

Assignment 1: Random Number Generator

Testing parameters that may cause ORIGINAL method to misbehave

Does the method work when $\text{max} > \text{min}$ and both max and min are positive?

Sample console $\text{min}=1$ $\text{max}=10$ (3 trials) :

| | | |
|----|----|----|
| 9 | 1 | 1 |
| 5 | 8 | 6 |
| 7 | 10 | 10 |
| 4 | 2 | 7 |
| 6 | 6 | 6 |
| 10 | 10 | 5 |
| 2 | 9 | 6 |
| 7 | 7 | 8 |
| 5 | 8 | 1 |
| 1 | 10 | 9 |

After running multiple trials, the distribution of numbers appears to be random and contains both the max and the min . Given these parameters of the min and max , the ORIGINAL method is behaving as expected.

Will the method still work if we choose a negative number for min and for max ?

Sample console output when $\text{max} = -1$ and $\text{min} = -10$:

| | | |
|----|-----|-----|
| -7 | -3 | -5 |
| -1 | -7 | -1 |
| -4 | -7 | -5 |
| -8 | -9 | -5 |
| -6 | -10 | -4 |
| -9 | -5 | -7 |
| -6 | -9 | -2 |
| -3 | -5 | -10 |
| -6 | -1 | -2 |
| -3 | -10 | -3 |

After running multiple trials, the distribution of numbers

What will happen if max is less than min ?

Sample console output when $\text{max}=5$ and $\text{min}=10$

| | | |
|----|---|---|
| 10 | 8 | 9 |
|----|---|---|

```
10  8  8
8   7  7
10  9  10
10  10 10
8   8  9
10  7  8
8   10 9
10  9  9
7   10 8
```

When max is less than min, this method [redacted]

What will happen if the min and the max are the same?

Sample console output when min=max=1

```
1   1   1
1   1   1
1   1   1
1   1   1
1   1   1
1   1   1
1   1   1
1   1   1
1   1   1
1   1   1
1   1   1
```

When min=max the same number is output every time [redacted]

Given these results the method only misbehaves [redacted]

This occurs because the calculation for the range assumes the initial difference between the max and the min will be [redacted]

```
int [redacted]
    if [redacted]
```

Does the method work when from>to and to and from are positive?

to=1, from=10

| | | |
|----|----|----|
| 2 | 3 | 4 |
| 9 | 5 | 10 |
| 10 | 4 | 5 |
| 3 | 8 | 1 |
| 4 | 9 | 9 |
| 8 | 1 | 2 |
| 10 | 3 | 1 |
| 1 | 10 | 10 |
| 3 | 6 | 4 |
| 2 | 5 | 4 |

Under these parameters the new method works as expected.

Will the method still work if we choose negative values for min and max?

to=-10 from=-1

| | | |
|-----|-----|-----|
| -4 | -9 | -10 |
| -6 | -4 | -2 |
| -10 | -8 | -9 |
| -4 | -6 | -1 |
| -7 | -8 | -1 |
| -9 | -9 | -8 |
| -1 | -10 | -7 |
| -4 | -4 | -10 |
| -9 | -6 | -4 |
| -3 | -9 | -3 |

Under these parameters the new method works as expected.

What will happen if from is less than to?

to=10 from=5

| | | |
|---|---|----|
| 9 | 5 | 7 |
| 5 | 9 | 10 |
| 6 | 7 | 6 |

| | | |
|----|----|----|
| 5 | 5 | 10 |
| 9 | 10 | 5 |
| 5 | 7 | 9 |
| 6 | 9 | 6 |
| 5 | 8 | 8 |
| 10 | 6 | 6 |
| 6 | 8 | 7 |

Under these parameters (which caused the original method to misbehave) the new method works as expected.

What will happen if to and from are the same?

| | | |
|---|---|---|
| 1 | 1 | 1 |
| 1 | 1 | 1 |
| 1 | 1 | 1 |
| 1 | 1 | 1 |
| 1 | 1 | 1 |
| 1 | 1 | 1 |
| 1 | 1 | 1 |
| 1 | 1 | 1 |
| 1 | 1 | 1 |
| 1 | 1 | 1 |
| 1 | 1 | 1 |

As previously concluded, this result is consistent with the methods mission and therefore does not constitute method misbehavior.

The new method fixes the issues with the original method. .java file for the new method here:

```
//First Last  
//Random Number Project  
//A method that generates a random number within a user created range  
//9/16/13  
public class  
    public static void  
        int  
        while  
            int  
                out  
    }  
    public static int  
        int  
        if  
            int  
            int  
            return
```