JAVA ASSIGNMENT
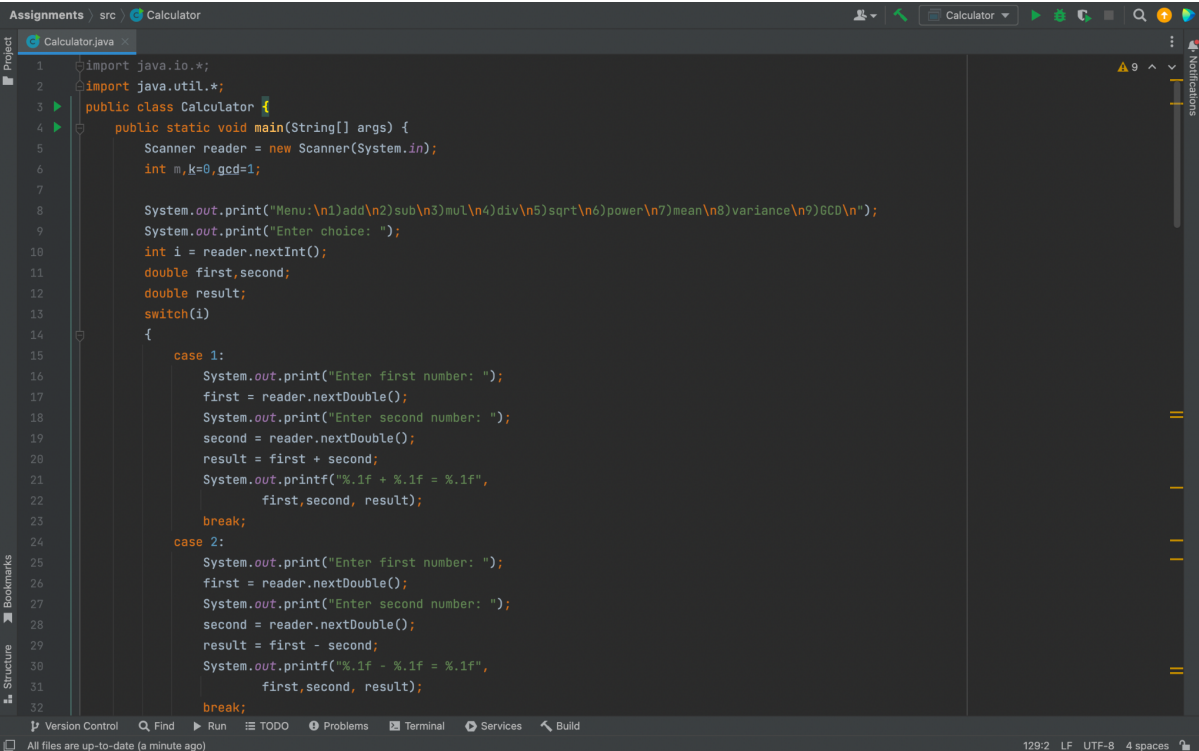
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AIML A1

Write a program to take input from command line arguments, scanner object, BufferedReaderobject, DataInputStream object, console object and perform the following operations:

Calculator: Addition, Subtraction, Multiplication, Division, Square Root, Power, Mean, Variance using basic math based functions.

```java
            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,
```

```
64              System.out.printf("Power %d of %.1f = %.1f",p,first,
65                      result);
66              break;
67          case 7:
68
69
70              Scanner sc = new Scanner(System.in);
71              String s = "";
72              int count=0;
73              int total=0;
74              double avg=0;
75              int n;
76              System.out.print("Please enter end to stop taking input: ");
77              while (true)
78              {
79                  String input = sc.nextLine();
80                  if(input.equals("end"))
81                      break;
82                  else
83                  {
84                      n = Integer.parseInt(input);
85                      count+=1;
86                      total += n;
87                      avg=total/n;
88
89                  }
90
91              }
92              System.out.println("Mean is "+avg);
93
94
95          case 8:
```

```
95          case 8:
96              System.out.print("Enter how many numbers you want to enter: ");
97              int o = reader.nextInt();
98              int ar[]=new int[o];
99              for(int l=0;l<o;l++)
100             {
101                 ar[l] = reader.nextInt();
102                 k=k+ar[l];;
103             }
104             int mean=k/o;
105             double sqDiff = 0;
106             for (int q = 0; q < o; q++)
107                 sqDiff += (ar[q] - mean) * (ar[q] - mean);
108             result=sqDiff/o;
109             System.out.printf("Variance = %.3f", result);
110             break;
111         case 9:
112             System.out.print("Enter first number: ");
113             int n1 = reader.nextInt();
114             System.out.print("Enter second number: ");
115             int n2 = reader.nextInt();
116             for(int h = 1; h <= n1 && h <= n2; ++h)
117             {
118                 if(n1 % h==0 && n2 % h==0)
119                     gcd = h;
120             }
121             System.out.printf("G.C.D of %d and %d is %d", n1,
122                     n2, gcd);
123             break;
124         default:
125             System.out.print("Wrong choice");
126             return;
```

OUTPUT: -

```
Menu:
1)add
2)sub
3)mul
4)div
5)sqrt
6)power
7)mean
8)variance
9)GCD
Enter choice: 1
Enter first number: 12
Enter second number: 13
12.0 + 13.0 = 25.0
Process finished with exit code 0
```

```
Menu:
1)add
2)sub
3)mul
4)div
5)sqrt
6)power
7)mean
8)variance
9)GCD
Enter choice: 2
Enter first number: 12
Enter second number: 11
12.0 - 11.0 = 1.0
Process finished with exit code 0
```

```
Menu:
1)add
2)sub
3)mul
4)div
5)sqrt
6)power
7)mean
8)variance
9)GCD
Enter choice: 3
Enter first number: 12
Enter second number: 34
12.0 * 34.0 = 408.0
Process finished with exit code 0
```

```
Menu:
1)add
2)sub
3)mul
4)div
5)sqrt
6)power
7)mean
8)variance
9)GCD
Enter choice: 4
Enter first number: 34
Enter second number: 3
34.0 / 3.0 = 11.3
Process finished with exit code 0
```

```
Run:    Calculator

/Library/Java/JavaVirtualMachines/amazon-corretto-11.jdk/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar
Menu:
1)add
2)sub
3)mul
4)div
5)sqrt
6)power
7)mean
8)variance
9)GCD
Enter choice: 5
Enter second number: 25
Square root of 25.0 = 5.0
Process finished with exit code 0
```

```
Run:    Calculator

/Library/Java/JavaVirtualMachines/amazon-corretto-11.jdk/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar
Menu:
1)add
2)sub
3)mul
4)div
5)sqrt
6)power
7)mean
8)variance
9)GCD
Enter choice: 6
Enter first number: 32
Enter power: 2
Power 2 of 32.0 = 1024.0
Process finished with exit code 0
```

```
Run:    Calculator

/Library/Java/JavaVirtualMachines/amazon-corretto-11.jdk/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar
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: 32
22
22
end
Mean is 3.0
Enter how many numbers you want to enter: 2
```

GITHUB LINK: -

https://github.com/anvesha31/Java_assignments/blob/4bea783981e39a207042703887a5fb4
58b52a898/Assignment%201