Coding Assignment – Associate Software Engineer:

Java:

A. Create an array with the values (1, 2, 3, 4, 5, 6, 7) and shuffle it
solution:

```
import java.util.*;

public class ShuffleArr {
    public static void shuffle(int[] arr) {
        int len=arr.length;
        Random rand=new Random();

        for(int i=0;i<len;i++) {
            int randomIndex = rand.nextInt(len);
            int temp=arr[i];
            arr[i]=arr[randomIndex];
            arr[randomIndex]=temp;

        }
    }

    public static void main(String[] args) {
        int[] arr= {1,2,3,4,5,6,7};

        shuffle(arr);
        for(int i=0;i<arr.length;i++) {
            System.out.println(arr[i]);
        }

    }

}
```

B. Enter Roman Number as input and convert it to integer. (ex IX = 9)

```
import java.util.*;


public class RomanToIntegerConverter {

    Map<Character, Integer> map = new HashMap<>();
    public RomanToIntegerConverter() {

        map.put('I', 1);
        map.put('V', 5);
```

```
        map.put('X', 10);
        map.put('L', 50);
        map.put('C', 100);
        map.put('D', 500);
        map.put('M', 1000);
    }

    int romanToInt(String str) {
        int sum = 0;
        for (int i = 0; i < str.length(); i++) {
            int s1 = map.get(str.charAt(i));
            if (i + 1 < str.length()) {
                int s2 = map.get(str.charAt(i + 1));
                if (s1 >= s2) {
                    sum = sum + s1;
                } else {
                    sum = sum - s1;
                }
            } else {
                sum = sum + s1;
            }
        }
        return sum;
    }

    public static void main(String args[]) {
        RomanToIntegerConverter obj = new RomanToIntegerConverter();
        String inputRoman = "LX";
        System.out.println("The Integer value of "
                + "given Roman number is: " + obj.romanToInt(inputRoman));
    }
}
```

C. Check if the input is pangram or not. (Pangram is a sentence that contains all the alphabets from a-z)

Solution :

```
class Pangram{


    static boolean isPangram(String str) {
        String strLower=str.toLowerCase();

        int[] freq=new int[26];
```

```
        for(char ch:strLower.toCharArray()) {
             if (ch >= 97 && ch <= 122) {
                    freq[ch - 'a']++;
                }

        }

        for(int count:freq) {
            //System.out.println((char)i++ +":"+count);
            if(count==0) {
                return false;
            }
        }

        return true;

    }

    public static void main(String[] args) {
        String str="The quick brown  fox jumps over the lazy dog";

        boolean output=isPangram(str);
        if(output){
            System.out.println("It is Pangram");
        }
        else{
            System.out.println("not Pangram");
        }
    }
}
```

Javascript:

A. Take a sentence as an input and reverse every word in that sentence. a. Example - This is a sunny day > shiT si a ynnus yad.

Solution:

```
let sentence = "This is a sunny day";

let words = sentence.split(" ");

for (let i = 0; i < words.length; i++) {
```

```
    let low = 0;
    let high = words[i].length - 1;
    let chars = words[i].split('');

    while (low < high) {
        [chars[low], chars[high]] = [chars[high], chars[low]];
        low++;
        high--;
    }

    words[i] = chars.join('');
}

let reversedSentence = words.join(' ');

console.log(reversedSentence);
```

B. Perform sorting of an array in descending order.
Solution:

```
let arr = [11, 22, 33, 44, 66, 55, 99, 77,127];
let max;

for (let i = 0; i < arr.length; i++) {
    max = i;
    for (let j = i + 1; j < arr.length; j++) {
        if (arr[j] > arr[max]) {
            max = j;
        }
    }

    [arr[i], arr[max]] = [arr[max], arr[i]];
}

console.log(arr);
```

HTML:

A. Create a basic calculator using HTML, CSS, and JavaScript with the functionality of add, subtract, multiply and divide. Use the following picture for reference.

```
<!DOCTYPE html>

<html lang="en">

<head>
    <style>
        * {
            padding: 0;
            margin: 0;
            box-sizing: border-box;
            font-family: 'poppins', sans-serif;
        }

        body {
            height: 100vh;
            width: 100vw;
            background-color: #495250;
            display: flex;
            justify-content: center;
            align-items: center;
        }

        .container {
            height: 500px;
            width: 400px;
            background-color: white;
            display: grid;
            grid-template-columns: 1fr 1fr 1fr 1fr;
            grid-template-rows: 1fr 1fr 1fr 1fr 1fr;
            grid-template-areas: "output output output AC" "nine eight seven
add" "six five four sub" "three two one divi"
                "decimal zero equals mul";
            text-align: center;
            color: white;
            font: small-caps 24px/1 sans-serif;
        }

        .output {
            grid-area: output;

            width: 88%;
            position: relative;
            height: 80px;
            top: 5px;
            text-align: right;
            padding: 3px 6px;
            outline: none;
            font-size: 40px;
```

```
        display: flex;
        align-items: center;
        margin: auto;

        color: black;
    }

    .allclear {
        grid-area: AC;
        background-color: #14938a;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .nine {
        grid-area: nine;
        background-color: black;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .eight {
        grid-area: eight;
        background-color: black;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .seven {
        grid-area: seven;
        background-color: black;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .add {
        grid-area: add;
        background-color: #787474;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .six {
```

```
        grid-area: six;
        background-color: black;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .five {
        grid-area: five;
        background-color: black;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .four {
        grid-area: four;
        background-color: black;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .sub {
        grid-area: sub;
        background-color: #787474;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .three {
        grid-area: three;
        background-color: black;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .two {
        grid-area: two;
        background-color: black;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    .one {
```

```
            grid-area: one;
            background-color: black;
            display: flex;
            justify-content: center;
            align-items: center;
        }

        .divi {
            grid-area: divi;
            background-color: #787474;
            display: flex;
            justify-content: center;
            align-items: center;
        }

        .decimal {
            grid-area: decimal;
            background-color: black;
            display: flex;
            justify-content: center;
            align-items: center;
        }

        .zero {
            grid-area: zero;
            background-color: black;
            display: flex;
            justify-content: center;
            align-items: center;
        }

        .equals {
            grid-area: equals;
            background-color: black;display: flex;
            justify-content: center;
            align-items: center;

        }


        .mul {
            grid-area: mul;
            background-color: #787474;
            display: flex;
            justify-content: center;
            align-items: center;
        }
    </style>
```

```
    <title>Calculator</title>
</head>

<body>

    <div class="container">
        <div class="output" id='res'>

        </div>
        <div class="allclear" onclick="Clear()">AC</div>

        <div class="nine" onclick="Solve('9')">9</div>
        <div class="eight" onclick="Solve('8')">8</div>
        <div class="seven" onclick="Solve('7')">7</div>
        <div class="add" onclick="Solve('+')">+</div>
        <div class="one" onclick="Solve('1')">1</div>
        <div class="two" onclick="Solve('2')">2</div>
        <div class="three" onclick="Solve('3')">3</div>
        <div class="four" onclick="Solve('4')">4</div>
        <div class="five" onclick="Solve('5')">5</div>
        <div class="six" onclick="Solve('6')">6</div>
        <div class="zero" onclick="Solve('0')">0</div>
        <div class="equals" onclick="Result()">=</div>
        <div class="decimal" onclick="Solve('.')">.</div>
        <div class="sub" onclick="Solve('-')">-</div>
        <div class="divi" onclick="Solve('/')">÷</div>
        <div class="mul" onclick="Solve('*')">x</div>
    </div>

    <script>
        function Solve(val) {
            var v = document.getElementById('res');
            v.innerHTML += val;
        }

        function Result() {
            var num1 = document.getElementById('res').innerHTML;
            var num2 = eval(num1);
            document.getElementById('res').innerHTML = num2;
        }

        function Clear() {
            var inp = document.getElementById('res');
            inp.innerHTML = '';
        }
    </script>
```

```
</body>

</html>
```

B. Create a survey form with Fields; First Name, Last Name, Date of Birth, Country (dropdown), Gender (checkbox), Profession, email, and mobile number. All the input fields are necessary to submit the form. Create two buttons Submit and Reset. Reset will reset the form while on clicking on submit, first it will check all the fields and necessary validations and then a popup will appear displaying all the selected values with label in front of it. On closing the popup, form should reset all the values. Use the following for reference.
Solution:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
    <style>

        @import
url('https://fonts.googleapis.com/css2?family=AR+One+Sans&family=Open+Sans&dis
play=swap');

      * {
          padding: 0;
          margin: 0;
          box-sizing: border-box;
          font-family: 'AR One Sans', sans-serif;
          font-family: 'Open Sans', sans-serif;
          font-size: small;


      }
      body {
          background-color: rgba(0, 140, 255, 0.949);
          display: flex;
          flex-direction: column;
          justify-content: center;
          align-items: center;
```

```
        height: 100vh;
    }
    h1 {
        position: relative;
        top: -30px;
        font-size: 50px;
        color: white;
    }
    .container {
        height: 550px;
        width: 700px;
        background-color: white;
        box-shadow: 0 0px 15px rgba(0, 0, 0, 0.9);
        padding: 35px 30px;

    }
    .namEmail {
        display: flex;
        gap: 40px;
    }
    #Name, #email {
        width: 100%;
       padding: 10PX 70PX;
        margin-top: 10px;
        text-align: left;
        border: 2PX solid black;
    }
    label {
        padding: 10px;
    }
    p {
        padding-top: 20px;
    }
    .radiogroup {
        margin-top: 15px;
    }
    #suggestion {
        margin-top: 15px;
        padding: 40px 37%;
        border: 2PX solid black;

    }
    button {
        margin-top: 20px;
        padding: 10px 50px;
        background-color: rgba(0, 140, 255, 0.949);
        color: white;
        border: none;
```

```
          font-size: 15px;
      }
  </style>
</head>
<body>

    <h1>Customer Survey Form</h1>

    <div class="container">
        <form id="surveyForm" onsubmit="submitForm(); return false;">
            <div class="namEmail">
                <div class="column">
                    <label for="Name">Name:</label>
                    <br>
                    <input type="text" id="Name" required>
                </div>
                <div class="column">
                    <label for="email">Email:</label>
                    <br>
                    <input type="email" id="email" required>
                </div>
            </div>
            <p>Is this your first time You are using our product &
services?</p>
            <div class="radiogroup">
              <input type="radio" name="firstTime">
              <label>Yes</label>
              <input type="radio" name="firstTime">
              <label>No</label>
            </div>
            <p>Would you suggest to your friend and colleague?</p>
            <div class="radiogroup">
              <input type="radio" name="suggestFriend">
              <label>Yes</label>
              <input type="radio" name="suggestFriend">
              <label>No</label>
            </div>
            <p>How Satisfied are you with our company overall?</p>
            <div class="radiogroup">
              <input type="radio" name="satisfaction">
              <label>Satisfied</label>
              <input type="radio" name="satisfaction">
              <label>Undecided</label>
              <input type="radio" name="satisfaction">
              <label>Unsatisfied</label>
            </div>
            <p>Do you have Suggestions to improve our services?</p>
            <input type="text" id="suggestion" text-align="left">
```

```
            <button type="submit">SUBMIT</button>
            <button type="reset">RESET</button>
        </form>
    </div>

    <script>
      function submitForm() {
        const firstName = document.getElementById('Name').value;
        const email = document.getElementById('email').value;
        const firstTime =
document.querySelector('input[name="firstTime"]:checked') ? true : false;
        const suggestFriend =
document.querySelector('input[name="suggestFriend"]:checked') ? true : false;
        const satisfaction =
document.querySelector('input[name="satisfaction"]:checked') ? true : false;
        const suggestion = document.getElementById('suggestion').value;


        if (!firstName || !email || firstTime === undefined || suggestFriend
=== undefined || satisfaction === undefined || !suggestion) {
          alert('Please fill in all the required fields.');
          return;
        }


        const message = `First Name: ${firstName}\nEmail: ${email}\nFirst Time
User: ${firstTime ? 'Yes' : 'No'}\nWould Suggest to Friend: ${suggestFriend ?
'Yes' : 'No'}\nSatisfaction: ${satisfaction ? 'Satisfied' :
'Unsatisfied'}\nSuggestions: ${suggestion}`;
        alert(message);


        document.getElementById('surveyForm').reset();
      }
    </script>
</body>
</html>
```