## CSCI 132: Basic Data Structures and Algorithms

More Java (while loops, practice)

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https://www.cs.montana.edu/pearsall/classes/spring2024/132/main.html



## Announcements

• Program 1 is posted soon

I will talk about it and give some hints on Friday

 I do not publicly post solutions, but you can stop by office hours or email me if you want to discuss homework solutions when I fix an error in my code only to create 3 more (destroyer of worlds)





While loops can be used to iterate *if* a condition is true.

```
int x = 100;
while(x > 0) {
    System.out.println(x);
    x--;
```

- 1. Check Condition
- 2. If condition is true, execute body of loop
- 3. Repeat

```
int x = 100;
while(x > 0) {
    System.out.println(x);
    x++;
```

}

}

You do have to worry about the possibility of infinite loops....



```
New
int i = 0;
do {
    System.out.println(i);
    i++;
  }
while (i < 5);</pre>
```

The **do/while** loop will always execute the body of the loop once, and then check the condition

```
1. Execute body of loop
```

- 2. Check condition
- 3. Repeat

!!! You are guaranteed at least one execution of the loop body



## **Practice**

Write a Java program that will simulate dice being rolled. The Java program should keep track of the frequencies of how much each dice number was rolled (# of 1s rolled, # of 2s rolled, etc) and print it out to the screen like a Histogram

```
Enter # of times to roll dice:
20
Enter # of sides of dice:
6
0:
   **
1:
   ****
2:
3:
   ****
4:
   **
5:
   ****
6:
   ***
```



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## **Random Numbers**

import java.util.Random;

}

```
public static void main(String args[]){
    // create instance of Random class
    Random rand = new Random();
    // Generate random integers in range 0 to 999
    int rand_int1 = rand.nextInt(1000);
    int rand int2 = rand.nextInt(1000);
```

```
// Print random integers
System.out.println("Random Integers: "+rand_int1);
System.out.println("Random Integers: "+rand_int2);
```

```
// Generate Random doubles
double rand_dub1 = rand.nextDouble();
double rand_dub2 = rand.nextDouble();
```

```
// Print random doubles
System.out.println("Random Doubles: "+rand_dub1);
System.out.println("Random Doubles: "+rand_dub2);
```

Easiest way to generate random numbers is with Random.nextInt()



Write a program that will evaluate a three card poker hand. Your program should be able to identify1. Three of a kind2. Flush3. Sequence

4. Two of a kind



Sequence



Flush Two of a kind

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