CSC 215

Math and Computer Science

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If Statements

- Allow you to make a decision based on some logical expression
- If the condition is true, executes the next statment

```
if( x < 10 )
    statement;
```

- For multiple statements, use {}'s.

```
if( x < 10 )
{
    statement;
    statement;
}
```

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If – else Statements

- Execute the following statement if the logical expression is true.
- Otherwise execute a different set of statement if expression was false.

```
if( x < 10 )
     statement;
 else
     statement;
```

If – else Statements

- Use {}'s if you want multiple statements

```
if( x < 10 )
{
    statement;
    statement;
}
else
{
    statement;
    statement;
}
```

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If – else if – else statement

- Just an if statement nested inside of the else portion.
- Makes a series of nested if chain nicely.

```
if( x < 10 )
     statement;
 else
     if ( y > 100 )
         statement;
     else
         statement;
```

```
if( x < 10 )
     statement;
else if ( y > 100 )
     statement;
else
     statement;
```

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Beware of Nesting Ifs

```
if( x < 10 )
    if( y > 100 )
        cout << "hello";
else
    cout << "mello";
```

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Known as the Dangling Else statement

- Use {} to control what is attached to each if.
- Use {} on all if's, even with just one statement.

```
if( x < 10 )
{
    if( y > 100 )
    {
        cout << "hello";
    }
}
else
    cout << "mello";
```

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Switch Statement

- Nice for matching a bunch of possibilities to one variable
- Must be integral type
- Case Labels must be constants
- Do not handle ranges
- All switches can be written as if's, but not all if's can be written as switches.

Switch Syntax

```
char ch;

switch ( ch )
{
    case 'y':
    case 'Y':
        statement1;
        statement2;
        break;
    case 'n':
    case 'N':
        statement3;
        statement4;
        break;
    default;
       cout << "Invalid" << endl;
}
```

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Conditional Operator

- ?:
- Syntax (<lexpr> ? True statement : False statement);
- Just a shortened version of an if else statement.

Examples:

```
cout << (ch == 'y' ? "yes" : "no" ) << endl;
strcpy( answer, (ch == 'y' ? "yes" : "no" ) );
x = ( z != 0 ? y / z : y / .000000001 );
```

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Example conversion

```
if( x % 2 == 1 )
    cout << "odd" << endl;
else
    cout << "even" << endl;

cout << ( x % 2 == 1 ? "odd" : "even") << endl;
```

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