CMSC 131

Fall 2018

Announcements

- Piazza Accounts

Recall – 8 Primitive Types

Variables for whole numbers:

```
long magnitude = 10500123971L;
int length = 705;
short height = 25;
byte age = 22;
```

Variables for floating point numbers:

```
double weight = 52.37;
float GPA = 3.98F;
```

Others

```
char symbol = '&';
boolean onFire = true;
```

Recall — 8 Primitive Types

The range of each data type in terms of n (number of bits required to store it)

$$(- 2^{n-1}) - (2^{n-1} - 1)$$

For example:

for datatype byte, n = 8 bits (1 byte)

$(- 2^{(8-1)} - 2^{(8-1)} - 1)$

$= -128 - 127$

Strings

- What's a String?

Example:
```
String name = "Fred";    // note the double quotes
```

IMPORTANT: Strings are not primitives – they are objects! (More about that later.)

- What is "concatenation"?

Example:
```
String firstName = "Bob";
String lastName = "Smith";
String fullName = firstName + lastName;   // no space?
```

Examples: stringsExample.java

Things to observe:

- Use double quotes around String literals

- Concatenation with +

- x.length() yields the length of the String x

- Java will sometimes implicitly convert things to Strings (e.g. when using the + operator)

Different Data types

You can't usually mix types in Java!

Points to raise:

- Conversions between numerical types

- Distinction between char and String

- In Eclipse: Errors are in red, warning are in yellow