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

```
import java.util.*;
import java.util.Random;

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
         int size = scanner.nextInt();
         int[] array = new int[size];
         for (int i = 0; i < size; i++) {
            array[i] = scanner.nextInt();
        }
        shuffleArray(array);
        System.out.println("Shuffled Array: " + Arrays.toString(array));
    }

    private static void shuffleArray(int[] array) {
        int n = array.length;
        Random random = new Random();
        for (int i = n - 1; i > 0; i--) {
            int j = random.nextInt(i + 1);
            int temp = array[i];
            array[i] = array[j];
            array[j] = temp;
        }
    }
}
```

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

```
import java.util.HashMap;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
         String romanNumeral = scanner.nextLine().toUpperCase();
        int result = romanToInt(romanNumeral);
        System.out.println("Integer representation: " + result);

        scanner.close();
    }
```

```
    public static int romanToInt(String s) {
        HashMap<Character, Integer> romanMap = new HashMap<>();
        romanMap.put('I', 1);
        romanMap.put('V', 5);
        romanMap.put('X', 10);
        romanMap.put('L', 50);
        romanMap.put('C', 100);
        romanMap.put('D', 500);
        romanMap.put('M', 1000);

        int result = 0;
        int prevValue = 0;

        for (int i = s.length() - 1; i >= 0; i--) {
            int currValue = romanMap.get(s.charAt(i));
            if (currValue < prevValue) {
                result -= currValue;
            } else {
                result += currValue;
            }
            prevValue = currValue;
        }

        return result;
    }
}
```

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

```
import java.util.HashSet;
import java.util.Scanner;

public class Main {
  public static boolean checkIfPangram(String sentence) {
        HashSet<Character> set = new HashSet<>();
        for (char c : sentence.toCharArray()) {
            if (Character.isLetter(c)) {
                set.add(c);
            }
        }
```

```
        return set.size() == 26;
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
         String sentence = scanner.nextLine().toLowerCase();
        boolean isPangram = checkIfPangram(sentence);
        if (isPangram) {
            System.out.println("The input is a pangram.");
        } else {
            System.out.println("The input is not a pangram.");
        }

        scanner.close();
    }

  }
```

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.

```
function reverseWords(sentence) {
     let words = sentence.split(' ');
    let reversedWords = words.map(word => {
            return word.split('').reverse().join('');
    });
    let reversedSentence = reversedWords.join(' ');
    return reversedSentence;
}
let inputSentence = "This is a sunny day";
let reversedSentence = reverseWords(inputSentence);
console.log("Reversed Sentence: " + reversedSentence);
```

B. Perform sorting of an array in descending order.

```
function bubbleSortDescending(arr) {
    let len = arr.length;
    let swapped;
    do {
        swapped = false;
        for (let i = 0; i < len - 1; i++) {
            if (arr[i] < arr[i + 1]) {
                let temp = arr[i];
                arr[i] = arr[i + 1];
```

```
            arr[i + 1] = temp;
            swapped = true;
        }
    }
  } while (swapped);
  return arr;
}
let inputArray = [5, 2, 8, 1, 3];
let sortedArray = bubbleSortDescending(inputArray);
console.log("Sorted Array in Descending Order: " + sortedArray.join(', '));
```

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.

HTML File

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="styles.css">
  <title>Basic Calculator</title>
</head>

<body>
  <div class="calculator">
    <div class="screen">
      <input type="text" id="display" disabled>
    </div>
    <div class="buttons">
      <button onclick="appendToDisplay('9')">9</button>
      <button onclick="appendToDisplay('8')">8</button>
      <button onclick="appendToDisplay('7')">7</button>
      <button onclick="appendToDisplay('')">+</button>
      <button onclick="appendToDisplay('4')">4</button>
      <button onclick="appendToDisplay('5')">5</button>
      <button onclick="appendToDisplay('6')">6</button>
      <button onclick="appendToDisplay('-')">-</button>
      <button onclick="appendToDisplay('1')">1</button>
      <button onclick="appendToDisplay('2')">2</button>
      <button onclick="appendToDisplay('3')">3</button>
      <button onclick="appendToDisplay('/')">/</button>
      <button onclick="appendToDisplay('0')">0</button>
```

```
            <button onclick="clearDisplay()">C</button>
            <button onclick="calculateResult()">=</button>
            <button onclick="appendToDisplay('*')">*</button>
        </div>
    </div>
    <script src="script.js"></script>
</body>

</html>
```

CSSFile

```
body {
    display: flex;
    justify-content: center;
    align-items: center;
    height: 100vh;
    margin: 0;
}

.calculator {
    width: 250px;
    background-color: #f2f2f2;
    border: 1px solid #ccc;
    border-radius: 5px;
    padding: 20px;
    box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
}

.screen {
    margin-bottom: 10px;
}

input[type="text"] {
    width: 100%;
    padding: 10px;
    font-size: 20px;
    text-align: right;
}

.buttons {
    display: grid;
    grid-template-columns: repeat(4, 1fr);
    gap: 10px;
```

```
}

button {
    padding: 15px;
    font-size: 18px;
    border: none;
    border-radius: 5px;
    cursor: pointer;
    background-color: #4caf50;
    color: white;
    transition: background-color 0.3s;
}

button:hover {
    background-color: #45a049;
}
```

JavaScript File

```
let display = document.getElementById('display');

function appendToDisplay(value) {
    display.value += value;
}

function clearDisplay() {
    display.value = '';
}

function calculateResult() {
    try {
        display.value = eval(display.value);
    } catch (error) {
        display.value = 'Error';
    }
}
```

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 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 the label in front of it. On closing the popup, the form should reset all the values. Use the following for reference

HTML File

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="styles.css">
    <title>Survey Form</title>
</head>

<body>
    <div class="form-container">
        <form onsubmit="return validateForm()" id="surveyForm">
            <div class="form-group">
                <label for="firstName">First Name:</label>
                <input type="text" id="firstName" required>
            </div>
            <div class="form-group">
                <label for="lastName">Last Name:</label>
                <input type="text" id="lastName" required>
            </div>
            <div class="form-group">
                <label for="dob">Date of Birth:</label>
                <input type="date" id="dob" required>
            </div>
            <div class="form-group">
                <label for="country">Country:</label>
                <select id="country" required>
                    <option value="">Select Country</option>
                    <option value="USA">USA</option>
                    <option value="Canada">Canada</option>
                    <option value="UK">UK</option>
                    <!-- Add more countries as needed -->
                </select>
            </div>
            <div class="form-group">
                <label>Gender:</label>
                <input type="checkbox" id="male"> <label for="male">Male</label>
                <input type="checkbox" id="female"> <label for="female">Female</label>
            </div>
            <div class="form-group">
```

```
            <label for="profession">Profession:</label>
            <input type="text" id="profession" required>
        </div>
        <div class="form-group">
            <label for="email">Email:</label>
            <input type="email" id="email" required>
        </div>
        <div class="form-group">
            <label for="mobile">Mobile Number:</label>
            <input type="tel" id="mobile" required>
        </div>
        <div class="form-group">
            <button type="submit">Submit</button>
            <button type="button" onclick="resetForm()">Reset</button>
        </div>
    </form>
</div>

<div class="popup" id="popup">
    <div class="popup-content">
        <span class="close" onclick="closePopup()">&times;</span>
        <h2>Survey Form Submission</h2>
        <div id="popup-data"></div>
    </div>
</div>

<script src="script.js"></script>
</body>

</html>
```

CSSFile

```
body {
    display: flex;
    justify-content: center;
    align-items: center;
    height: 100vh;
    margin: 0;
    font-family: Arial, sans-serif;
}

.form-container {
    width: 300px;
```

```
    padding: 20px;
    border: 1px solid #ccc;
    border-radius: 5px;
}

.form-group {
    margin-bottom: 15px;
}

.form-group label {
    display: block;
    margin-bottom: 5px;
}

.form-group input[type="text"],
.form-group input[type="date"],
.form-group input[type="email"],
.form-group input[type="tel"],
.form-group select {
    width: calc(100% - 10px);
    padding: 5px;
    font-size: 16px;
}

.form-group button {
    padding: 10px 20px;
    font-size: 16px;
    background-color: #4caf50;
    color: white;
    border: none;
    cursor: pointer;
    margin-top: 10px;
}

.popup {
    display: none;
    position: fixed;
    top: 0;
    left: 0;
    width: 100%;
    height: 100%;
    background-color: rgba(0, 0, 0, 0.5);
    justify-content: center;
    align-items: center;
```

```
}

.popup-content {
    background-color: white;
    padding: 20px;
    border-radius: 5px;
    text-align: center;
}

.close {
    position: absolute;
    top: 10px;
    right: 10px;
    cursor: pointer;
    font-size: 20px;
    color: #888;
}
```

JavaScript File

```
function validateForm() {
    var firstName = document.getElementById("firstName").value;
    var lastName = document.getElementById("lastName").value;
    var dob = document.getElementById("dob").value;
    var country = document.getElementById("country").value;
    var maleChecked = document.getElementById("male").checked;
    var femaleChecked = document.getElementById("female").checked;
    var profession = document.getElementById("profession").value;
    var email = document.getElementById("email").value;
    var mobile = document.getElementById("mobile").value;

    if (!firstName || !lastName || !dob || !country || (!maleChecked && !femaleChecked) ||
!profession || !email || !mobile) {
        alert("All fields are required!");
        return false;
    }

    var gender = maleChecked ? "Male" : "Female";
    var popupData = `
        <p><strong>First Name:</strong> ${firstName}</p>
        <p><strong>Last Name:</strong> ${lastName}</p>
        <p><strong>Date of Birth:</strong> ${dob}</p>
        <p><strong>Country:</strong> ${country}</p>
        <p><strong>Gender:</strong> ${gender}</p>
```

```
        <p><strong>Profession:</strong> ${profession}</p>
        <p><strong>Email:</strong> ${email}</p>
        <p><strong>Mobile Number:</strong> ${mobile}</p>
    `;

    document.getElementById("popup-data").innerHTML = popupData;
    document.getElementById("popup").style.display = "flex";
    return false;
}

function resetForm() {
    document.getElementById("surveyForm").reset();
}

function closePopup() {
    document.getElementById("popup").style.display = "none";
}
```