**Lesson 1 Notes**

**Variables**

Variables can either be public (accessible from all classes), private (accessible within its own class) or protected (accessible withing a class package)

Integers:

* Byte, length is 1 byte or 8 bits
* Short, length is 2 bytes, or 16 bits
* Int, length is 4 bytes or 32 bits
* Long, length is 8 bytes or 64 bits

Decimals (real numbers):

* Float, length is 4 bytes or 32 bits
* Double, length is 8 bytes or 64 bits

Other:

* Char, length is 2 bytes or 16 bits, you may assign an integer value to a char ex. char a = 98
* Boolean, one bit (true or false)
* “String” is not a variable in Java it is a class (notice the uppercase letter)

The amount of information that can be stored inside java variables goes **byte>short>int>long>float>double,** you change a variable to make it bigger but making it smaller requires you to typecast it.

EX.

Float y;

Int x = 2;

X = int(y);

**Defaults**

* Booleans are False
* All numbers are zero
* Chars are space
* Classes are null

**Declarations**

* Float variables must have an f
* Doubles must have a d

**Type casting**

* When type casting a decimal to an integer the number is *truncated* not rounded

**Associativity**

* Unary operators (+,-,++,-- and !) are grouped from right to left ex. +-+rate is +(-(+rate))
* Operators of equal precedence are evaluated left to right ex. 1+2+3 is (1+2)+3
* The exception is assignment operators (=) are group left to right ex. N1 = n2 = n3 is n1 = (n2=n3)

**JavaDoc**

* Must use a block comment directly above the class
* The block comment opening symbol /\* must contain an extra star like this /\*\*
* Should include parameters, return value, any exceptions
* First line should be a basic explanation of the class

**Tagging rules**

* + @param: Parameter Name, Parameter Description
  + @return: Description of Value returned
  + @throws: exception type, explanation
  + @author: Author
  + If there are multiple parameters, they should all have their own tag