

CS 161

Intro to CS I

Finish Conditionals/Begin Loops

Odds and Ends

- Assignment 3 Design due Sunday
- Back Evaluations due Sunday



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Fun Friday...



- 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?

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

The for Loop Examples



```
for(x=1; x <= 1; x++) {  
    cout << "hello world\n";  
}
```

```
for(x=1; x < 1; x++) {  
    cout << "hello world\n";  
}
```



The while loop

```
for(x=1; x <= 100; x++)  
    cout << "hello world\n";
```

VS.

```
int x=1;  
while(x<=100) {  
    cout << "hello world\n";  
    x++;  
}
```

Common Mistakes



```
int x=1; ← What if we forget this?  
while(x<=100) {  
    cout << "hello world\n";  
    x++; ← What if we forget this?  
}
```

The do/while loop

```
int x=1;
do {
    cout << "hello world\n";
    x++;
} while(x<=100);
```

- Difference b/w while and do/while?



Nested for Loops

```
for(x = 0; x < 10; x++) {  
    for(y = 0; y < 10; y++) {  
        cout << "hello world\n";  
    }  
}
```

- How many times is Hello World printed?

Reuse Variables

```
for(x = 0; x < 10; x++) {  
    cout << "The value of x is: " << x << endl;  
}  
for(x = 0; x < 10; x++) {  
    cout << "The value of x is: " << x << endl;  
}
```

Variables with same name

```
int x;  
for(x = 0; x < 10; x++) {  
    for(x = 0; x < 10; x++) {  
        cout << "The value of x is: " << x << endl;  
    }  
}
```

- What is the output from this nested loop?

Infinite Loops

```
int x;  
for(x = 0; x < 10; x++) {  
    for(x = 0; x < 5; x++) {  
        cout << "The value of x is: " << x << endl;  
    }  
}
```



Infinite Loops

```
int x, y;  
for(x = 0; x < 10; x++) {  
    for(y = 0; y < 5; x++) {  
        cout << "The value of x is: " << x << endl;  
    }  
}
```

Infinite Loops

```
int x, y;  
for(x = 0; x < 10; x++) {  
    for(y = 0; x < 5; y++) {  
        cout << "The value of x is: " << x << endl;  
    }  
}
```

Infinite Loops

```
int x;  
for(x = 1; x <= 10; x++) {  
    cout << "The value of x is: " << --x << endl;  
}
```



Why is this good/bad?

```
for(int x = 0; x < 10; x++) {  
    for(int y = 0; y < 10; y++) {  
        cout << "hello world" << endl;  
    }  
}
```

- Where can we access x and y?

Looping Recap...



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- for loops
 - Repeat for specific number of times
 - Example?
- while loops
 - Repeat while a condition is being met
 - Example?
- do while loops
 - Always do once, and repeat while condition is met
 - Example?

More about break, exit, and return



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- **break** – used with switch and loops, breaking out of the closest associated case or loop(for, while, or do while). **This statement can only occur in a loop or case**, otherwise the compiler yells!
- **return** – leave the current function, which exits the program when in the main() function. You can put this **anywhere inside any function**, otherwise the compiler yells!
- **exit()** – exit the entire program, no matter where this is encountered. You can put this **anywhere inside any function, as long as you include <cstdlib>**, otherwise the compiler yells!



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`

Demo...



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