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Flexi Credit Course (JAVA Assignment 2)

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 BufferReader: ");
            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-