C++ III

Control Flow, math and other operators

`void` return values, getting input from keyboard

- `srand` returns void
- `cin` is used to get input from the keyboard, use `>>` to pipe that into a variable
- The srand prototype:

```
void srand( unsigned int seed );
```

Random between 0 and 1:

```
r = ((double) rand() /
(RAND_MAX))
```

```cpp
1  #include <iostream>
2  #include <cstdlib>
3
4  using namespace std;
5
6  int main(){
7      unsigned int seed;
8      int z1, z2, z3;
9
10     cout << "   ----- Random Ingeters _____ " << endl;
11     cout << "To initialize random number generator, "
12          << "\n please enter an integer value: ";
13     cin  >> seed;
14
15     srand(seed); //returns void, sets random seed
16
17     z1 = rand();
18     z2 = rand();
19     z3 = rand();
20
21     cout << "Three random numbers:   "
22          << z1 << " " << z2 << " " << z3 << endl;
23
24     return 0;
25  }
```

Control Flow

- The syntax of if statements, switches, for loops, while loops, and do-while loops are all the same as in Java, except that index variables are, by some compilers, declared outside the loop.
- Math, comparison, increment/decrement are basically the same, except xor is ^^ in c++

```cpp
1  #include <iostream>
2
3  using namespace std;
4
5  int main(){
6      int x = 5;
7      if(3 < 5){
8          cout << "if condition true" << endl;
9      }else{
10         cout << "if condition false" << endl;
11     }
12
13     switch(x){
14         case 0:
15             cout << "x is 0" << endl;
16             break;
17         case 5:
18             cout << "x is 5" << endl;
19
20     }
21
22     for(int i = 0; i < 10; i++){
23         cout << "printing : " << i << endl;
24     }
25
26     while(x < 10){
27         if(x % 2 == 0){
28             cout << "printing x: " << x << endl;
29         }
30         x++;
31     }
32
33     return 0;
34 }
35
```

In Class Lab: Lucky, Lively, Llama

- Create a c++ program that loops through numbers from 1 to some random number between 2000 and 5000 (inclusive of 2000, not of 5000).
- When the number is divisible by 7, print the number and "lucky."
- If the number is divisible by 11 print the number and "lively."
- If the number is divisible by 13, print the number and "llama." I
- If the number isn't divisible by any of these, or is divisible by two of them, print nothing.
- If the number is divisible by all three, print the number and "What a llama!"
- Make all print statements be on a new line.