

Intro to Iteration

Minimum Value Tracker

Submit

minValue: 1000

The minimum value tracker allows a user to enter 10 numbers.

It tracks the minimum value.

When the program starts, **minValue** is initialised to 1000 and then the user starts to enter numbers.

Task 1

On the unit page in **mistermoosi**, enter the following 10 numbers into the **tracker**. Which number does it determine to be the minimum?

7	11	100	-30	90	400	0	999	-999	7
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minVal

Repeat the process with these 10 numbers:

7000	4000	1100	9000	1200	1600	10000	1999	5000	5000
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minVal

Was the number you wrote in the second box a number entered by the user. Explain the problem with the tracker.

Task 2

Run the starter code and answer the following questions.

How many global variables are there?	
Why is <code>minValue</code> a global variable?	
How many times does the welcome message appear?	

Task 3

The welcome message appears 3 times.

The `welcome()` function utilises a **for loop**.

Here is the **syntax** of a for loop in Java:

```
for(int i = 0; i<3; i++){  
    //code to be repeated  
}
```

Run the code again and write down the 3 values of **i** in the output:

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i is the loop **control variable**.

It starts with a value of 0 and the loop code runs.

i++ increments the value to 1

i<3 checks that the new value of i still meets the condition eg 1<3

If this is true, the loop code runs again.

i++ increments the value to 2

i<3 checks that the new value of i still meets the condition eg 2<3

If this is true, the loop code runs again.

i++ increments the value to 3

i<3 checks that the new value of i still meets the condition eg 3<3

3<3 is **false** and so the loop stops.

Task 4

Let's mess around with this idea. Update the for loop code into the `welcome()` function as indicated below, run the program, and write down the number of times the for loop repeated:

for loop code	Number of iterations
for(int i = 0; i<=3; i++)	
for(int i = 6; i<10; i++)	
for(int i = 0; i<=5; i=i+2)	
for(int i = 10; i>0; i--)	

Task 5

In the `main()` function, we want the program to:

- enter a number
- update `minVal`
- display `minVal`

10 times.

Using your knowledge of **for loops**, edit the code so that the 3 function calls are repeated 10 times. **Paste** your solution here:

Task 6

`evaluateMinValue()` evaluates `minVal` after the 10 numbers have been entered.

If `minVal` is positive, a function `positive()` is called. This function displays the word "Positive!" the same number of times as `minVal`.

Else if `minVal` is negative, a function `negative()` is called. This function displays the word "Negative" the same number of times as the **absolute value** of `minVal`.

Else a function `neutral()` is called. This displays `minVal` in an appropriate sentence.

Task 7 (optional)

Do you remember what happens if every value entered is greater than `minVal`?

Does Java have a maximum value for `int` datatype?

For example, what happens if you enter **1000000000000000000**?

Do some research. How can we stop users entering values greater than an **int**'s maximum value? How can we use this value to help correctly determine `minVal` for integers entered into a Java program?