

IRC\_SKCT\_Java2\_SB\_COD\_Classes&Objects

Test Summary

- No. of Sections: 1
- No. of Questions: 5
- Total Duration: 120 min

Section 1 - Coding

Section Summary

- No. of Questions: 5
- Duration: 120 min

Additional Instructions:

None

Q1. Java program to find the count of all digits of a number using class.  
In this program, we will read a positive integer number and then calculate the count of all digits using a class.

Input Format

The input consists of a number.

Output Format

The output prints the count of all digits in the number.

Sample Input

12345

Sample Output

Count of all digits: 5

Sample Input

22

Sample Output

Count of all digits: 2

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q2. Write a program to find the number of occurrences of a character in a string. Create a constructor with two parameters, pass the value from the main method to the constructor, and perform the mentioned task in the constructor and display it.

Input Format

Input to get a string in the first line and a character in the second line.

Output Format

Output the number of occurrences of a character in a string.

Sample Input

utter  
t

Sample Output

2

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q3. Create class money with two attributes:  
int rupee  
int paisa  
Include getters, setters, and constructors.  
Create the main class and initialize the values for the data members  
Get two amounts and print their sum.

Input Format

The input consists of two amounts.  
Rupee and Paisa are separated by a space.

Output Format

The output prints the total sum.  
Refer sample input and output for formatting specifications.

Sample Input

```
50 85
42 65
```

Sample Output

```
93.50
```

Sample Input

```
254 45
845 20
```

Sample Output

```
1099.65
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q4.

**A Multiplication Game**

John and Michael play the game of multiplication by multiplying an integer **p** by one of the numbers 2 to 9. John always starts with **p = 1** and multiply it by 1, and passes the result to Michael. Then, Michael multiplies the number by 2 and sends the result to John, then John multiplies by 3 and so on. Before a game starts, they draw an integer **N** and the winner is the one who first reaches **p ≥ n**.

Create a class that has two functions:

- 1) A function to perform the multiplication operation
- 2) The main()

Input Format

The input consists of the value of n.

Output Format

The output prints the n value and who won the game separated by a space.  
Refer the sample output for formatting specifications.

Sample Input

```
10
```

Sample Output

```
10 Michael wins
```

Sample Input

```
100
```

Sample Output

```
100 John wins
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q5.

**BO Classes**

We can use a BO class for computational purposes.

The Stall owners wanted to calculate the total cost of a particular ItemType for the given timeline. So add a feature in the application to calculate the total cost for the given timeline.

Create a class **ItemType** with the following attributes,

Attribute	Data Type
name	String
deposit	Double
costPerDay	Double

Add appropriate getter/setter, default and parameterized constructor.

**public ItemType(String name, Double deposit, Double costPerDay).**

Get the start date and end date (manipulate as Date object) from the stall owners to calculate rent for the particular ItemType.

Write a method **calculateCost** in **ItemTypeBO** class.

Method	Method Description
public Double calculateCost(Date startDate, Date endDate, ItemType type) throws	returns a Double which corresponds to the total cost.

Create a driver class Main to test the above classes.

**Note: Strictly adhere to the Object-Oriented Specifications given in the problem statement.**

**All class names, attribute names and method names should be the same as specified in the problem statement.**

Display only 1 digit after decimal while displaying cost.

Input date format is **dd/MM/yyyy**.

**Input Format**

First line of the input consists of a string  
Second and third line of the input consists of double.  
Fourth and fifth line consists of starting date and the ending date.

**Output Format**

Refer sample output.

**Sample Input**

Morsh  
1000.00  
50.00  
12/10/2018

**Sample Output**

Morsh  
1000.0  
50.0  
100.0

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Answer Key & Solution

Section 1 - Coding

Q1

Test Case

Input

Output

2147483647

Count of all digits: 10

Weightage - 15

Input

Output

222222888

Count of all digits: 9

Weightage - 15

Input

Output

77777777

Count of all digits: 8

Weightage - 15

Input

Output

1234567

Count of all digits: 7

Weightage - 15

Input

Output

654321

Count of all digits: 6

Weightage - 15

Input

Output

3214

Count of all digits: 4

Weightage - 15

Input

Output

12345

Count of all digits: 5

Weightage - 10

Sample Input

Sample Output

12345

Count of all digits: 5

Sample Input

Sample Output

22

Count of all digits: 2

Solution

```
import java.util.*;
class Main {
    public static void main(String[] args) {
        int count = 0, num;
        Scanner s = new Scanner(System.in);
        num = s.nextInt();
        while(num != 0)
        {
            num /= 10;
            ++count;
        }
        System.out.println("Count of all digits: " + count);
    }
}
```

Q2

Test Case

Input

Output

nuts  
s

1

Weightage - 20

Input

Output

range  
u

0

Weightage - 30

Input

Output

kettle  
e

2

Weightage - 20

Input	Output
runner n	2

Weightage - 20

Input	Output
meets e	2

Weightage - 10

Sample Input	Sample Output
utter t	2

Solution

```
import java.util.Scanner;
class Main{
Main(String s,char c){
int res = 0;
for (int i=0; i<s.length(); i++) {
if (s.charAt(i) == c)
res++;
}
System.out.print(res);

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

String str;

Scanner in=new Scanner(System.in);

str=in.nextLine();

char c;

c=in.next().charAt(0);

Main obj=new Main(str,c);

}
}
```

Q3 Test Case

Input	Output
854 96 2486 96	3341.92

Weightage - 25

InputOutput

8642 25 6428 60	15070.85
--------------------	----------

Weightage - 25

InputOutput

753 65 854 80	1608.45
------------------	---------

Weightage - 25

InputOutput

8564 25 24687 20	33251.45
---------------------	----------

Weightage - 25

Sample InputSample Output

50 85 42 65	93.50
----------------	-------

Sample InputSample Output

254 45 845 20	1099.65
------------------	---------

Solution

```
import java.io.*;
import java.util.*;
class money {
    int rupee;
    int paisa;
    public void setRupee(int r) {
        this.rupee = r;
    }
    public void setPaisa(int p) {
        this.paisa = p;
    }
    public int getRupee() {
        return rupee;
    }
    public int getPaisa() {
        return paisa;
    }
}
class Main {
```

```
public static void main(String [] args) {
    Scanner sc = new Scanner(System.in);
    money [] m = new money[2];
    int i;
    for(i=0;i<2;i++) {
        m[i] = new money();
        m[i].setRupee(sc.nextInt());
        m[i].setPaisa(sc.nextInt());
    }
    int r,p;
    r = m[0].getRupee()+m[1].getRupee();
    p = m[0].getPaisa()+m[1].getPaisa();
    if(p>99) {
        r +=1;
        p = p-100;
    }
    System.out.println(r+"."+p);
}
```

Q4

Test Case

Input

Output

3000

3000 John wins

Weightage - 20

Input

Output

5550

5550 Michael wins

Weightage - 20

Input

Output

40500

40500 John wins

Weightage - 20

Input

Output

750

750 John wins

Weightage - 20

Input

Output

200

200 Michael wins



Weightage - 20

Sample Input

Sample Output

10	10 Michael wins
----	-----------------

Sample Input

Sample Output

100	100 John wins
-----	---------------

Solution

```
import java.io.*;
import java.util.*;
class multiplicationGame {
    public static void game(int n) {
        int sum=1,i=2,count=1;
        while(sum<n && i<=9) {
            sum *= i;
            if(sum <n) {
                i++;
                count++;
            }
            else {
                break;
            }
        }
        if(count%2 !=0) {
            System.out.println(n+" Michael wins");
        }
        else {
            System.out.println(n+" John wins");
        }
    }
    public static void main (String [] args) {
        int n;
        Scanner sc = new Scanner(System.in);
        n= sc.nextInt();
        game(n);
    }
}
```

Q5

Test Case

Input

Output

Morsh 1000.00 50.00 12/10/2019	Morsh 1000.0 50.0 100.0
---	----------------------------------

Weightage - 20

Input

Output

Ankit 2000.00 35.00 08/08/2008	Ankit 2000.0 35.0 250.0
---	----------------------------------

Weightage - 20

Input

Output

Sharma 8000.00 60.00 22/11/1997	Sharma 8000.0 60.0 240.0
--	-----------------------------------

Weightage - 20

Input

Output

Williams 25000.00 70.00 01/01/2001	Williams 25000.0 70.0 2100.0
---	---------------------------------------

Weightage - 20

Input

Output

Lora 50000.00 80.00 14/02/2004	Lora 50000.0 80.0 560.0
---	----------------------------------

Weightage - 20

Sample Input

Sample Output

Morsh 1000.00 50.00 12/10/2018	Morsh 1000.0 50.0 100.0
---	----------------------------------

Solution

```
import java.io.*;
import java.text.DecimalFormat;
import java.text.ParseException;
import java.text.SimpleDateFormat;
import java.util.*;
class ItemType {
    public String name;
    public double deposit;
    public double costPerDay;
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
    public double getDeposit() {
        return deposit;
    }
    public void setDeposit(double deposit) {
        this.deposit = deposit;
    }
    public double getCostPerDay() {
```

```

        return costPerDay;
    }
    public void setCostPerDay(double costPerDay) {
        this.costPerDay = costPerDay;
    }
    public ItemType()
    {
        this.name=null;
        this.deposit=0;
        this.costPerDay=0;
    }
    public ItemType(String name, Double deposit, Double costPerDay){
        this.name=name;
        this.deposit=deposit;
        this.costPerDay=costPerDay;
        System.out.println(this.name);
        System.out.println(this.deposit);
        System.out.println(this.costPerDay);
    }
}
class ItemTypeBO {
    public Double calculateCost(Date start,Date end,ItemType typeIns){
        long diff = (start.getTime()-end.getTime())/86400000;
        double result = diff*typeIns.costPerDay;
        return result;
    }
}
class Main {
    public static void main(String [] args) throws ParseException {
ItemType i = new ItemType();
Scanner sc = new Scanner(System.in);
DecimalFormat dd = new DecimalFormat("0.0");
i.name = sc.nextLine();
i.deposit = Double.parseDouble(sc.nextLine());
i.costPerDay = Double.parseDouble(sc.nextLine());
String date1 = sc.nextLine();
String date2 = sc.nextLine();
ItemType i1 = new ItemType(i.name,i.deposit,i.costPerDay);
Date start = new SimpleDateFormat("dd/MM/yyyy").parse(date1);
Date end = new SimpleDateFormat("dd/MM/yyyy").parse(date2);
ItemTypeBO iBO = new ItemTypeBO();
double result=iBO.calculateCost(start, end, i1);
System.out.println(dd.format(Math.abs(result)));

    }
}

```