects, .Button0bjects {
21     display: block;
22     text-align: center;
23 }
24 .Button0bjects {
25     border: 3px solid floralwhite;
26 }
27
28 .cpu0bjects {
29     margin-bottom: 19vw;
30 }
31
32 .cpu0bjects .cpuImgs {
33     width: 8vw;
34     margin: 1vw 3vw 1vw 3vw;
35 }
36
37 .Button0bjects .btn {
38     width: 12vw;
39     margin: 1vw 2vw 1vw 2vw;
40 }
41
42 /* Button shadows when hovering over */
43 .Button0bjects .btn:hover {
44     box-shadow: 0 0 10px 10px white;
45     cursor: pointer;
46 }
47
```

```
RockPaperScissors index.css
index.html x index.css x scriptjs x
49 #cpuDisplayTextCol {
50     position: absolute;
51     left: 45.7vw;
52     top: 32%;
53 }
54
55 #winnerText, #userOption, #cpuDisplayText {
56     color: floralwhite;
57 }
58
59 #playAgain {
60     display: none;
61     font-weight: bolder;
62     background-color: floralwhite;
63 }
64
65 #startBtn {
66     background-color: floralwhite;
67     font-weight: bolder;
68     font-size: 150%;
69 }
70
71 /* || columns positioning */
72 #startBtnCol {
```

```
RockPaperScissors index.css
index.html x index.css x scriptjs x
73     position: absolute;
74     left: 45%;
75     top: 50%;
76 }
77
78 #gameOverCol {
79     position: absolute;
80 }
81
82 #winnerCol {
83     right: 50%;
84     top: 50%;
85     margin-right: 2%;
86 }
87
88 #playAgainCol {
89     left: 50%;
90     top: 50%;
91     margin-left: 2%;
92 }
93
94 #userOptionCol {
95     position: absolute;
96     left: 40%;
```

- JS

```
RockPaperScissors / script.js
index.html x index.css x script.js x
1  /* JavaScript for Rock Paper Scissors */
2
3  /* Variable/Elements assigned */
4  let userOption = document.getElementById( elementId: "userOption");
5  let winnerText = document.getElementById( elementId: "winnerText");
6  let button = document.getElementsByClassName( className: "btn");
7  let cpuImages = document.getElementsByClassName( className: "cpuImgs");
8  let playAgainButton = document.getElementById( elementId: "playAgain");
9  let startButton = document.getElementById( elementId: "startBtn");
10
11  let gameOver = false;
12  let boolStart = true;
13
14  /* Onclick functions for Star and Play Again buttons */
15  startButton.onclick = function() {startBtnOff( boolST: false)};
16  playAgainButton.onclick = function () {reset(gameOver)};
17
18  /* Turns off Start Button on click*/
19  function startBtnOff(boolST) {
20      boolStart = boolST;
21      startButton.style.display = "none";
22  }
23
24  /* Resets the game to Play Again */
25
26  function reset(boolPA)
27  {
28      if (boolPA === true) {
29          gameOver = false
30          userOption.style.display = "block"
31          playAgainButton.style.display = "none";
32          winnerText.innerHTML = "";
33          cpuImages[0].style.border = "0";
34          cpuImages[1].style.border = "0";
35          cpuImages[2].style.border = "0";
36      }
37  }
38  /* RNG for Computer, Conditional Statements/Logic for Rock Paper Scissors */
39  function RockPaperScissorsGame(btnNum) {
40      if (gameOver === false && boolStart === false) {
41          const cpuNum = Math.floor( Math.random() * 3);
42          cpuImages[cpuNum].style.border = "10px solid #FF1789";
43
44          if ((btnNum === 0 && cpuNum === 1) || (btnNum === 1 && cpuNum === 2) || (btnNum === 2 && cpuNum === 0))
45          {
46              winnerText.innerHTML = "CPU Wins";
47          }
48      }
49  }
```

```
RockPaperScissors / scriptjs
index.html x index.css x scriptjs x
49
50
51     else if ((btnNum === 1 && cpuNum === 0) || (btnNum === 2 && cpuNum === 1) || (btnNum === 0 && cpuNum === 2))
52     {
53         winnerText.innerHTML = "You Win";
54     }
55
56     else
57     {
58         winnerText.innerHTML = "Draw";
59     }
60
61     gameOver = true;
62     userOption.style.display = "none";
63     playAgainButton.style.display = "inline-block";
64 }
65
66 /* Add Event Listeners for Rock Paper Scissors Buttons */
67 for (let i = 0; i < button.length; i++) {
68     button[i].addEventListener( type: 'click', listener: function () {
69         if (button[i].id === "rockUser" && gameOver === false)
70         {
71             RockPaperScissorsGame( btnNum: 0);
72         }
73     }
74 }
75
76
77
78
79
80
81
82
83
```

```
RockPaperScissors / scriptjs
index.html x index.css x scriptjs x
65
66 /* Add Event Listeners for Rock Paper Scissors Buttons */
67 for (let i = 0; i < button.length; i++) {
68     button[i].addEventListener( type: 'click', listener: function () {
69         if (button[i].id === "rockUser" && gameOver === false)
70         {
71             RockPaperScissorsGame( btnNum: 0);
72         }
73
74         else if (button[i].id === "paperUser" && gameOver === false)
75         {
76             RockPaperScissorsGame( btnNum: 1);
77         }
78
79         else if (button[i].id === "scissorsUser" && gameOver === false)
80         {
81             RockPaperScissorsGame( btnNum: 2);
82         }
83     });
84 }
85
```

- Output





## RWD Task

- HTML

```
RWD Task | input.html
Project | input.html | input.css
1 <!--
2 Luke Talcott
3 ICP3 RWD Task
4 -->
5
6 <!DOCTYPE html>
7
8 <!--
9 TODO:
10 1.Enter your name in h1 and designation in h3
11 2.Replace all the placeholder images with suitable images of the same size reflecting you and your projects.Feel free to use the sample images provid
12 3.Replace the content of headings App1,App2,App3,App4 with suitable headings of your projects & provide their github links in the corresponding links
13 4.Make all the elements in the page responsive & align its content as shown in the output sample with the aforementioned using bootstrap
14 -->
15
16 <html lang="en">
17
18 <!--Header-->
19 <head>
20 <title>RWD Task</title>
21 <meta content="text/html; charset=windows-1252" http-equiv="Content-Type">
22 <meta name="viewport" content="width=device-width, initial-scale=1.0">
23 <link rel="stylesheet" type="text/css" href="css/bootstrap.css">
24
```

```
RWD Task | input.html
Project | input.html | input.css
25 <link rel="stylesheet" type="text/css" href="input.css">
26 </head>
27
28 <!--Body-->
29 <body>
30 <!--Container for all the content on the page using a grid layout of rows and columns-->
31 <div class="container">
32 <div class="row">
33 <!--row with columns for 100x100 image and Header title-->
34 <div class="col">
35 
36 </div>
37 <div class="col">
38 <h1 class="GreenText HeaderText">LUKE TALCOTT</h1>
39 <h3 class="GreenText HeaderText">DESIGNATION</h3>
40 </div>
41 </div>
42 <!--color row block separate header from the rest of the content-->
43 <div class="row"><div class="col-12 colBox"></div></div>
44 <!--row with column for 1140x350 main image-->
45 <div class="row">
46 <div class="col">
47 
48 </div>
49
```

```
RWD Task > input.html
input.html x input.css x
49
50
51
52 <div class="row">
53   <div class="col">
54     <h2 class="GrayText">Featured Work </h2>
55   </div>
56 </div>
57 <!--row with columns for work example with 555x300 image, name and GitHub link-->
58 <div class="row">
59   <!--Appify section-->
60   <div class="col-6 featuredWork">
61     
62     <h3 class="GreenText">APPIFY</h3>
63     <p><a class="GreenText" href="#">https://github.com/kvxc5/Appify</a></p>
64   </div>
65   <!--Sunflower section-->
66   <div class="col-6">
67     
68     <h3 class="GreenText">SUNFLOWER</h3>
69     <p><a class="GreenText" href="#">https://github.com/kvxc5/Sunflower</a></p>
70   </div>
71   <!--Bokeh section-->
72   <div class="col-6">
73     
```

```
RWD Task > input.html
input.html x input.css x
74   <p><a class="GreenText" href="#">https://github.com/kvxc5/Sunflower</a></p>
75 </div>
76 <!--Bokeh section-->
77 <div class="col-6">
78   
79   <h3 class="GreenText">BOKEH</h3>
80   <p><a class="GreenText" href="#">https://github.com/kvxc5/Bokeh</a></p>
81 </div>
82 <!--Appify 2 section-->
83 <div class="col-6">
84   
85   <h3 class="GreenText">APPIFY</h3>
86   <p><a class="GreenText" href="#">https://github.com/kvxc5/Appify</a></p>
87 </div>
88 </div>
89 </body>
90 </html>
```

- CSS

```
1  /* CSS for RWD Task */
2
3  /* Min width screen size for responsiveness */
4  @media screen and (min-width: 480px) {
5      /* || Body Styles */
6      body {
7          font-family: lato;
8      }
9
10     /* Column solid box fill */
11     .colBox {
12         border: 3px solid #BCBBBB;
13         background-color: #BCBBBB;
14     }
15
16     /* Header Text style */
17     .HeaderText {
18         text-align: right;
19     }
20
21     /* || Font colors */
22     .GreenText {
23         color: #747704;
24     }
25
26     .GrayText {
27         color: #BCBBBB;
28     }
29
30     /* || Image Sizes */
31     #Bean {
32         width: 100px;
33         height: 100px;
34     }
35
36     #MetaImage {
37         width: 1140px;
38         height: 350px;
39     }
40
41     .featuredWorkImg {
42         width: 555px;
43         height: 300px;
44     }
45 }
```

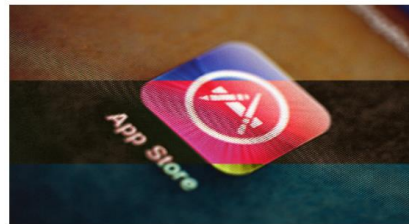
- Output



LUKE TALCOTT  
DESIGNATION



Featured Work



APPIFY

<https://github.com/kvxc5/Appify/>

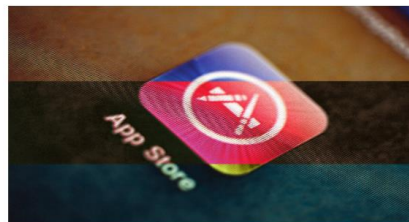


SUNFLOWER

<https://github.com/kvxc5/Sunflower/>



Featured Work



APPIFY

<https://github.com/kvxc5/Appify/>



SUNFLOWER

<https://github.com/kvxc5/Sunflower/>



BOKEH

<https://github.com/kvxc5/Bokch/>



APPIFY

<https://github.com/kvxc5/Appify/>

## Contribution

I worked independently, so I am the sole contributor.

## Conclusion

I used Bootstrap and JavaScript for the first part in designing a “Rock-Paper-Scissors” web application. Bootstrap allowed for me to layout the content of the game in a consistent grid layout and for it to be responsive for different screen sizes. JavaScript allowed for me to develop the behavior of how the game is played such as the button clicks, a random number generator to play the computer, and how to determine the logistics of the game for who is the winner of the game. For the second part, I used Bootstrap to create a simple project mockup. Bootstrap allowed for a consistent and easy grid layout of all the content and a for consistent responsiveness for different size of web page.