Summary

Building blocks for programming

- any program you might want to write
- objects
- functions and modules
- graphics, sound, and image i/o
- arrays
- conditionals and loops
- math text i/o
- primitive data types and assignment statements

data type

- data type: a set of values and a set of operations on those values

built-in data types in Java

- string: for **input and output** * Java like put things into string
- int: integers, for math calculations
- double: with floating points, for science and math apps
- boolean: true or false, for decision-making in program

convert

- parseInt()
- toString()

control flow

- the *sequance* of statements that are actually executed in a program
- conditionals and loops enable us to choreograph control flow

if statement

execute certain statements depending on the values of variables

- evaluate a **boolean expression**
- if true, execute a statement
- if flase, use else option

for loop

- evaluate an initialization statement
- boolean
- true, execute,increment repeat if satisfies boolean

```
// This demonstrates "every for loop has a while statement
// for loop is more compact obviously
public class PowerOfTwo {
    public static void main(String[] args){
        int v = 1;
        int n = Integer.parseInt(args[0]);
        for (int i = 0; 1<= n; i++){ // the difference lies in  the initialization statement
            System.out.println(i + " " + v);
            v = 2*v;
        }
    }
}
public class PowerOfTwo {
    public static void main(String[] args){
        int v = 1;
        int n = Integer.parseInt(args[0]);
        int i = 0;
        while (i<= n;){
            System.out.println(i + " "+ v);
            v = 2*v;
            i++;
        }
    }
}
```