

# JAVA Assignment



## Java Assignment 3: Loop Practice

Ver 3.2 Last Updated: 4/20/2020 2:32 PM

Let's get some practice creating programs that repeat commands inside of a loop in order to accomplish a particular task. You may want to create these inside a main method of a class, one right after the next. For example,

```
public class LoopPractice {  
  
    public static void main(String[] args) {  
  
        //Loop 1  
        System.out.println("-----Loop 1-----")  
        int i = 1;  
        while( ) {  
  
        }  
        //Loop 2  
        System.out.println("-----Loop 2-----")  
        i = 1;  
        ...  
    } //end main  
} //end class
```

1. Make the following numbers print to the screen

1  
4  
7  
10  
13  
16

2. Make the following numbers print to the screen

20  
15  
10  
5

3. Print out 500 asterisks with no spaces or newlines – think `System.out.print` (make sure to use a blank `System.out.println()` when this is done so your next loop will start on a new line)

4. Ask the user to enter in a number. (You will need to create an instance of the `Scanner` class to read the `System.in stream(keyboard)`) Print out that many `*`'s on the screen without spaces or newlines. You may use your `Scanner` object in numbers 5, 6 and 9 also!!

Example,  
Please enter a number

**7**  
**\*\*\*\*\***

HINT: This is a lot like the last loop only the loop invariant is now a variable

5. Print all the odd numbers from 1 to a user specifiable upper limit (inclusive)

Example,  
Please enter a number

**9**  
1  
3  
5  
7  
9

HINT: The number 9 should be included!!!

6. It's about now that most students are getting agitated with running through each of the loops in order to test the later loops. Make a menu that the user can choose from and allow them to select which loop practice option to run. The following loop will run forever until the user enters an exit option

`int choice;`



playSound();

NOTE: You MUST successfully load the 5 audio clips from disk into RAM before they can be played. To do this, we must declare 5 global AudioClips above the main but inside the class.

Probability:

Rolling 6 sided dice can teach us about probability.

Allow the user to choose a number of rolls for 2 six sided dice. Add the dice together and keep track of how many of each of the sums are rolled. Print out a frequency distribution table and then a frequency histogram.

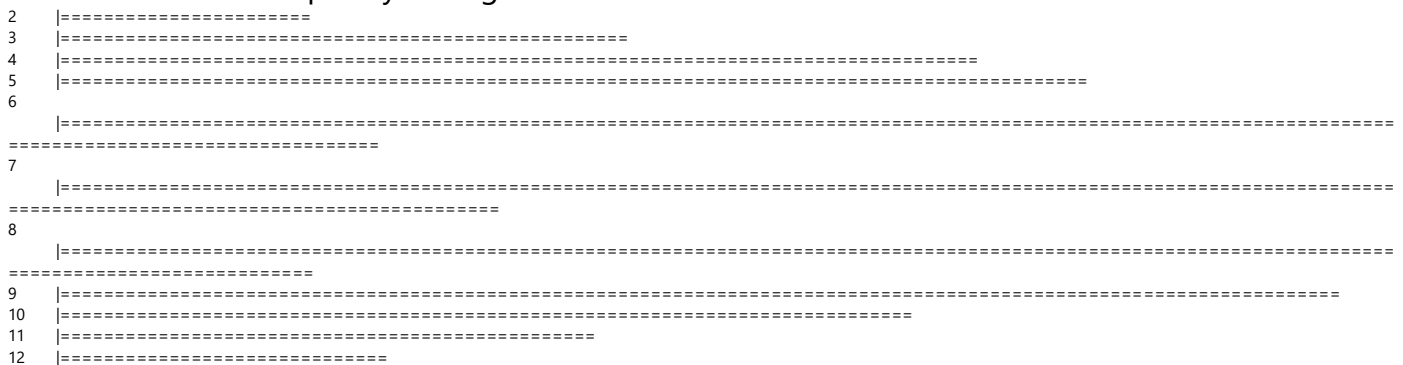
Example,

How many pair to roll-> **1000**

Rolling...

Roll	Frequency
2	23
3	52
4	84
5	94
6	156
7	167
8	150
9	117
10	78
11	49
12	30

@@@ Frequency Histogram @@@



NOTE: During the this project, you are going to define 3 different methods;

**the main method:** Will load up 5 sound files from disk into RAM, call the other two methods in the beginning and then run through several example loops.

**dispAuthor:** this method will display some information about who wrote the program, what the title of the program is and what period and date this program was generated.

**playSound:** this method will choose from among 5 loaded audio clips and play one of them randomly when the program starts up. For this, there will need to be 5 global variables to hold the audio clips.

### Bonus # 1: Pyramid

Using a combination of loops, ask the user what size pyramid they want to display and then print a scalable pyramid.

Example,

What size pyramid? 4

```
*
***
*****
*****
```

What size pyramid? 5

```
*
***
*****
*****
*****
```

What size pyramid? 2

```
*
**
```

### Bonus # 2: Multiplication Table

Using nested loops, print out a multiplication table for the numbers 1-?

To help out, try printing out the first two lines of the heading as follows;

```
System.out.println("X\t\t1\t2\t3\t4\t5\t6\t7\t8\t9");//etc
```

```
System.out.println("-----");
```

Then start your loops

```
int r=? c=?
```

```
while( )
```

MUST ASK THE USER WHAT THE HIGHEST NUMBER FOR THE TABLE HEADINGS IS From 2->20

X	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54

7		7	14	21	28	35	42	49	56	63
8		8	16	24	32	40	48	56	64	72
9		9	18	27	36	45	54	63	72	81



<b>Project Name</b>	Assign3_LoopPractice
<b>App Name</b>	LoopPractice

<b>Rubric</b>	
<b>Loops 1-5</b>	<b>75</b>
<b>Menu for Part 6</b>	<b>15</b>
<b>Averager Loop</b>	<b>30</b>
<b>dispAuthor (part 8)</b>	<b>15</b>
<b>playSound (part 9)</b>	<b>15</b>
<b>Probability (part 10)</b>	<b>40</b>
<b>Comments</b>	<b>10</b>
<b>TOTAL</b>	<b>200</b>

<b>Rubric for Bonus</b>	
<b>Scalable Pyramid</b>	<b>15</b>
<b>Multiplication Table with nested loops</b>	<b>8</b>