**Primitive Data Types**

After learning about variable initialization and assignment, you should be aware that data types are serious business. They can determine the success or failure of your project. Therefore, you should know them extremely well. This document should serve as a quick reference guide for the data types we will be using most often in this class. Research each of the terms below and write their definitions in the boxes below

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| **int :** **By default, the int data type is a 32-bit signed two's complement integer, which has a minimum value of -231 and a maximum value of 231-1. In Java SE 8 and later, you can use the int data type to represent an unsigned 32-bit integer, which has a minimum value of 0 and a maximum value of 232-1. This integer class is used for the int data type as an unsigned integer.** |
| **double: The double data type is a double-precision 64-bit IEEE 754 floating point. Its range of values is beyond the scope of this discussion, but is specified in the Floating-Point Types, Formats, and Values section of the Java Language Specification. For decimal values, this data type is generally the default choice.** |
| **boolean:** **The boolean data type has only two possible values: true and false. Use this data type for simple flags that track true/false conditions. This data type represents one bit of information, but its "size" isn't something that's precisely defined.** |
| **float: The float data type is a single-precision 32-bit IEEE 754 floating point. As with the recommendations for byte and short, use a float (instead of double) if you need to save memory in large arrays of floating point numbers. This data type should never be used for precise values, such as currency.** |
| **char:  The char data type is a single 16-bit Unicode character. It has a minimum value of '\u0000' (or 0) and a maximum value of '\uffff' (or 65,535 inclusive).** |
| **short: The short data type is a 16-bit signed two's complement integer. It has a minimum value of -32,768 and a maximum value of 32,767 (inclusive). As with byte, the same guidelines apply: you can use a short to save memory in large arrays, in situations where the memory savings actually matters.** |
| **long: The long data type is a 64-bit two's complement integer. The signed long has a minimum value of -263 and a maximum value of 263-1. In Java SE 8 and later, you can use the long data type to represent an unsigned 64-bit long, which has a minimum value of 0 and a maximum value of 264-1. Its used when you need a range of values wider than those provided by int.** |