

COS 126 Precept

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Questions about Class?

- ▶ **Helpful hint**

- ▶ For each assignment, create a new directory

- ▶ Assn0/

- HelloWorld.java

- ...

- ▶ Assn I/

- Bits.java

- ...



If-else statements

```
if (SOME BOOLEAN EXPRESSION)
```

```
{
```

```
  Do This stuff
```

```
}
```

```
else
```

```
{
```

```
  Do This other stuff
```

```
}
```

Boolean Expression uses boolean operators:

<, >, <=, >=, !=, ==

And: &&

Or: ||



Flip: Use of if-else statements

```
public class Flip {  
    public static void main(String[] args) {  
        if (Math.random() < 0.5)  
            System.out.println("Heads");  
        else  
            System.out.println("Tails");  
        }  
    }  
}
```



If-else if –else syntax

```
if (EXPR 1)
```

```
{ Do This...
```

```
}
```

```
else if (EXPR 2)
```

```
{
```

```
    Do This...
```

```
}...
```

```
else if (EXPR N)
```

```
{
```

```
    Do This...
```

```
}
```

```
else
```

```
{
```

```
    Do this only if all of the other boolean expressions were false
```

```
}
```



Do RollDie.java (1st one)



Recall RandomInteger.java

```
public class RandomInteger {
    public static void main(String[] args) {
        //Range from 0 to N-1
        int N = Integer.parseInt(args[0]);

        //returns pseudo-random between 0 and 1
        double r = Math.random();

        //Gives integer between 0 and N-1
        int n = (int) (r * N);

        System.out.println("Your random integer is: " + n);
    }
}
```



Do RollDie.java (2nd one)



Convert RandomInt.java into RollDie.java

```
public class RollDie {  
    public static void main(String[] args) {  
        int Num_Faces = 6;  
  
        //returns pseudo-random between 0 and 1  
        double r = Math.random();  
  
        //Gives integer between 0 and num_faces  
        int n = (int) (r * Num_Faces);  
        //print out 1-6 uniformly  
        System.out.print(n+1);  
    }  
}
```



While Loops

```
while(Boolean Expression evaluates to True)
```

```
{
```

```
    Do what is in here until boolean expression is false
```

```
}
```



PowersOfTwo.java

```
public class PowersOfTwo {
    public static void main(String[] args) {
        // read in one command-line argument
        int N = Integer.parseInt(args[0]);
        int i = 0;
        // count from 0 to N-1
        int powerOfTwo = 1;
        // the ith power of two
        // repeat until i equals N
        while (i <= N) {
            System.out.println(i + " " + powerOfTwo);
            // print out the power of two
            powerOfTwo = 2 * powerOfTwo;
            // double to get the next one
            i = i + 1;
        }
    }
}
```



Finite Sum

- ▶ Calculate $1 + 2 + 3 + 4 + \dots + N$



Other conditional/loop constructs

- ▶ **Switch**
 - ▶ Uses break, and case keywords
- ▶ **Do-while**
 - ▶ Similar to while
 - ▶ Always execute middle section at least once
- ▶ **Continue**
- ▶ **Read about all of these**



Scope

- ▶ **Where are your variables 'valid'?**
 - ▶ From declaration, until curly brace that ends that block



Debugging Activity

- ▶ ☹️ This is the hardest part



Assignment 1

- ▶ Three Exercises, but 4 programs
- ▶ Read instructions carefully
 - ▶ If it says 'use a while loop', then... use a while loop

