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### **Flexi Credit Course (JAVA Assignment 1)**

**Problem Statement-** Implement a menu-driven Java program (like fib or factorial) to implement these input methods in java (command line args, Scanner, BufferedReader, DataInputStream, Console )

**Code-**

```
import java.io.*;
import java.util.Scanner;

class Get_Factorial
{
    void fetch_fact(int n)
    {
        int fact = 1;
        for(int i=1; i<=n; i++)
        {
            fact = fact*i;
        }
        System.out.println("Factorial of "+n+" is: "+fact);
    }
}

public class Factorial
{
    public static void main(String[] args) throws IOException
    {
        Get_Factorial obj1 = new Get_Factorial();
        BufferedReader b = new BufferedReader(new InputStreamReader(System.in));

        //creating a menu
        int choice;
        System.out.println("Enter your choice: ");
        System.out.println("1. Command Line Arg");
        System.out.println("2. Scanner");
        System.out.println("3. BufferedReader");
        System.out.println("4. DataInputStream");
        System.out.println("5. Console");
        System.out.println("6. Exit");
        choice = Integer.parseInt(b.readLine());

        if(choice == 1)
        {
```

```

        obj1.fetch_fact(Integer.parseInt(args[0]));
    }
    else if(choice == 2)
    {
        Scanner myObj = new Scanner(System.in);
        System.out.print("Enter your number for scanner: ");
        int a = myObj.nextInt();
        obj1.fetch_fact(a);
        myObj.close();
    }
    else if(choice == 3)
    {
        BufferedReader a1 = new BufferedReader(new InputStreamReader(System.in));
        System.out.print("Enter your number for BufferedReader: ");
        String n = a1.readLine();
        int n1 = Integer.parseInt(n);
        obj1.fetch_fact(n1);
    }
    else if(choice == 4)
    {
        DataInputStream a2 = new DataInputStream(new FileInputStream("C:\\Users\\AK-
Lenovo\\Desktop\\JAVA\\Input.txt"));
        String s = a2.readLine();
        int n2 = Integer.parseInt(s);
        obj1.fetch_fact(n2);
        a2.close();
    }
    else if(choice == 5)
    {
        Console a3 = System.console();
        System.out.print("Enter your number for console: ");
        int n3 = Integer.parseInt(a3.readLine());
        obj1.fetch_fact(n3);
    }
    else if(choice == 6)
    {
        System.exit(0);
    }
    else
    {
        System.out.println("Invalid choice");
    }
}
}

```

#### Output-

```

Enter your choice:
1. Command Line Arg
2. Scanner
3. BufferedReader
4. DataInputStream
5. Console
6. Exit
5
Enter your number for console: 8
Factorial of 8 is: 40320

```

**Problem Statement-** Implement a simple menu driven calculator in java to implement add, sub, mul, div, sqrt, power, mean, variance. Implement a separate Calculator class to include all related function inside that class. (mean calculation : program reads numbers from the keyboard, summing them in the process until the user enters the string "end". It then stops input & displays the avg. of numbers)

**Code-**

```
import java.io.*;
import java.util.*;
public class Calculator {
    public static void main(String[] args) {
        Scanner reader = new Scanner(System.in);
        int m,k=0,gcd=1;

        System.out.print("Menu:\n1)add\n2)sub\n3)mul\n4)div\n5)sqrt\n6)power\n7)mean\n8)variance\n9)
        GCD\n");
        System.out.print("Enter choice: ");
        int i = reader.nextInt();
        double first,second;
        double result;
        switch(i)
        {
            case 1:
                System.out.print("Enter first number: ");
                first = reader.nextDouble();
                System.out.print("Enter second number: ");
                second = reader.nextDouble();
                result = first + second;
                System.out.printf("%.1f + %.1f = %.1f",
                    first,second, result);
                break;
            case 2:
                System.out.print("Enter first number: ");
                first = reader.nextDouble();
                System.out.print("Enter second number: ");
                second = reader.nextDouble();
                result = first - second;
                System.out.printf("%.1f - %.1f = %.1f",
                    first,second, result);
                break;
            case 3:
                System.out.print("Enter first number: ");
                first = reader.nextDouble();
                System.out.print("Enter second number: ");
                second = reader.nextDouble();
                result = first * second;
                System.out.printf("%.1f * %.1f = %.1f",
                    first,second, result);
                break;
```

case 4:

```
System.out.print("Enter first number: ");
first = reader.nextDouble();
System.out.print("Enter second number: ");
second = reader.nextDouble();
result = first / second;
System.out.printf("%.1f / %.1f = %.1f",
    first, second, result);
break;
```

case 5:

```
System.out.print("Enter second number: ");
second = reader.nextDouble();
result = Math.sqrt(second);
System.out.printf("Square root of %.1f = %.1f",
    second, result);
break;
```

case 6:

```
System.out.print("Enter first number: ");
first = reader.nextDouble();
System.out.print("Enter power: ");
int p = reader.nextInt();
result = Math.pow(first, p);
System.out.printf("Power %d of %.1f = %.1f", p, first,
    result);
break;
```

case 7:

```
Scanner sc = new Scanner(System.in);
String s = "";
int count=0;
int total=0;
double avg=0;
int n;
System.out.print("Please enter end to stop taking input: ");
while (true)
{
    String input = sc.nextLine();
    if(input.equals("end"))
        break;
    else
    {
        n = Integer.parseInt(input);
        count+=1;
        total += n;
        avg=total/n;
    }
}
```

```
System.out.println("Mean is "+avg);
```

case 8:

```
System.out.print("Enter how many numbers you want to enter: ");
int o = reader.nextInt();
int ar[]=new int[o];
for(int l=0;l<o;l++)
{
    ar[l] = reader.nextInt();
    k=k+ar[l];
}
int mean=k/o;
double sqDiff = 0;
for (int q = 0; q < o; q++)
    sqDiff += (ar[q] - mean) * (ar[q] - mean);
result=sqDiff/o;
System.out.printf("Variance = %.3f", result);
break;
```

case 9:

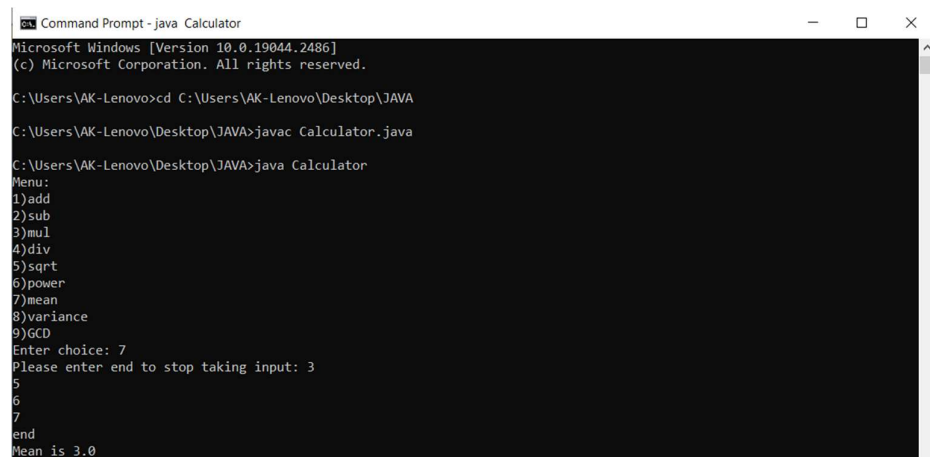
```
System.out.print("Enter first number: ");
int n1 = reader.nextInt();
System.out.print("Enter second number: ");
int n2 = reader.nextInt();
for(int h = 1; h <= n1 && h <= n2; ++h)
{
    if(n1 % h==0 && n2 % h==0)
        gcd = h;
}
System.out.printf("G.C.D of %d and %d is %d", n1,
    n2, gcd);
break;
```

default:

```
System.out.printf("Wrong choice");
return;
```

```
}
}
}
```

**Output-**



```
Command Prompt - java Calculator
Microsoft Windows [Version 10.0.19044.2486]
(c) Microsoft Corporation. All rights reserved.

C:\Users\AK-Lenovo>cd C:\Users\AK-Lenovo\Desktop\JAVA
C:\Users\AK-Lenovo\Desktop\JAVA>javac Calculator.java
C:\Users\AK-Lenovo\Desktop\JAVA>java Calculator
Menu:
1)add
2)sub
3)mul
4)div
5)sqrt
6)power
7)mean
8)variance
9)GCD
Enter choice: 7
Please enter end to stop taking input: 3
5
6
7
end
Mean is 3.0
```