

Question 1

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

```
/**
```

```
* Write a program that reads an integer value and prints the sum of all even  
* integers between 2 and the input value, inclusive. Print an error message if  
* the input value is less than 2. Prompt accordingly.
```

```
*/
```

```
public class Question1 {
```

```
    public static void main(String[] args) {
```

```
        Scanner sc = new Scanner(System.in);
```

```
        System.out.println("Enter a integer number: ");
```

```
        int N = sc.nextInt();
```

```
        if (N < 2) {
```

```
            System.out.println("ERROR: Number " + N + " is smaller than 2.");
```

```
        } else {
```

```
            int sumEven = 0;
```

```
            for(int i = 2; i <= N; i++) {
```

```
                if (i % 2 == 0) {
```

```
                    sumEven += i;
```

```
                }
```

```
            }
```

```
            System.out.println("SUM: " + sumEven);
```

```
        }
```

```
    }
```

```
}
```

Question 2

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

```
/**
```

```
 * Write a program that reads a string from the user and prints it one character
```

```
 * per line. *
```

```
 */
```

```
public class Question2 {
```

```
    public static void main(String[] args) {
```

```
        Scanner sc = new Scanner(System.in);
```

```
        System.out.print("Enter the sentence: ");
```

```
        String line = sc.nextLine();
```

```
        for (int i = 0; i < line.length(); i++) {
```

```
            System.out.println(line.charAt(i));
```

```
        }
```

```
    }
```

```
}
```

Question 3

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

```
/**
```

```
 * Print the following patterns. Create a separate program to produce each
```

```
 * pattern.
```

```
 *
```

```
 *
```

```
 */
```

```
public class Question3 {
```

```
    public static void main(String[] args) {
```

```
        // TODO Auto-generated method stub
```

```
        int num_stratix = 10;
```

```
        for (int i = 0; i < 10; i++) {
```

```
            for (int j = 0; j < num_stratix; j++) {
```

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

```
            }
```

```
            num_stratix--;
```

```
            System.out.println();
```

```
        }
```

```
        num_stratix = 1;
```

```
        for(int i = 0; i < 10; i++) {
```

```
            for(int j = 0; j < 10 - num_stratix; j++) {
```

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

```
            }
```

```
            for(int j = 0; j < num_stratix; j++) {
```

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

```
    }  
    num_stratix++;  
    System.out.println();  
}  
}  
}
```

Question 4

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

```
/**
```

```
 * Write a program that reads a string from the user, then determines and prints
```

```
 * how many of each lowercase vowels (a, e, i, o, and u) appear in the entire
```

```
 * string. Have a separate counter for each vowel. Also count and print the
```

```
 * number of nonvowel characters
```

```
 *
```

```
 *
```

```
 */
```

```
public class Question4 {
```

```
    public static void main(String[] args) {
```

```
        // TODO Auto-generated method stub
```

```
        Scanner sc = new Scanner(System.in);
```

```
        System.out.print("Enter a sentence: ");
```

```
        String line = sc.nextLine();
```

```
        int aCount = 0;
```

```
        int eCount = 0;
```

```
        int iCount = 0;
```

```
        int oCount = 0;
```

```
        int uCount = 0;
```

```
        for (int i = 0; i < line.length(); i++) {
```

```
            switch (line.charAt(i)) {
```

```
                case 'a':
```

```
                    aCount++;
```

```
                    break;
```

```
        case 'e':
            eCount++;
            break;
        case 'i':
            iCount++;
            break;
        case 'o':
            oCount++;
            break;
        case 'u':
            uCount++;
            break;
        default:
            break;
    }
}

System.out.println("Total we have " + (aCount + eCount + iCount + oCount + uCount) + "
lowercase vowels character");

System.out.println("a: " + aCount);
System.out.println("e: " + eCount);
System.out.println("i: " + iCount);
System.out.println("o: " + oCount);
System.out.println("u: " + uCount);
}
}
```

Question 5

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

```
/**
```

```
 * Write a program that reads an arbitrary number of integers that are in the  
 * range 0 to 50 inclusive and counts how many occurrences of each are entered.
```

```
 * Indicate the end of the input by a value outside of the range. After all
```

```
 * input has been processed., print all of the values (with the number of  
 * occurrences) that were entered one or more time.
```

```
 *
```

```
 *
```

```
 */
```

```
public class Question5 {
```

```
    public static void main(String[] args) {
```

```
        // TODO Auto-generated method stub
```

```
        int[] database = new int[51];
```

```
        Scanner sc = new Scanner(System.in);
```

```
        while(true) {
```

```
            System.out.print("Enter a number (0 to 50): " );
```

```
            int num = sc.nextInt();
```

```
            if(num < 0 || num > 50)
```

```
                break;
```

```
            // Store to databse
```

```
            database[num]++;
```

```
        }
```

```
        // Print the database
```

```
        for(int i = 0; i < 51; i++) {
```

```
    if(database[i] > 0) {  
        System.out.println("" + i + ": " + database[i]);  
    }  
}  
}  
}
```


Question 6

/**

- * Write a program that computes and prints the mean and standard deviation of a
- * list of integers x1 through xn. Assume that there will be no more than 50
- * input values and the maximal possible value is 100. Compute both the mean and
- * standard deviation as floating point values, using the following formulas
- *
- *
- */

public class Question6 {

 public static void main(String[] args) {

 }

}

//*****

// Statistics.java

//*****

public class Statistics {

 public static double mean(int[] numbers, int count) {

 //your code here.

 int sum = 0;

 for(int i = 0; i < count; i++) {

 sum += numbers[i];

 }

 return (double)sum/count;

 }

```

    public static double standardDeviation(int[] numbers, int count) {
//your code here.

        double sum = 0;

        double m = mean(numbers, count);

        for(int i = 0; i < count; i++) {
            sum += ((double)numbers[i] - m) * ((double)numbers[i] - m);
        }

        return Math.sqrt(sum / count);
    }
}

//*****

// StatisticsDriver.java

//*****

import java.util.Random;

public class StatisticsDriver {

    private static final int MAX_COUNT = 50, MAX_VALUE = 100;

//-----

// Demonstrates the mean and standard deviation methods.

//-----

    public static void main(String args[]) {
//your code here.

        int[] numbers = new int[MAX_COUNT];

        Random random = new Random();

```

```
for(int i = 0; i < MAX_COUNT; i++) {  
  
    numbers[i] = random.nextInt(MAX_VALUE);  
}  
System.out.println("MEAN: " + Statistics.mean(numbers, MAX_COUNT));  
System.out.println("Standard Deviation: " + Statistics.standardDeviation(numbers,  
MAX_COUNT));  
}  
}
```