COMP 322 Lecture 2 - C++ Basics

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Today's Outline

- Standard input & output
- Namespaces

Standard input/output

- C++ uses "streams" for reading from (input) and writing to (output) a media
  - Media can be a keyboard, screen, file, printer, etc.
- Input and output streams are provided by the iostream header file
  - **include <iostream>**
- cout stream object is used to print on screen
  - **cout « "some message";**
  - «: insertion operator
  - cout: object of ostream class
- Default standard output is the screen
- Similar to printf() in c, system.out.println() in java

```
#include <iostream>
using namespace std;
int main()
{
    cout << "Hello";
    cout << "Class";
}
```
Output:
HelloClass

```
#include <iostream>
using namespace std;
int main()
{
    cout << "Hello" << "Class";
}
```
Output:
HelloClass

```
#include <iostream>
using namespace std;
int main()
{
    cout << "Hello" << endl << "Class";
}
```
Output:
Hello
Class

- cin stream object is used to read from the keyboard
  - cin » x;
  - »: extraction operator
  - cin: object of istream class
- Cin can read strings but limited to one word
  - cin » stringVariable;
- Use getline function to read a full sentence
  - getline(cin, stringVariable);
- Similar to scanf() in c, scanner class in java

```
#include <iostream>
using namespace std;

int main()
{
    string var;
    cout << "Please enter your name" << endl;
    cin >> var;

    cout << "your name is: " << var;
}
```

Namespaces

- A name can represent only one variable within the same scope
- Large projects consists of multiple modules of code provided by different programmers
  - What happens if one module has a variable name that is the same as another variable in different module? **Name conflict (also called name collision)**
- Namespaces solve the name conflict problem

QuebecTemp.h
```
namespace QC
{
    double getTemp()
    {
        return -30.7;
    }
}
```

main.cpp
```
#include <iostream>
#include "QuebecTemp.h"

int main() {
    std::cout << "Temperature is: " << QC::getTemp() << std::endl;
    return 0;
}
```

Or also: main.cpp
```
#include <iostream>
#include "QuebecTemp.h"

using namespace QC;

int main() {
    std::cout << "Temperature is: " << getTemp() << std::endl;
    return 0;
}
```