

ICP – 3 Responsive Web Design and JavaScript

Team details:

Sarath Chandra Kolisetty – sk83g@umsystem.edu

Github link: <https://github.com/sarath98-lab/spring-2022/tree/main/Web/ICP3>

Eeshwara Sai Tota – ettkv@umsystem.edu

Github link: <https://github.com/SaiKicks/WebMobile-Spring2022/tree/main/web/ICP3>

Description:

Current ICP has two tasks which helps in understanding bootstrap and java script.

1. Rock – Paper – Scissors

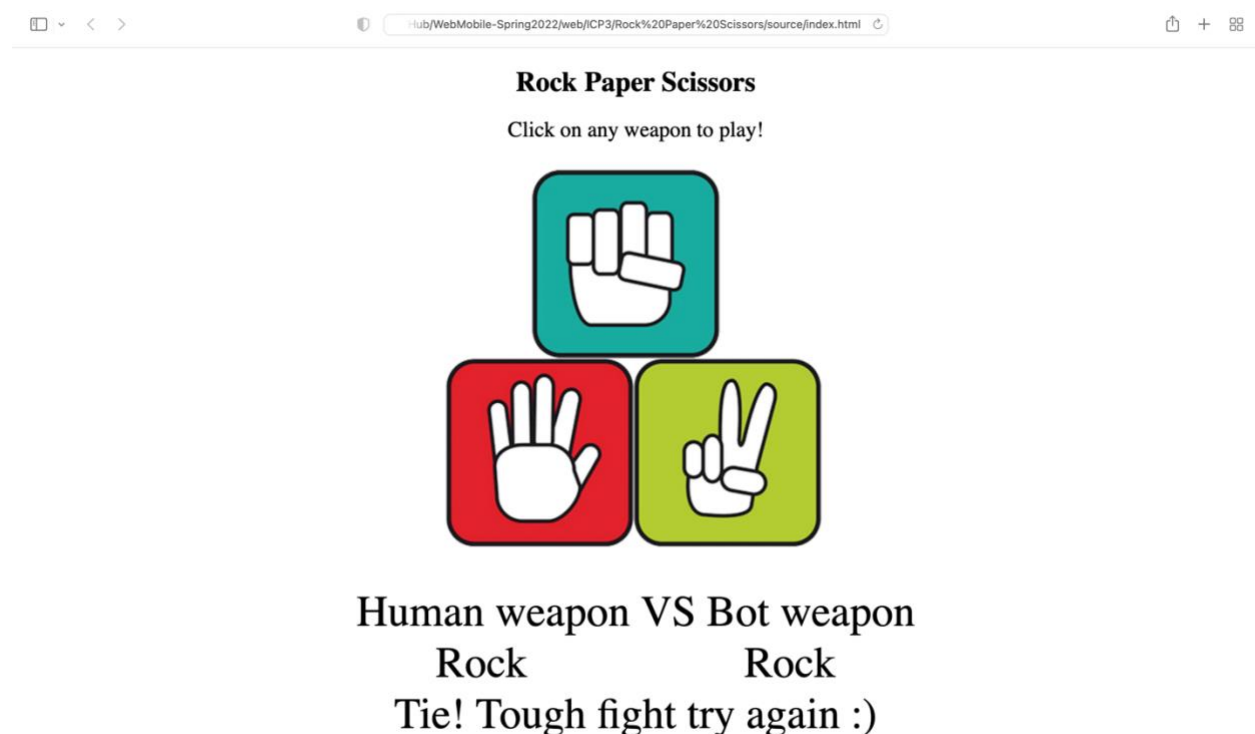
This task involves development of a game using java script.

2. RWD Task

In this task we developed a mockup screen which is responsive using bootstrap.

Rock – Paper – Scissors:

Game User Interface:



The web page has 3 icons which acts as buttons for Rock, Paper, Scissors.

When clicked on a weapon, Human weapon is set to the clicked weapon and with the help random number generator function in java script a weapon is set to bot.

HTML code:

```
index.html M x
source > index.html > html > body
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <meta http-equiv="X-UA-Compatible" content="IE=edge">
6   <meta name="viewport" content="width=device-width, initial-scale=1.0">
7   <link rel="stylesheet" href="style.css">
8   <script src="script.js"></script>
9   <title>Rock Paper Scissors</title>
10 </head>
11 <body>
12   <h1>Rock Paper Scissors</h1>
13   <div class="play">Click on any weapon to play!</div>
14
15   <!-- UI Image which has 3 Icons Rock Paper Scissors -->
16   <div></div>
17
18   <!-- Particular areas in image are mapped to certain weapons based on mouse click -->
19   <map name="rps">
20     <area shape="rect" onclick="playGame(0)" coords="142, 39, 345, 243" alt="Rock">
21     <area shape="rect" onclick="playGame(1)" coords="42, 255, 246, 459" alt="Paper">
22     <area shape="rect" onclick="playGame(2)" coords="259, 255, 463, 459" alt="Scissors">
23   </map>
24
25   <div class="fight">Human weapon VS Bot weapon</div>
26
27   <!-- Div tags with ids match, result inner context is updated by java script based on game outcome -->
28   <div id="match" class="fight"></div>
29   <div id="result" class="fight"></div>
30 </body>
31 </html>
```

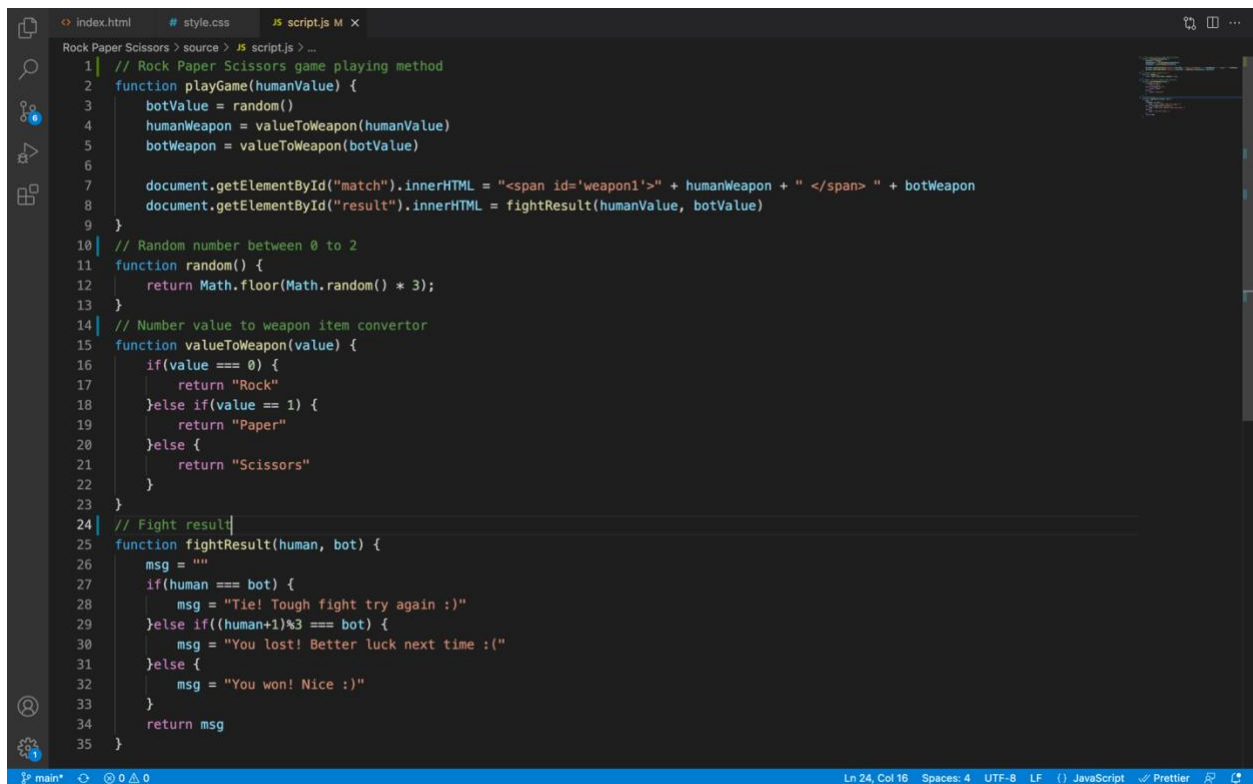
Using HTML basic structure for the web page is designed. Areas in image are mapped to certain weapon based on mouse click location.

CSS:

```
index.html M style.css x
source > # style.css > ...
1 h1,
2 div,
3 img {
4   display: flex;
5   justify-content: center;
6 }
7
8 #weapon1 {
9   padding-right: 250px;
10 }
11
12 .fight {
13   font-size: 50px;
14 }
15
16 .play {
17   font-size: 25px;
18 }
19
```

Using CSS, we have selected the right font and centered the content of the page.

Java Script:

A screenshot of a code editor with a dark theme. The editor has three tabs at the top: 'index.html', 'style.css', and 'js script.js M x'. The 'js script.js' tab is active, showing the following JavaScript code:

```
1 // Rock Paper Scissors game playing method
2 function playGame(humanValue) {
3     botValue = random()
4     humanWeapon = valueToWeapon(humanValue)
5     botWeapon = valueToWeapon(botValue)
6
7     document.getElementById("match").innerHTML = "<span id='weapon1'>" + humanWeapon + " </span> " + botWeapon
8     document.getElementById("result").innerHTML = fightResult(humanValue, botValue)
9 }
10 // Random number between 0 to 2
11 function random() {
12     return Math.floor(Math.random() * 3);
13 }
14 // Number value to weapon item convertor
15 function valueToWeapon(value) {
16     if(value === 0) {
17         return "Rock"
18     } else if(value == 1) {
19         return "Paper"
20     } else {
21         return "Scissors"
22     }
23 }
24 // Fight result
25 function fightResult(human, bot) {
26     msg = ""
27     if(human === bot) {
28         msg = "Tie! Tough fight try again :)"
29     } else if((human+1)%3 === bot) {
30         msg = "You lost! Better luck next time :("
31     } else {
32         msg = "You won! Nice :)"
33     }
34     return msg
35 }
```

The editor's status bar at the bottom shows 'Ln 24, Col 16', 'Spaces: 4', 'UTF-8', 'LF', 'JavaScript', and 'Prettier'.

The JS file has all the Rock – Paper – Scissors game logic

random():

This method is used to generate a number between 0 to 2. Each number represents a weapon.

valueToWeapon():

The number value generated by random method is converted weapon in string format

0 – Rock, 1 – Paper, 2 – Scissors

fightResult():

Once human and bot weapon are chosen, this method helps in finding the game result which can be human won, tie or human lost.

playGame():

Using above three mentioned method, playGame method updates status of the game on web page.

RWD Task:

In this task, Responsive Web Design is done through Bootstrap. Bootstrap is the open-source CSS framework used for responsive web pages.

To add Bootstrap in the code we have to write following link tag which has href attribute ending with bootstrap.min.css.

```
<head>
  <title>RWD Task</title>
  <meta content="text/html; charset=windows-1252" http-equiv="Content-Type">
  <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.2.1/css/bootstrap.min.css"
  <link rel="stylesheet" href="style.css">
</head>
```

And also script tags are inserted inside the body tag at the end.

```
<script src="https://code.jquery.com/jquery-3.3.1.slim.min.js" integrity="sha384-q8i/X+965Dz00rT7abK41JStQ"
<script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.6/umd/popper.min.js" integrity="sha384-
<script src="https://stackpath.bootstrapcdn.com/bootstrap/4.2.1/js/bootstrap.min.js" integrity="sha384-B0U
```

The basic layout in the bootstrap is provided by container tag.

```
<div class="container">
```

After adding all the required tags to the source code, the components in the source code are aligned according to the mockup page using row and column tag.

From the below screenshot of the mockup, we can understand that the profile picture and the name are in the same row but different columns.



STEVE SMITH
FRONT-END DEVELOPER

Using the same logic, all the other components such as Featured work app images and their links are organized in rows and columns as shown below.

HTML:

```

1 <DOCTYPE html>
2 <html>
3 <head>
4 <!-- Enter your name in h1 and designation in h2 -->
5 <h1>RMD Task</h1>
6 <h2>RMD Task</h2>
7 <!-- Replace the content of headings App1,App2,App3 with suitable headings of your projects & provide their github links in the <h3> -->
8 <h3>App1</h3>
9 <h3>App2</h3>
10 <h3>App3</h3>
11 <!-- Replace all the placeholder images with suitable images of the same size reflecting you and your projects. Feel free to use the <img alt="" -->
12 <img alt="Profile" src="" height="180px" width="180px"/>
13 <img alt="App1" src="" height="180px" width="180px"/>
14 <img alt="App2" src="" height="180px" width="180px"/>
15 <img alt="App3" src="" height="180px" width="180px"/>
16 </head>
17 <body>
18 <!-- A base container is added to form bootstrap grid structure -->
19 <div class="container">
20 <div class="row">
21 <div class="col-md-4">
22 <div class="col-md-4">
23 <div class="col-md-4">
24 <div class="col-md-4">
25 <div class="col-md-4">
26 <div class="col-md-4">
27 <div class="col-md-4">
28 <div class="col-md-4">
29 <div class="col-md-4">
30 <div class="col-md-4">
31 <div class="col-md-4">
32 <div class="col-md-4">
33 <div class="col-md-4">
34 <div class="col-md-4">
35 <div class="col-md-4">
36 <div class="col-md-4">
37 <div class="col-md-4">
38 <div class="col-md-4">
39 <div class="col-md-4">
40 <div class="col-md-4">
41 <div class="col-md-4">
42 <div class="col-md-4">
43 <div class="col-md-4">
44 <div class="col-md-4">
45 <div class="col-md-4">
46 <div class="col-md-4">
47 <div class="col-md-4">
48 <div class="col-md-4">
49 <div class="col-md-4">
50 <div class="col-md-4">
51 <div class="col-md-4">
52 <div class="col-md-4">
53 <div class="col-md-4">
54 <div class="col-md-4">
55 <div class="col-md-4">
56 <div class="col-md-4">
57 <div class="col-md-4">
58 <div class="col-md-4">
59 <div class="col-md-4">
60 <div class="col-md-4">
61 <div class="col-md-4">
62 <div class="col-md-4">
63 <div class="col-md-4">
64 <div class="col-md-4">
65 <div class="col-md-4">
66 <div class="col-md-4">
67 <div class="col-md-4">
68 <div class="col-md-4">
69 <div class="col-md-4">
70 <div class="col-md-4">
71 <div class="col-md-4">
72 <div class="col-md-4">
73 <div class="col-md-4">
74 <div class="col-md-4">
75 <div class="col-md-4">
76 <div class="col-md-4">
77 <div class="col-md-4">
78 <div class="col-md-4">
79 <div class="col-md-4">
80 <div class="col-md-4">
81 <div class="col-md-4">
82 <div class="col-md-4">
83 <div class="col-md-4">
84 <div class="col-md-4">
85 <div class="col-md-4">
86 <div class="col-md-4">
87 <div class="col-md-4">
88 <div class="col-md-4">
89 <div class="col-md-4">
90 <div class="col-md-4">
91 <div class="col-md-4">
92 <div class="col-md-4">
93 <div class="col-md-4">
94 <div class="col-md-4">
95 <div class="col-md-4">
96 <div class="col-md-4">
97 <div class="col-md-4">
98 <div class="col-md-4">
99 <div class="col-md-4">
100 <div class="col-md-4">

```

A CSS file called style.css is written to adjust the color, font, and alignment of the components according to the mockup.

```

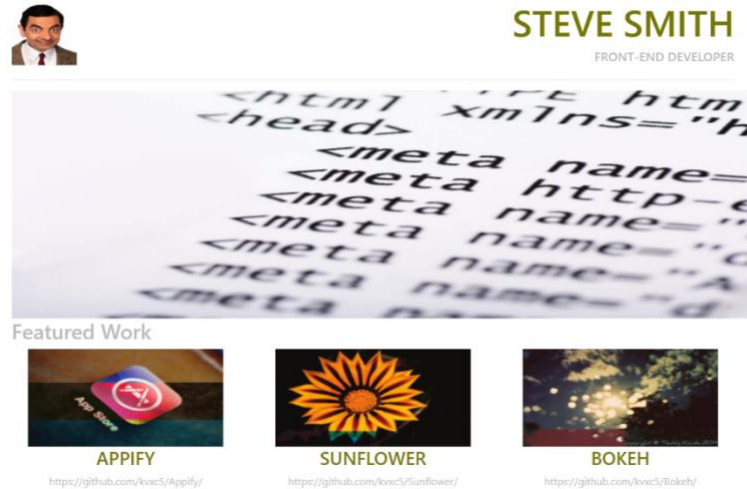
1 .name{
2   color: #747704;
3   font-display: Rambla;
4   font-size: 350%;
5   text-align: right;
6 }
7 .designation{
8   color: #bcbbbb;
9   font-size: 120%;
10  text-align: right;
11 }
12 .featuredwork{
13   color: #bcbbbb;
14   font-size: xx-large;
15   text-align: left;
16 }
17 .appname{
18   text-align: center;
19   color: #747704;
20 }
21 .appimage{
22   height: 150px;
23   width: 300px;
24   display: block;
25   margin-left: auto;
26   margin-right: auto;
27 }
28 .link{

```

The HTML file is linked to the CSS using the link tag in the head of HTML file.

```
<link rel="stylesheet" href="style.css">
```

The resultant UI looks like



Which exactly looks like give mockup screen!

Learnings from the lesson:

- How bootstrap makes it simple to develop RWD using grid structure.
- Importance of java script to add interactivity to the web page

Issue with the lesson:

Too little time was spent on bootstrap topic.