Question

Write a Java program to sort an array of positive integers of an given array, in the sorted array the value of the first element should be maximum, second value should be minimum value, third should be second maximum, fourth second be second minimum and so on.

Code

```java
import java.util.Scanner;
import java.util.Arrays;
import java.util.Collections;

public class AlternateOrder {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);

        System.out.print("Enter number of elements : ");
        int items = handler.nextInt();
        int data[] = new int[items];
        System.out.print("Enter " + items + " values : ");

        for (int i = 0; i < items; i++) {
            data[i] = handler.nextInt();
        }

        Collections.sort(Arrays.asList(data), Collections.reverseOrder());

        int[] finalArr = new int[data.length];
        for (int i = 0; i < data.length; i += 2) {
            finalArr[i] = data[i];
            finalArr[i + 1] = data[data.length - i - 1];
        }

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

Output

Question

Write a Java program to separate even and odd numbers of an given array of integers. Put all even numbers first, and then odd numbers.

Code

```java
import java.util.Scanner;

public class OddEvenSeparator {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.print("Enter number of elements : ");
        int n = handler.nextInt();
        int a[] = new int[n];
        int b[] = new int[n];
        int odd = n - 1;
        int even = 0;

        System.out.print("Enter elements of array : ");
        for (int i = 0; i < n; i++) {
            a[i] = handler.nextInt();
        }

        for (int i = 0; i < n; i++) {
            if (a[i] % 2 == 0) {
                b[even] = a[i];
                even++;
            } else {
                b[odd] = a[i];
                odd--;
            }
        }
```

```
            }

            for (int i = 0; i < n; i++) {
                System.out.print(b[i] + " ");
            }
        }
    }
}
```

Output

Question

Java program generates random numbers within the provided range.

Code

```java
import java.util.Scanner;
import java.util.Random;

public class RandomNumbersInGivenRange {
    public static void main(String args[]) {
        Random random = new Random();
        Scanner handler = new Scanner(System.in);
        System.out.print("Enter max range : ");
        int maxRange = handler.nextInt();
        for (int i = 1; i <= 10; i++) {
            System.out.println("> " + random.nextInt(maxRange));
        }
    }
}
```

Output

Question

Write a Java Program to generate the random number between the ranges.

Code

```java
import java.util.Scanner;

public class RandomNumberBetweenGivenRange {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.print("Enter starting range : ");

        int lowerRange = handler.nextInt();
        System.out.print("Enter final range : ");
        int upperRange = handler.nextInt();
        int randomNumber = lowerRange + (int) (Math.random() * ((upperRange
- lowerRange) + 1));
        System.out.println("Random number between given range : " +
randomNumber);
    }
}
```

Output

Question

Java program to reverse a number.

Code

```java
import java.util.Scanner;

public class ReverseNumber {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        int temp;
        int number;
        int number2 = 0;
        System.out.print("Enter a number : ");
        number = handler.nextInt();

        while (number != 0) {
            temp = number % 10;
            number2 = number2 * 10 + temp;
            number = number / 10;
        }
        System.out.println("Reversed Number is " + number2);
    }
}
```

Output

Question

Write a Java program to convert a binary number to decimal number and to decimal number to binary number

Code

```java
import java.util.Scanner;

public class BaseConversion {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.print("Enter binary number : ");
        long number1 = handler.nextLong();
        int decimal = convertBinaryToDecimal(number1);
        System.out.printf("%d in binary = %d in decimal", number1,
decimal);

        System.out.print("\nEnter Decimal number : ");
        int number2 = handler.nextInt();
        long binary = convertDecimalToBinary(number2);
        System.out.printf("%d in decimal = %d in binary", number2, binary);
        System.out.println("");
    }

    public static int convertBinaryToDecimal(long num) {
        int decimalNumber = 0, i = 0;
        long remainder;
        while (num != 0) {
            remainder = num % 10;
            num = num / 10;
            decimalNumber += remainder * Math.pow(2, i);
            ++i;
        }
        return decimalNumber;
    }

    public static long convertDecimalToBinary(int n) {
        long binaryNumber = 0;
        int remainder, i = 1;

        while (n != 0) {
            remainder = n % 2;
            n = n / 2;
            binaryNumber += remainder * i;
            i = i * 10;
        }
        return binaryNumber;
    }
}
```

Output

Question

Write a Java program to create and display unique three-digit number using 1, 2, 3, 4. Also count how many three-digit numbers are there.

Code

```java
public class UniqueThreeDigits {
    public static void main(String[] args) {
        int temp = 0;
        for (int i = 1; i <= 4; i++) {
            for (int j = 1; j <= 4; j++) {
                for (int k = 1; k <= 4; k++) {
                    if (k != i && k != j && i != j) {
                        temp++;
                        System.out.println(i + "" + j + "" + k);
                    }
                }
            }
        }
        System.out.println("Total number of the three digit number is " +
temp);
    }
}
```

Output

```
→ da2.part2 git:(19BCE2669) ✗ javac UniqueThreeDigits.java
→ da2.part2 git:(19BCE2669) ✗ java UniqueThreeDigits
123
124
132
134
142
143
213
214
231
234
241
243
312
314
321
324
341
342
412
413
421
423
431
432
Total number of the three digit number is 24
→ da2.part2 git:(19BCE2669) ✗
```

Question

Write a Java program that accepts an integer (n) and computes the value of n+nn+nnn.

Code

```java
import java.util.Scanner;

public class FormulaQuestion {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.print("Enter n to calculate n + nn + nnn : ");
        int n = handler.nextInt();
        System.out.println("> " + (n + n * n + n * n * n));

    }
}
```

Output

Question

Write a program to display system time

Code

```java
import java.text.SimpleDateFormat;
import java.util.Calendar;
import java.util.TimeZone;

public class DisplaySystemTime {
    public static void main(String args[]) {
        System.out.println("Displaying Current Time");
        SimpleDateFormat format = new SimpleDateFormat("yyyy/MM/dd
HH:mm:ss");

format.setCalendar(Calendar.getInstance(TimeZone.getTimeZone("IST")));

        System.out.println("Now: " +
format.format(System.currentTimeMillis()));
    }
}
```

Output

Question

Write a Java program to calculate the sum of two integers and return true if the sum is equal to a third integer.

Code

```java
import java.util.Scanner;

public class SumOfTwoEqualToThird {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.println("Enter three Numbers :");
        System.out.print("Enter first Number : ");
        int first = handler.nextInt();
        System.out.print("Enter second Number : ");
        int second = handler.nextInt();
        System.out.print("Enter third Number : ");
        int third = handler.nextInt();

        if (first + second == third || second + third == first || third +
first == second) {
            System.out.println("Yes");
        } else {
            System.out.println("No");
        }
    }
}
```

Output

Question

Write a Java program that accepts three integers from the user and return true if the second number is greater than first number and third number is greater than second number. If "abc" is true second number does not need to be greater than first number.

Code

```java
import java.util.Scanner;

public class NumberOrder {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.println("Enter three Numbers :");
        System.out.print("Enter first Number : ");
        int first = handler.nextInt();
        System.out.print("Enter second Number : ");
        int second = handler.nextInt();
        System.out.print("Enter third Number : ");
        int third = handler.nextInt();

        System.out.println("The result is " + (first < second && second <
third));

    }
}
```

Output

Question

Write a Java program to test if the first and the last element of an array of integers are same. The length of the array must be greater than or equal to 2. Test Data: array = 50, -20, 0, 30, 40, 60, 10 Sample

Output: False

Code

```java
import java.util.Scanner;

public class FirstAndLastOfTwoArr {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.print("Enter number of elements in array 1 : ");
        int items1 = handler.nextInt();
        int data1[] = new int[items1];
        System.out.println("Enter " + items1 + " values : ");

        for (int i = 0; i < items1; i++) {
            data1[i] = handler.nextInt();
        }

        System.out.print("Enter number of elements in array 2 : ");
        int items = handler.nextInt();
        int data[] = new int[items];
        System.out.println("Enter " + items + " values : ");

        for (int i = 0; i < items; i++) {
            data[i] = handler.nextInt();
        }

        System.out.println("Starting elements of both array are same: " +
(data[0] == data1[0]));
        System.out.println("Last elements of both array are same: " +
(data[items - 1] == data1[items1 - 1]));
        System.out.println("First element of first array is equal to last
element of second array : "
                + (data1[0] == data[items - 1]));
        System.out.println("Last element of first array is equal to first
element of second array : "
                + (data1[items1 - 1] == data[0]));

    }
}
```

Output

```
                     System.out.println("Enter " + items1 + " values : ");
  ⊗  —    ⊡ yash@hephaestus: ~/Desktop/files/works/foam-notes/college/assignments/java/da2.part2
  ▪                yash@hephaestus: ~/Desktop/files/works/foam-notes/college/assignments/java/da2.part2
→ da2.part2 git:(19BCE2669) ✗ javac FirstAndLastOfTwoArr.java
→ da2.part2 git:(19BCE2669) ✗ java FirstAndLastOfTwoArr
Enter number of elements in array 1 : 5
Enter 5 values :
1 2 3 4 5
Enter number of elements in array 2 : 10
Enter 10 values :
1 2 3 4 5 6 7 8 9 5
Starting elements of both array are same: true
Last elements of both array are same: true
First element of first array is equal to last element of second array : false
Last element of first array is equal to first element of second array : false
→ da2.part2 git:(19BCE2669) ✗ █
```

Question

Write a Java program to create a new array of length 2 from two arrays of integers with three elements and the new array will contain the first and last elements from the two arrays Test Data:

```
array1 = 50, -20, 0
array2 = 5, -50, 10
```

Sample Output:

```
Array1: [50, -20, 0]
Array2: [5, -50, 10]
New Array: [50, 10]
```

Code

```java
import java.util.Scanner;

public class NewArrContainingFirstAndLast {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.print("Enter number of elements in array 1 : ");
        int items1 = handler.nextInt();
        int data1[] = new int[items1];
        System.out.println("Enter " + items1 + " values : ");

        for (int i = 0; i < items1; i++) {
            data1[i] = handler.nextInt();
        }

        System.out.print("Enter number of elements in array 2 : ");
        int items = handler.nextInt();
        int data[] = new int[items];
```

```java
        System.out.println("Enter " + items + " values : ");

        for (int i = 0; i < items; i++) {
            data[i] = handler.nextInt();
        }

        int finalArr[] = { data1[0], data[items - 1] };
        System.out.println("First element of new arr : " + finalArr[0]);
        System.out.println("Second element of new arr : " + finalArr[1]);


    }
}
```

Output

Question

Write a Java program to test that a given array of integers of length 2 contains a 4 or a 7.

Code

```java
import java.util.Scanner;

public class ContainsTwoOrSeven {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        int data[] = new int[2];
        System.out.print("Enter first number : ");
        int first = handler.nextInt();
        System.out.print("Enter second number : ");
        int second = handler.nextInt();

        data[0] = first;
        data[1] = second;

        if (data[0] == 4 || data[0] == 7 || data[1] == 4 || data[1] == 7) {
            System.out.println("True");
        } else {
```

```
                    System.out.println("False");
            }
        }
    }
```

Output

```
 yash@hephaestus: ~/Desktop/files/works/foam-notes/college/assignments/java/da2.part2
→ da2.part2 git:(19BCE2669) ✗ javac ContainsTwoOrSeven.java
→ da2.part2 git:(19BCE2669) ✗ java ContainsTwoOrSeven
Enter first number : 4
Enter second number : 10
True
→ da2.part2 git:(19BCE2669) ✗ java ContainsTwoOrSeven
Enter first number : 10
Enter second number : 7
True
→ da2.part2 git:(19BCE2669) ✗ java ContainsTwoOrSeven
Enter first number : 4
Enter second number : 7
True
→ da2.part2 git:(19BCE2669) ✗ java ContainsTwoOrSeven
Enter first number : 0 1
Enter second number : False
→ da2.part2 git:(19BCE2669) ✗ █
```

Question

Write a Java program to rotate an array (length 3) of integers in left direction

Code

```java
import java.util.Scanner;

public class ArrayRotation {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        int[] a;
        int temp;
        a = new int[3];

        System.out.println("Enter three of array : ");
        for (int i = 0; i < 3; i++) {
            a[i] = handler.nextInt();
        }

        System.out.print("Original Array : [");
        for (int i = 0; i < 3; i++) {
            if (i != 2) {
                System.out.print(a[i] + ",");
            } else {
                System.out.println(a[i] + "]");
            }
        }
```

```
        }

        temp = a[0];
        for (int i = 0; i < 2; i++) {
            a[i] = a[i + 1];
        }
        a[2] = temp;
        System.out.print("Rotated Array : [");
        for (int i = 0; i < 3; i++) {
            if (i != 2) {
                System.out.print(a[i] + ",");
            } else {
                System.out.println(a[i] + "]");
            }
        }
    }
}
```

Output

```
                yash@hephaestus: ~/Desktop/files/works/foam-notes/college/assignments/java/da2.part2
→ da2.part2 git:(19BCE2669) ✗ javac ArrayRotation.java
→ da2.part2 git:(19BCE2669) ✗ java ArrayRotation
Enter three of array :
1 2 3
Original Array : [1,2,3]
Rotated Array : [2,3,1]
→ da2.part2 git:(19BCE2669) ✗ ▮
```

Question

Write a Java program to get the larger value between first and last element of an array (length 3) of integers .

Code

```java
import java.util.Scanner;

public class LargestValueOfArray {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        int items = 3;
        int data[] = new int[items];
        System.out.println("Enter " + items + " values : ");

        for (int i = 0; i < items; i++) {
            data[i] = handler.nextInt();
        }
```

```java
            if (data[0] > data[2]) {
                System.out.println(data[0] + " is greater than " + data[2]);
            } else {
                System.out.println(data[2] + " is greater than " + data[0]);
            }


        }
    }
```

Output

```
                yash@hephaestus: ~/Desktop/files/works/foam-notes/college/assignments/java/da2.part2
→ da2.part2 git:(19BCE2669) ✗ javac LargestValueOfArray.java
→ da2.part2 git:(19BCE2669) ✗ java LargestValueOfArray
Enter 3 values :
10 20 15
15 is greater than 10
→ da2.part2 git:(19BCE2669) ✗
```

Question

Write a Java program to swap the first and last elements of an array (length must be at least 1) and create a
new array.

Code

```java
import java.util.Scanner;

public class SwapFirstAndLast {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.print("Enter number of elements : ");
        int items = handler.nextInt();
        int data[] = new int[items];
        System.out.println("Enter " + items + " values : ");

        for (int i = 0; i < items; i++) {
            data[i] = handler.nextInt();
        }

        int newArray[] = new int[items];
        for (int i = 0; i < items; i += 1) {
            newArray[i] = data[i];
        }

        newArray[0] = data[items - 1];
        newArray[items - 1] = data[0];

        System.out.print("[");
```

```java
            for (int i : newArray) {
                System.out.print(i + " ");
            }
            System.out.println("]");
        }
    }
```

Output

Question

Write a Java program to find the largest element between first, last, and middle values from an array of integers (even length).

Code

```java
import java.util.Scanner;

public class FirstLastAndMiddle {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.print("Enter number of elements : ");
        int items = handler.nextInt();

        /** ensure only even length */
        while (items % 2 == 0) {
            System.out.println("Enter an odd length.");
            items = handler.nextInt();
        }

        int data[] = new int[items];
        System.out.println("Enter " + items + " values : ");

        for (int i = 0; i < items; i++) {
            data[i] = handler.nextInt();
        }

        int middle = data[items / 2];
        if (data[0] > middle) {
            if (data[0] > data[items - 1]) {
                System.out.println("> " + data[0] + " is largest.");
```

```java
            } else {
                System.out.println("> " + data[items - 1] + " is
    largest.");
            }
        } else {
            if (middle > data[items - 1]) {
                System.out.println("> " + middle + " is largest.");
            } else {
                System.out.println("> " + data[items - 1] + " is
    largest.");
            }
        }
    }
}
```

Output

Question

Write a Java program to multiply corresponding elements of two arrays of integers.

Code

```java
import java.util.Scanner;

public class MultiplyCorrespondingArray {
    public static void main(String args[]) {
        Scanner handler = new Scanner(System.in);
        System.out.print("Enter number of elements : ");
        int items = handler.nextInt();
        int data[] = new int[items];
        System.out.println("Enter " + items + " values : ");

        for (int i = 0; i < items; i++) {
            data[i] = handler.nextInt();
        }

        int data2[] = new int[items];
```

```java
        System.out.println("Enter values of second array : ");
        System.out.println("Enter " + items + " values : ");

        for (int i = 0; i < items; i++) {
            data2[i] = handler.nextInt();
        }

        for (int i = 0; i < data.length; i += 1) {
            System.out.println("> " + data[i] + " * " + data2[i] + " = " +
data[i] * data2[i]);
        }
    }
}
```

Output