

CS 161

Intro to CS I

Finish Loops/Begin C++ Strings

Odds and Ends



Oregon State University
College of Engineering

- Peer Reviews on design due Thursday.
- Exam I next Wednesday, 2/6/2019

WITH 109 M, T 5-6:30
NO LINC 268

```
2. ENGR
Re-attach Fullscreen Stay on top Duplicate
1 #include <iostream>
2 #include <string>
3
4 using namespace std;
5
6 int main() {
7     int i;
8     float f;
9     string s;
10
11     cout << "enter a integer: ";
12     cin >> i;
13     cout << "i: " << i << endl;
14
15     cout << "enter a float: ";
16     cin >> f;
17     cout << "f: " << f << endl;
18     cin >> s;
19     cout << "enter your name: ";
20     //cin >> s;
21     getline(cin, s); //move past the newline in the buffer leftover from the float
22     getline(cin, s); //now read a line
23     cout << "s: " << s << endl;
24     cout << "length: " << s.length() << endl;
25     cout << "first letter in name: " << s.at(0) << endl;
26
27
28     return 0;
29 }
-- INSERT --
```

Handwritten red annotations:
- "getline" written over line 21.
- "cin >> s;" written over line 19.
- "getline" circled in red next to line 11.
- A red arrow points from the circled "getline" to line 21.

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Solu

```
2. ENGR
Re-attach Fullscreen Stay on top Duplicate
1 #include <iostream>
2 #include <string>
3 #include <stdlib.h>
4
5 using namespace std;
6
7 int main() {
8   int i;
9   float f;
10  string s;
11  bool error;
12  do {
13    error=false;
14    cout << "enter an integer : " << endl;
15    getline(cin,s);
16    for(int i=0; i<s.size(); i++) {
17      if(!(s.at(i) >= '0' && s.at(i) <= '9')) {
18        cout << "error!" << endl;
19        error=true;
20        break;
21      }
22    }
23    write(error);
24
25    i=atoi(s.c_str());
26    cout << i << endl;
27
28    cout << "enter a float: " << endl;
29    cin >> f;
30
31    return 0;
32 }
2 more lines; before #9 3 seconds ago 29,7 All
```

for all
chars
in my
string

10

break, positive int

C-style

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C++
block
style
scope

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