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## CRITICAL THINKING ASSIGNMENT #4 OPTION 1

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## Pseudocode:

### *// Define variables*

```
DECLARE number, sum, average, totalAfterInterest, totalBeforeInterest,
min, max, interest as Double
DECLARE i as Integer
```

### *// Define constant*

```
DECLARE RATE as Double
SET RATE to 0.2
```

### *// Set initial values*

```
SET sum, totalBeforeInterest to 0
SET min to MAX_VALUE
SET max to MIN_VALUE
SET i to 0
```

### *// Begin loop for five numbers*

```
WHILE i < 5
    DISPLAY "Enter a number: "
    READ number from user input
```

### *// Calculate the sum*

```
ADD number to sum
INCREMENT i
```

### *// Update min and max values*

```
SET min to minimum of min and number
SET max to maximum of max and number
```

### *// Calculate total and average*

```
SET totalBeforeInterest to sum
SET totalAfterInterest to sum + (sum * RATE)
SET average to sum divided by i
SET interest to sum multiplied by Rate
```

### *// Display results*

```
DISPLAY "The total before interest is: " + totalBeforeInterest
DISPLAY "The total after 20% interest is: " + totalAfterInterest
DISPLAY "The average is: " + average
DISPLAY "The maximum is: " + max
DISPLAY "The minimum is: " + min
DISPLAY "Interest on total at 20% is: " + interest
```

### Screenshot Code:

```

Main.java X
1 import java.util.Scanner;
2
3 public class Main {
4
5     public static void main(String[] args) {
6
7         // import scanner class for user input
8         Scanner input = new Scanner(System.in);
9
10        // declaring variables
11        double number;
12        double sum = 0;
13        double average;
14        double totalAfterInterest;
15        double totalBeforeInterest;
16        double min = Double.MAX_VALUE;
17        double max = Double.MIN_VALUE;
18        double interest;
19        int i = 0;
20
21
22        // declaring constants
23        final double RATE = 0.2;
24
25        // while loop for five numbers
26        while (i < 5) {
27            System.out.print("Enter a number: ");
28            number = input.nextDouble();
29
30            // summation of all the numbers
31            sum += number;
32            // iterator to stop infinite loop
33            i++;
34
35            // evaluate max/min values using Math class
36            min = Math.min(min, number);
37            max = Math.max(max, number);
38
39        }
40
41        // calculates total and average
42        totalBeforeInterest = sum;
43        totalAfterInterest = sum + (sum * RATE);
44        average = sum / i;
45        interest = sum * RATE;
46
47        // prints results
48        System.out.println("\nThe total before interest is: " + totalBeforeInterest);
49        System.out.println("The total after 20% interest is: " + totalAfterInterest);
50        System.out.println("The average is: " + average);
51        System.out.println("The maximum is: " + max);
52        System.out.println("The minimum is: " + min);
53        System.out.println("Interest on total at 20% is: " + interest);
54
55        // resource leak closure
56        input.close();
57
58    }
59
60 }

```

### Results:

```

Enter a number: 10
Enter a number: 20
Enter a number: 30
Enter a number: 40
Enter a number: 50

The total before interest is: 150.0
The total after 20% interest is: 180.0
The average is: 30.0
The maximum is: 50.0
The minimum is: 10.0
Interest on total at 20% is: 30.0

```