CS 161
Intro to CS I

Finish Conditional Statements and Start Looping/Repetition
We can use a switch...

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

State transition diagram or event-driven programming.
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

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

• What if you have the statement `var = var + 1;`
  `var += 1; /*Add operand on right to var*/`
  `var++; /*Increment var by one*/`
• What if you have the statement `var = var - 5;`
  OR `var = var + var;`
  `var -= 5;`
  `var += var;`
• Pre vs. Post increment: `++var` vs. `var++`
```cpp
#include <iostream>

using namespace std;

int main(){
    int num=7;
    cout << num++ << endl; //val of num:8 printed:7
    cout << --num << endl; //val of num:7 printed:7
    cout << num+1 << endl; //val of num:7 printed:8
    cout << num << endl;
    cout << (num+=2) << endl; //val of num:9 printed:9
    cout << num << endl;
    //cout << ((num++)++) << endl; //can we do this? NO
    cout << (num++)+1 << endl; //val of num:11 printed:10
    cout << num << endl;
    return 0;
}
```

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In-class Exercise #1

- Get into groups of 4-5.
- Define: short circuit, type cast, conditional execution
- What does this do?
  ```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>
  ```
Multiple Decisions

• What if I want to make these same decisions for the whole year?
  
  If it is sunny today
  then I’ll go to the beach
  if it is windy at the beach
  then I’ll fly a kite
  else if it is not windy at the beach
  then I’ll walk on the shore
  Else if it is raining today
  then I’ll stay inside and read a book
  Else if it is snowing
  then I’ll go to the mountains to ski

• Repeat the process for 365 days