



CS 161

Intro to CS I

Finish Loops/Begin C++ Strings



Odds and Ends

- Assignment 2 demoed this week!
- Study sessions Tues, Wed, Thur.



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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Reading multiple types of data...



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- What does cin do when reading...
 - Int/Floats
 - Strings

- What does getline do?

Demo...



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```
1 #include <iostream>
2
3 using namespace std;
4
5 int main() {
6     int i;
7     float f;
8
9     cout << "enter an int: " << endl;
10    cin >> i;
11
12    //This is a way to check the failbit and reprompt the user if cin fails
13    //When will this work and when will it not work?
14    while(cin.fail()) {
15        cin.clear();
16        cin.ignore(256, '\n');
17        cout << "enter an int: " << endl;
18        cin >> i;
19    }
20
21    cout << "enter a float: " << endl;
22    cin >> f;
23
24    return 0;
25 }
```

Solution...



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Intro to Functions Demo...



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Programming Errors

- Syntax errors
 - Misuse of C++ language
 - How are they caught?
- Logic errors
 - Doesn't perform task correctly (aka. bugs)
 - How are they caught?
- Runtime errors
 - Stops your program from running
 - How are they caught?



Syntax Error Examples

- Missing main function
- Use of identifier not declared
- Misspelled Words
- Forget a Semicolon
- Forget Required Keyword
- Missing quote, curly brace, and parenthesis
- Use of single quotes instead of double



Logic Error Examples

- Poorly written programs
 - Add instead of subtract (incorrect operation)
 - Using last two digits for date
 - Same error message for different errors
 - Program that never ends
 - Add one to the largest integer (could be syntax)



Runtime Error Examples

- Segmentation fault or Core dump
 - Read a file that doesn't exist
 - Go outside of memory bounds
 - Run out of memory
 - Divide by variable that is zero



Debugging Errors

- Syntax:
 - **READ compiler errors** (pay attention to line #)
 - Use **google** to search for error
- Logic/Runtime
 - Use **std::cout** to find where the code is breaking
 - **Print variable values**
 - **Print indicator messages**
 - **Trace** through the code
 - **Comment** out code