08-17-17

C Programming

C has a lot of similarities to C++ and Java.   Here are some of the things that are similar:

- Declaring variables

```
int x = 3;
double y = 2.6;
float k = 10.5;   // C doesn't use the little f on float literals
```

- Assignment statements

```
x = 4;
```

- Arithmetic

```
y = y + 6;
```

- if - else statements

```
if (x < 3 && y > 1)
    printf("Yes\n");
else
   printf("No\n");
```

- While loops

```
while (x < 10) {
   printf("x = %d\n",  x);
   x++;
}
```

- Switch statements (see example code below)

And there are some things that are close but not exactly the same:

- for loops

  In C, you must declare the loop control variable <u>before</u> the loop.

```
int x;
for (x = 0;  x < 10; x++)
    …
```

- data types

  C has the common types int, float, and double along with many other data types.

*** Review the switch statement syntax in your textbook.

```c
// check a character to see if it's a vowel and print
// an appropriate message
char c = ....................;    // assume we put some character in c
switch (c) {
   case 'a': case 'e': case 'i': case 'o': case 'u':
      printf("It's a lowercase vowel.\n");
      break;
   case 'A': case 'E': case 'I': case 'O': case 'U':
      printf("It's an uppercase vowel.\n");
      break;
   default:
      printf("It's not a vowel.\n");
} // end switch
```

Writing functions and function calls is very similar.   (Java calls them "methods".) Here's an example function in C.

```c
int myfunc (int x) {
   return x + 26;
}
```