CS 161
Intro to CS I

More Decisions/Begin Loops
Odds and Ends…

• Recitation Quiz #2 emailed tonight, 11:59pm
• Assignment 3 posted.

• How many interested in a study social for those feeling lost, behind, not fitting in, etc.?
Logical Operators

- AND: if((1>2) && (2<5))
- OR: if((1>2) || (2<5))
- NOT: if(!(1>2) && (2<5))

- Precedence of Operators: refer to book
C++ If/Else Syntax...

```cpp
int x = 1, y = 2;
if (x > y) {
    cout << "X is greater than Y" << endl;
}
else {
    cout << "X is less than Y" << endl;
}
```
C++ If/Else...

```cpp
if( x > y) {
    cout << "X is greater than Y" << endl;
}
else if( x < y) {
    cout << "X is less than Y" << endl;
}
else {
    cout << "X is equal to Y" << endl;
}
```
What are the curly braces for?

```
if( x > y)
    cout << "X is greater than Y" << endl;
else if( x < y)
    cout << "X is less than Y" << endl;
else
    cout << "X is equal to Y" << endl;
```
What if we are testing for ==?

```cpp
if( x == 0) {
    cout << “X is zero” << endl;
}
else if( x == 1) {
    cout << “X is one” << endl;
}
else if( x == 2) {
    cout << “X is two” << endl;
}
else {
    cout << “Not 0, 1, 2!!!” << endl;
}
```
We can use a switch...

```c
switch( <expression> ) {
    case <const-expr>:
        <statement>;
        ...
    case <const-expr>:
        <statement>;
        ...
    default:
        <statement>;
        ...
}
```

- Equal to a specific case
- Character or integer (bool in C++)

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C++ Switch Example

```cpp
switch( x ) {
    case 0:
        std::cout << "X is zero\n";
        break;
    case 1:
        std::cout << "X is one\n";
        break;
    case 2:
        std::cout << "X is two\n";
        break;
    default:
        std::cout << "You have entered an invalid number!!!\n";
}
```
C++ Switch Example

switch(x) {
    case 0:
        std::cout << "X is zero or one\n";
        break;
    case 1:
        std::cout << "X is two\n";
        break;
    case 2:
        std::cout << "X is two\n";
        break;
    default:
        std::cout << "You have entered an invalid number!!!\n";
}

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Groupwork

• What if we didn’t have a break in the case of a switch statement?

• How could you write an if/else to match not having breaks in this switch?

```cpp
switch(x) {
    case 0:
    case 1:
        std::cout << "X is zero or one\n";
    case 2:
        std::cout << "X is two\n";
    default:
        std::cout << "You have entered an invalid number!!!\n";
}
```

• What do you think this does in C++?

```cpp
<expression1> ? <expression2> : <expression3>
```

```cpp
if (x == 0 || x == 1) {  
    cout << "X is zero or one\n";
} else if (x == 2) {  
    cout << "X is two\n";
} else {  
    cout << "You have entered an invalid number!!!\n";
}
```
How do we read a string of chars?

• User-defined type in string library
  #include <string>
• Declare/Create type
  string mssg;
• Read with cin or getline
  cin >> mssg;  //get a word
  getline(cin, mssg); //get a line of txt
```cpp
#include <iostream>
#include <string>  // c++ strings

using namespace std;

int main() {
    int x = 20;
    string s;  // c++ style string

    // cin ignores all leading whitespace, then reads characters of its expected
    // type until it gets to a character not of its type OR whitespace without
    // consuming the char not of its type or whitespace
    cout << " enter a 0 or 1: ";
    // cin >> x;  // what happens when you enter a non-integer or newline/enter?
    cin >> s;  // what happens when you enter whitespace before or after?
    cout << " Value in s: " << s << endl;

    // getline reads chars until it gets to a newline and consumes the newline
    // without placing it into the string
    getline(cin, s);  // what happens when you enter whitespace or newline 1st?
    // cout << " Value in x: " << x << endl;
    cout << " Value in s: " << s << " " << s.size() << endl;

    return 0;
}
```