CS 161
Intro to CS I

Finish Loops/Begin C++ Strings

Odds and Ends

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

5pm 6pm 7pm — LINC 268

How do we read a string of chars?

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- User-defined type in string library

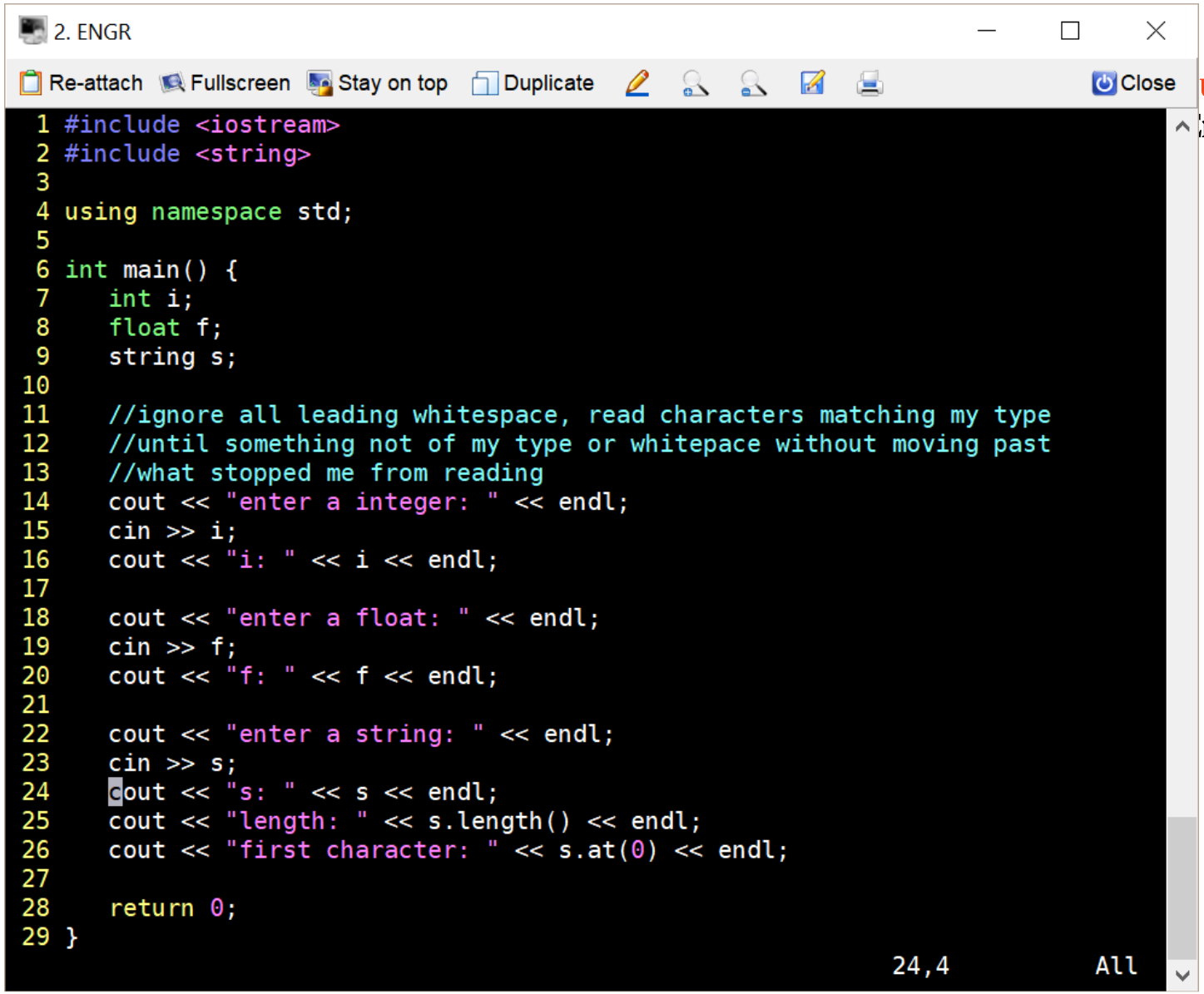
```
#include <string>
```

- Declare/Create type

```
std::string mssg;
```

- Read with cin or getline

```
cin >> mssg;  //get a word
getline(cin,mssg); //get a line of txt
```



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Reading multiple types of data…

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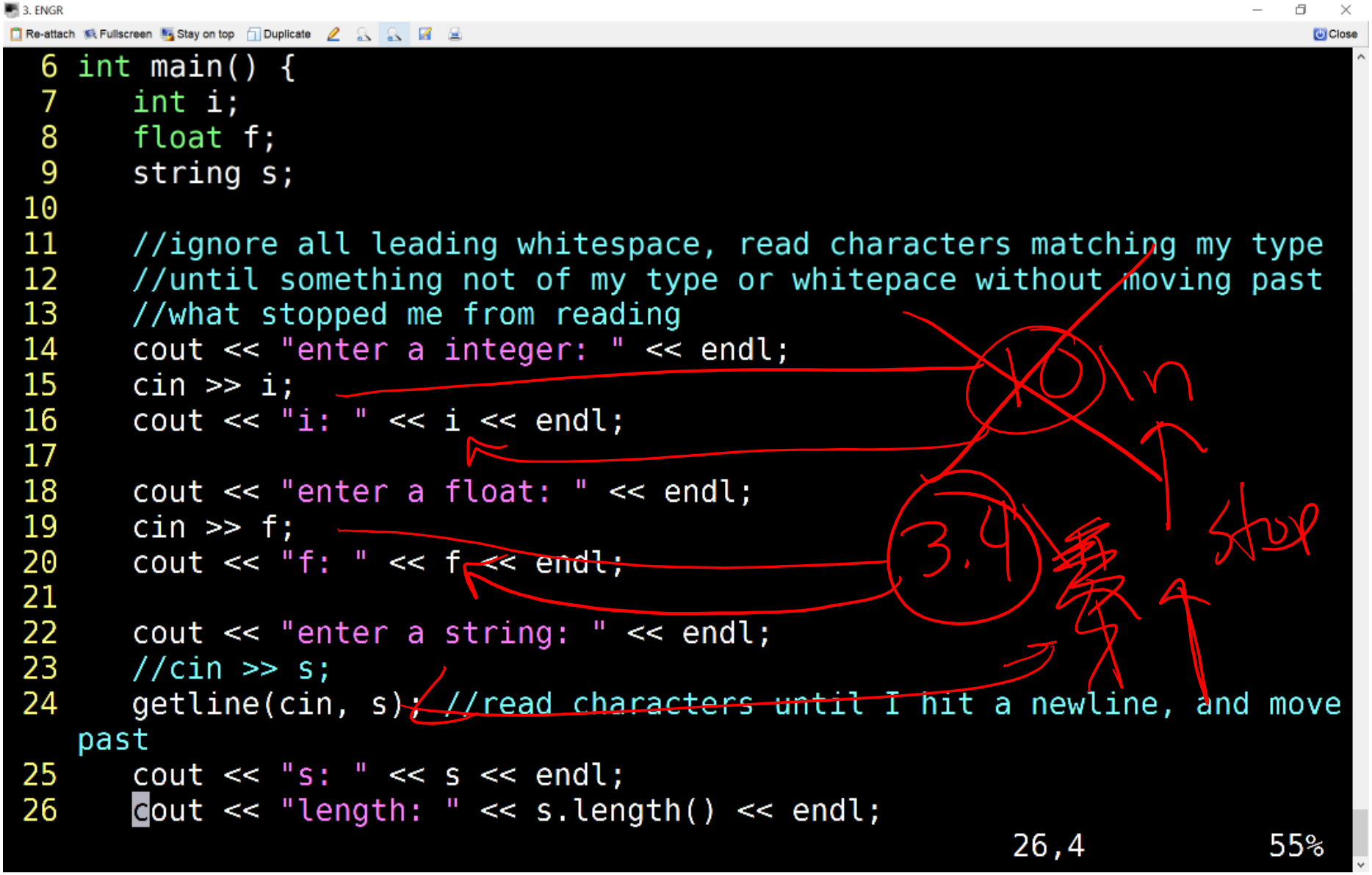
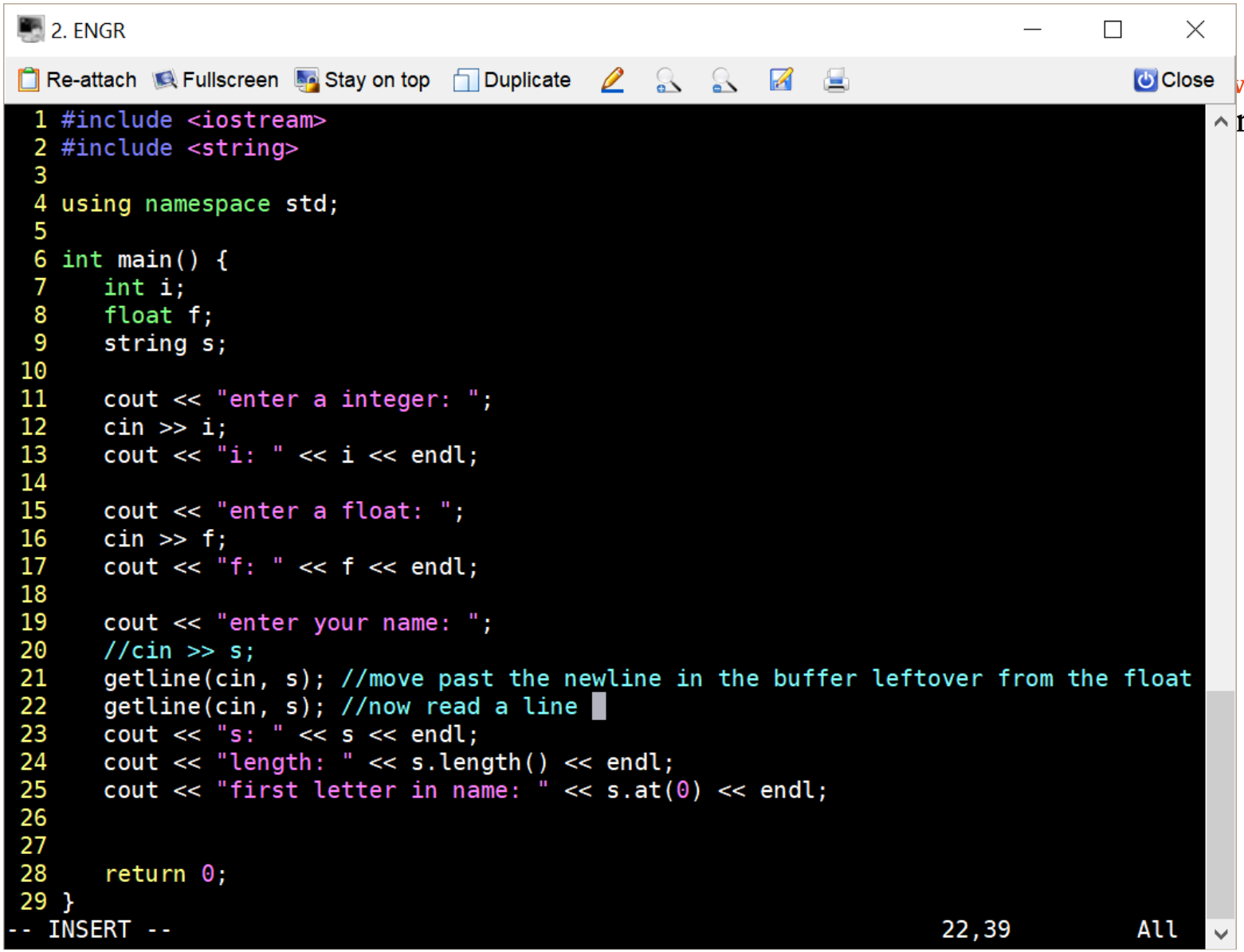
- What does cin do when reading…
  - Int/Floats
  - Strings

- What does getline do?


3. ENGR
Re-attach
Fullscreen
Stay on top
Duplicate
Close
6 int main() {
7 int i;
8 float f;
9 string s;
10
11 //ignore all leading whitespace, read characters matching my type
12 //until something not of my type or whitepace without moving past
13 //what stopped me from reading
14 cout << "enter a integer: " << endl;
15 cin >> i;
16 cout << "i: " << i << endl;
17
18 cout << "enter a float: " << endl;
19 cin >> f;
20 cout << "f: " << f << endl;
21
22 cout << "enter a string: " << endl;
23 //cin >> s;
24 getline(cin, s); //read characters until I hit a newline, and move
past
25 cout << "s: " << s << endl;
26 cout << "length: " << s.length() << endl;
26,4
55%
10\n
3.4\n
stop



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Extra Credit #2

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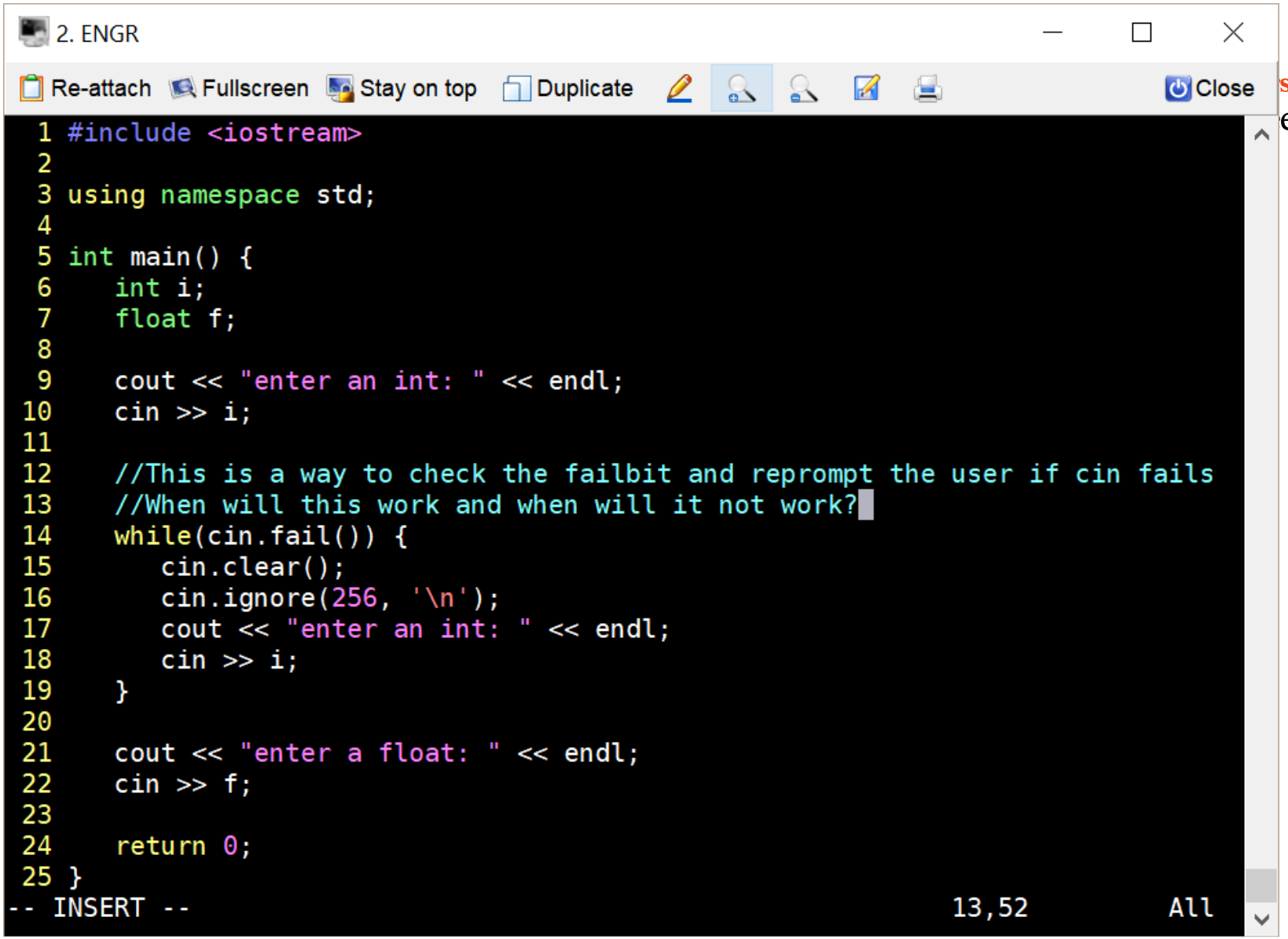
- Get into groups of 4-5.
- Write your name on one piece of paper.

- How would you determine if user entered a good positive int **without using cin.clear() and cin.ignore()**?

strings


2. ENGR
Re-attach
Fullscreen
Stay on top
Duplicate
Close
#include <iostream>
using namespace std;
int main() {
int i;
float f;
cout << "enter an int: " << endl;
cin >> i;
//This is a way to check the failbit and reprompt the user if cin fails
//When will this work and when will it not work?
while(cin.fail()) {
cin.clear();
cin.ignore(256, '\n');
cout << "enter an int: " << endl;
cin >> i;
}
cout << "enter a float: " << endl;
cin >> f;
return 0;
}
-- INSERT --
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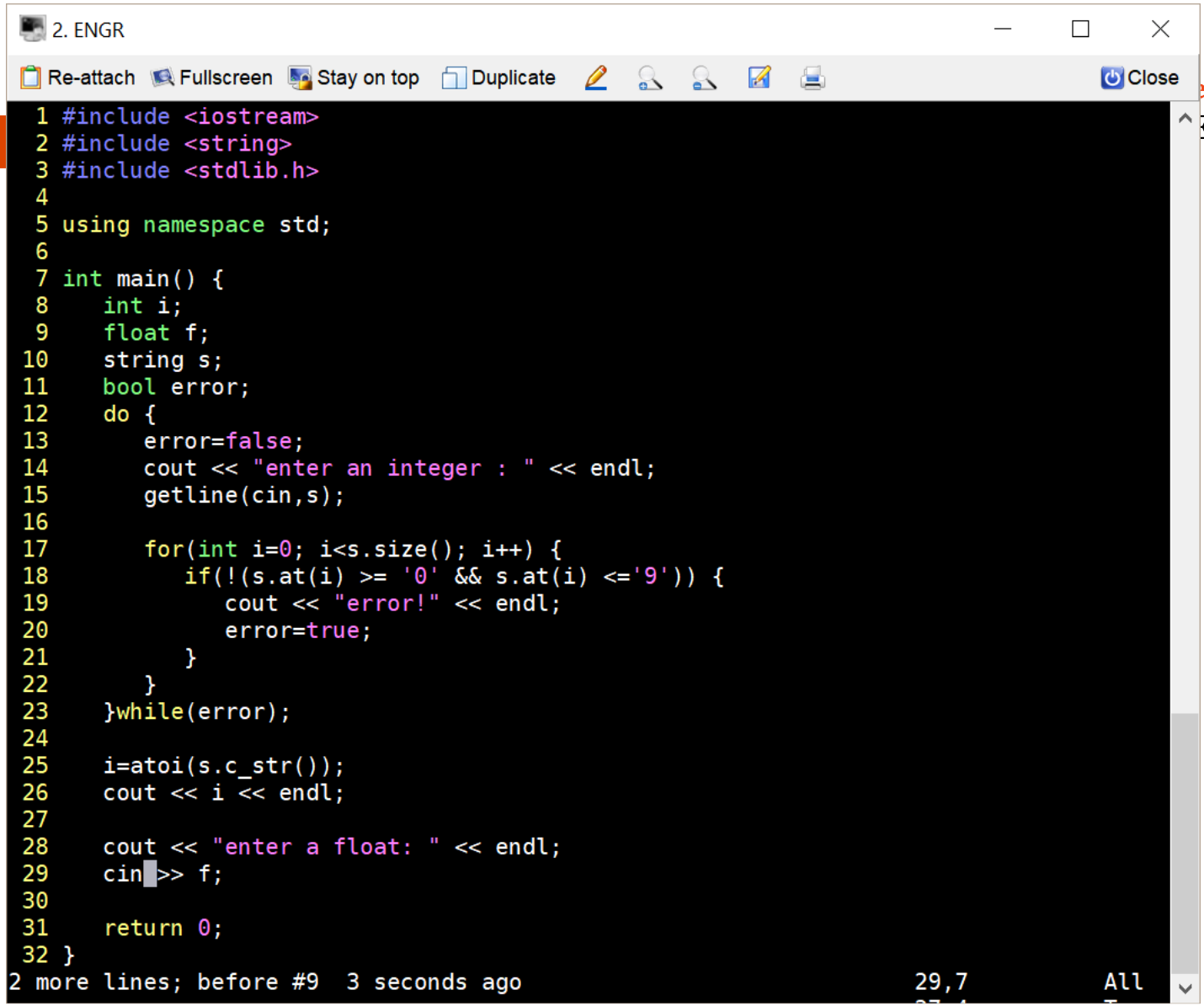

Programming Errors

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- 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

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- 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

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- 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

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- 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

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- 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