CS 161
Intro to CS I

Conditions

Odds and Ends

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- Assignment 2 and Back Evals due Sunday
- No school Monday
- Questions?

Extra Credit Exercise

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- Get into groups of 4-5.
- Write your names on a piece of paper.

- How are you adding an element of chance to your Assignment #2?

Additional Operators

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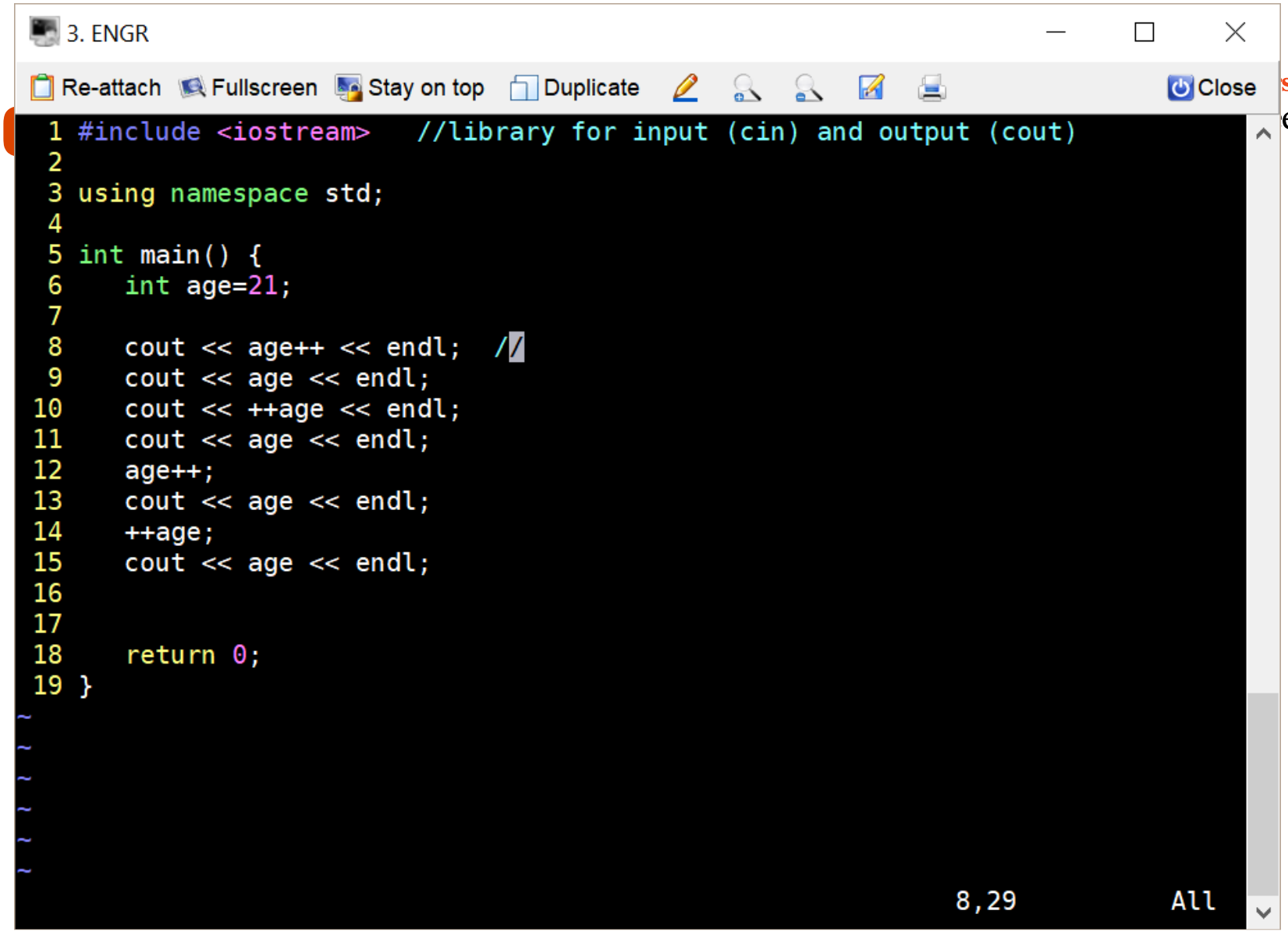
- Common operation: fetch/store same variable

```
var=var + 2;  //increment variable contents
var=var * 2;  //double variable contents
```

  - operator/assignment combination (all ops supported):

```
var += 2;
var *= 2;
```

- Pre/Post increment/decrement: ++ and --
  - Example: age++ vs. ++age


3. ENGR
Re-attach
Fullscreen
Stay on top
Duplicate
Close
1 #include <iostream>   //library for input (cin) and output (cout)
2
3 using namespace std;
4
5 int main() {
6   int age=21;
7
8   cout << age++ << endl; //
9   cout << age << endl;
10   cout << ++age << endl;
11   cout << age << endl;
12   age++;
13   cout << age << endl;
14   ++age;
15   cout << age << endl;
16
17
18   return 0;
19 }
8,29
All

Decisions in Life

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- What is a decision?
- When do we make decisions?
- How do we make decisions?

if it is sunny today
then I'll go to the beach and fly a kite
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

Decisions within Decisions

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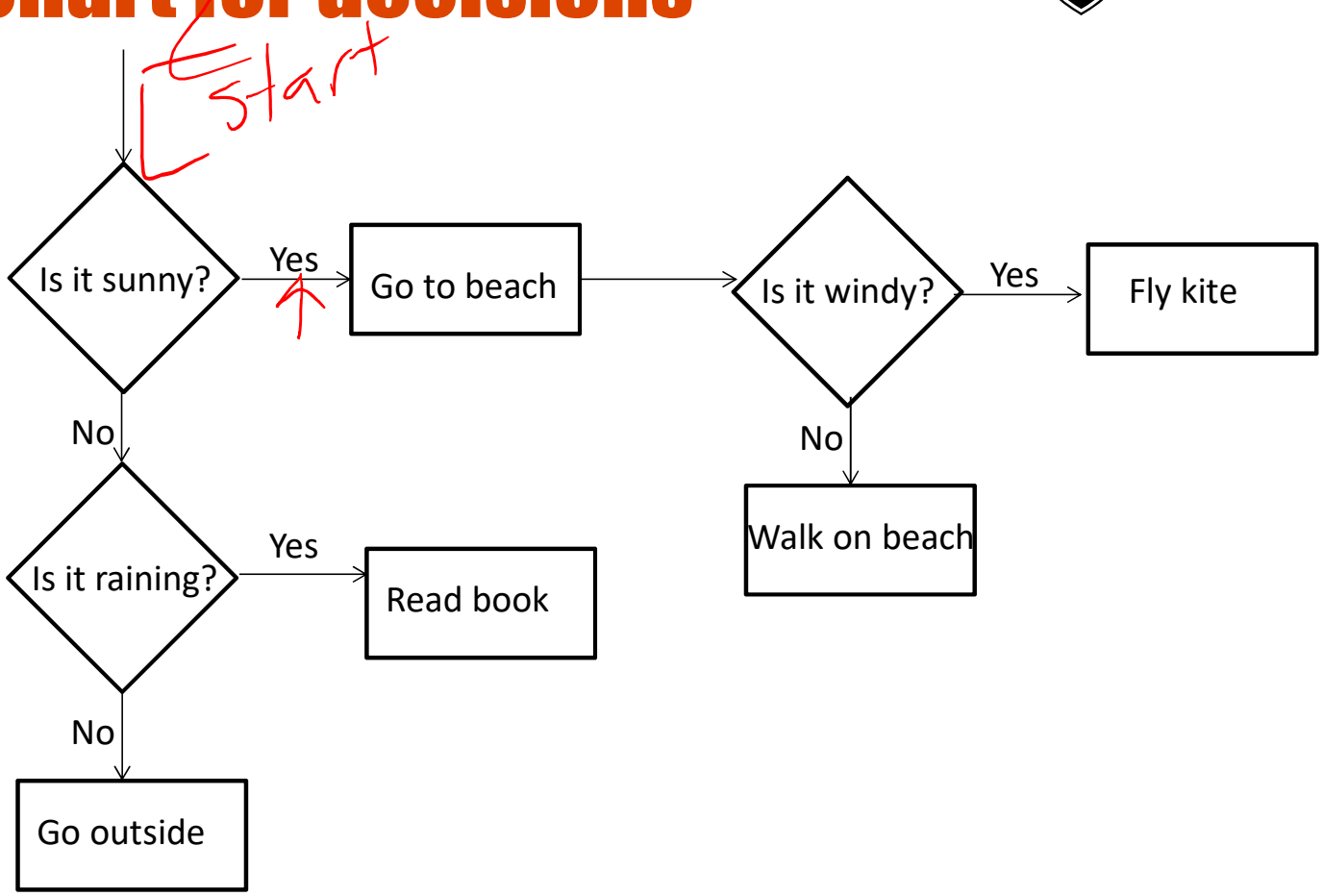
- What happens if there is no wind at the beach?
- How does this change our decisions?

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

Flow chart for decisions



Decisions in our programs

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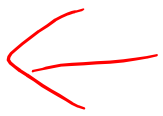
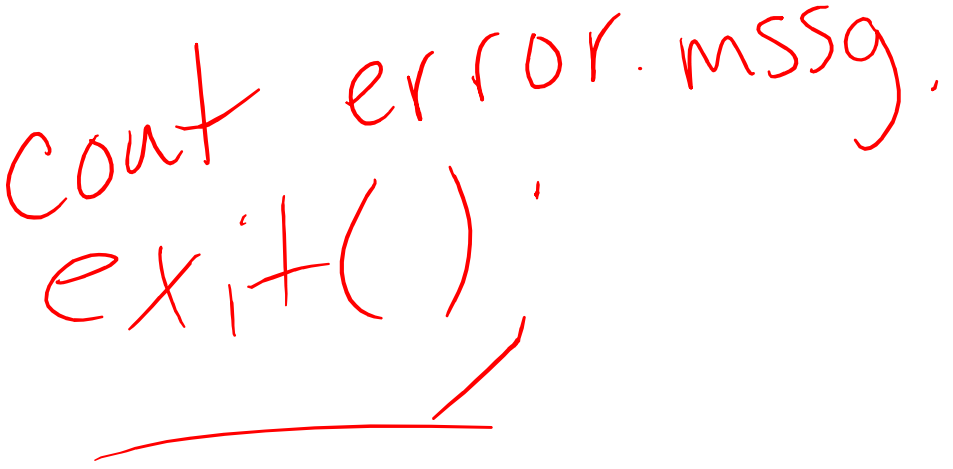
- Use an if/else

```
if (<expression>) {
    <statement>;
    …
    <statement>;
}
else {
    <statement>;
    …
}
```





What is the <expression>?

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Could be a relational expression:

<expression> <relational op> <expression>

- Relational Ops

  == - equal to

  != - not equal to

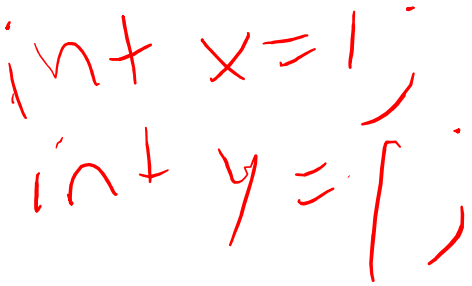
  < - less than

  > - greater than

  <= - less than or equal to

  >= - greater than or equal to

C++ If/Else Syntax…




```
if( x > y) {
    std::cout << "X is greater than Y";
}
else {
   std::cout << "X is less than Y";
}
```

- When does this logic fail?

C++ If/Else…

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```
if( x > y) {
    std::cout << “X is greater than Y”;
}
else if( x < y) {
    std::cout << “X is less than Y”;
}
else {
    std::cout << “X is equal to Y”;
}
```

What are the curly braces for?

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```
if( x > y)
    std::cout << “X is greater than Y”;
else if( x < y)
    std::cout << “X is less than Y”;
else
    std::cout << “X is equal to Y”;
```

What if we are testing for ==?

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```
if( x == 0) {
    std::cout << "X is zero";
}
else if( x == 1) {
    std::cout << "X is one";
}
else if( x == 2) {
    std::cout << "X is two";
}
else {
    std::cout << "You have entered an invalid number!";
}
```

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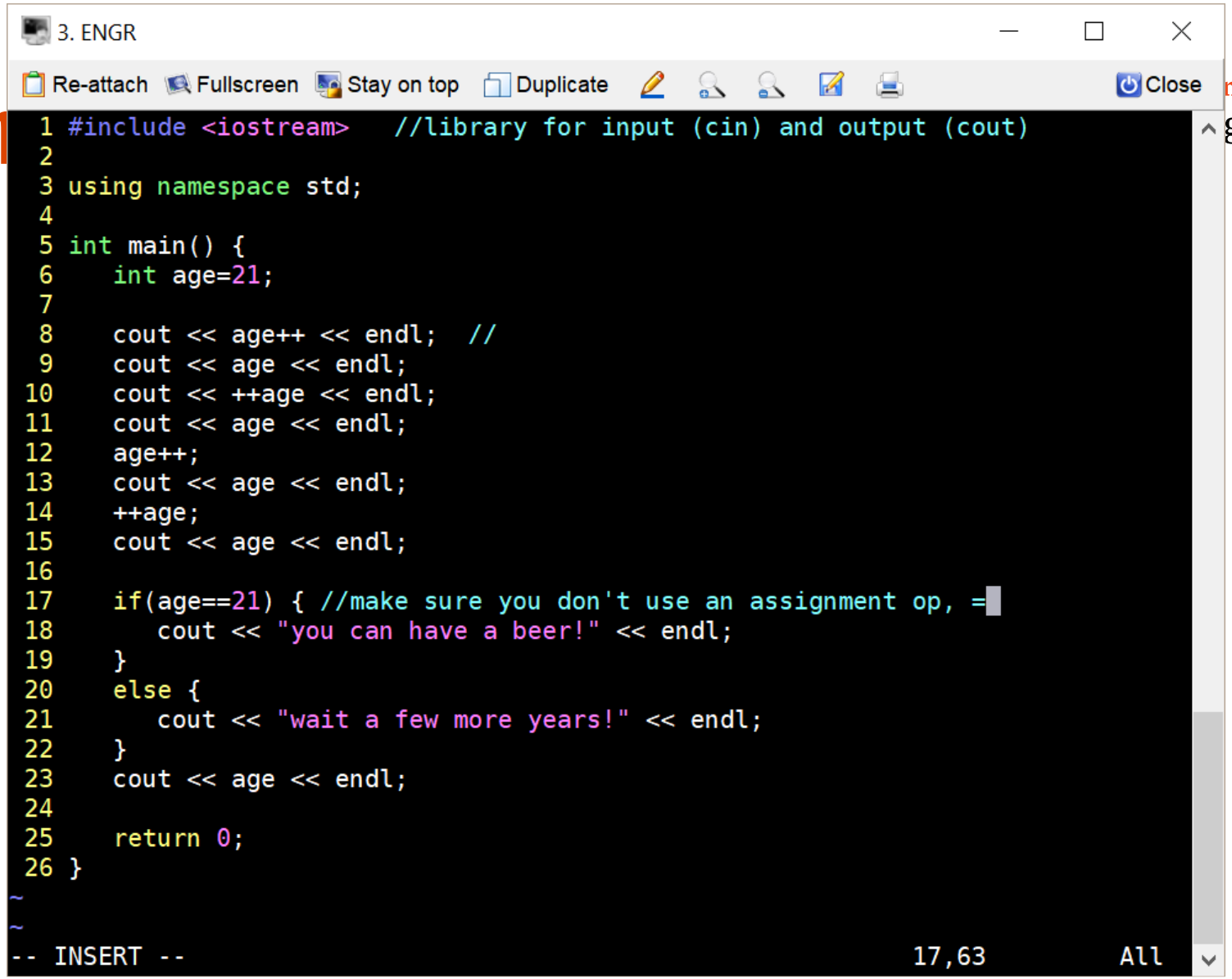

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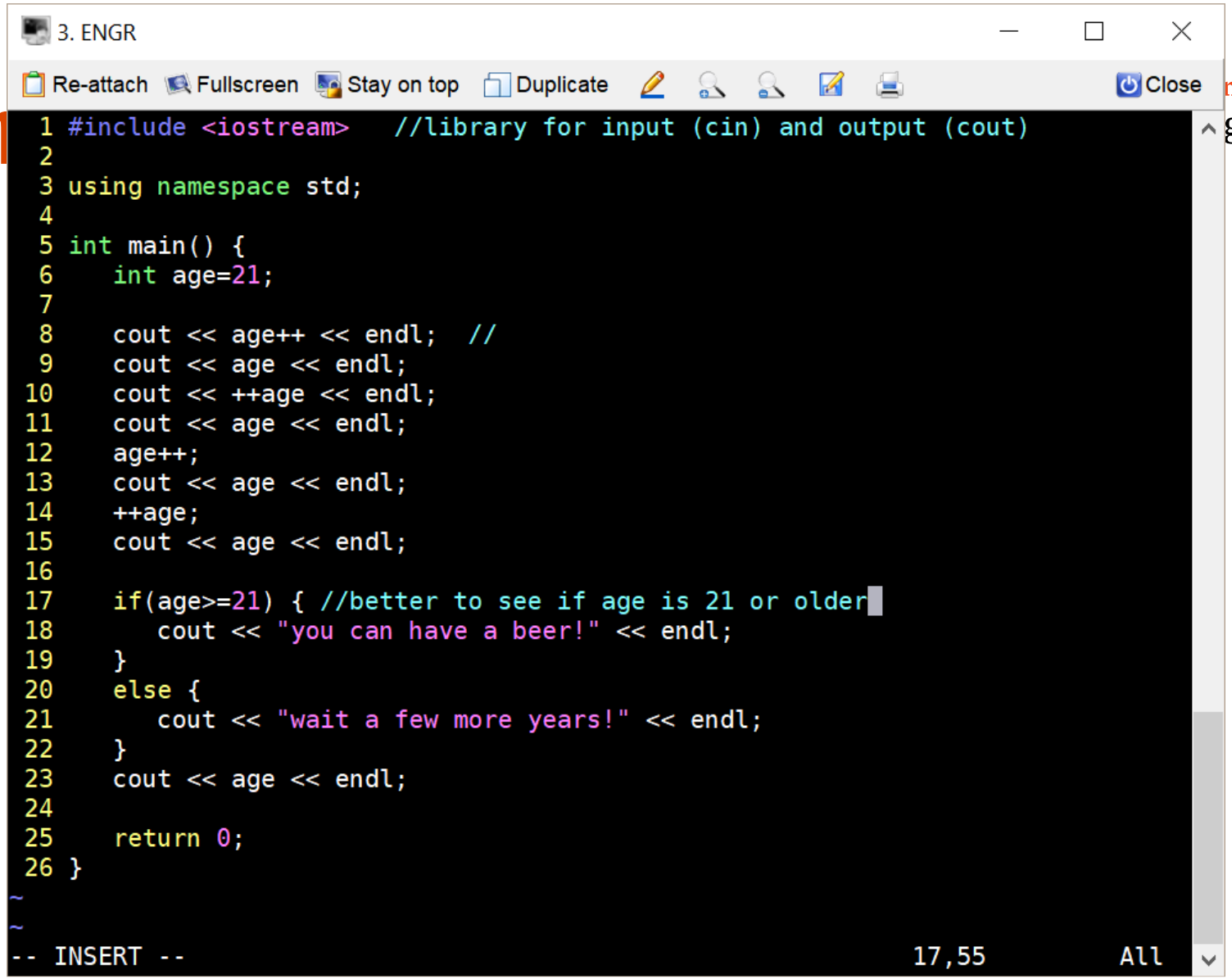
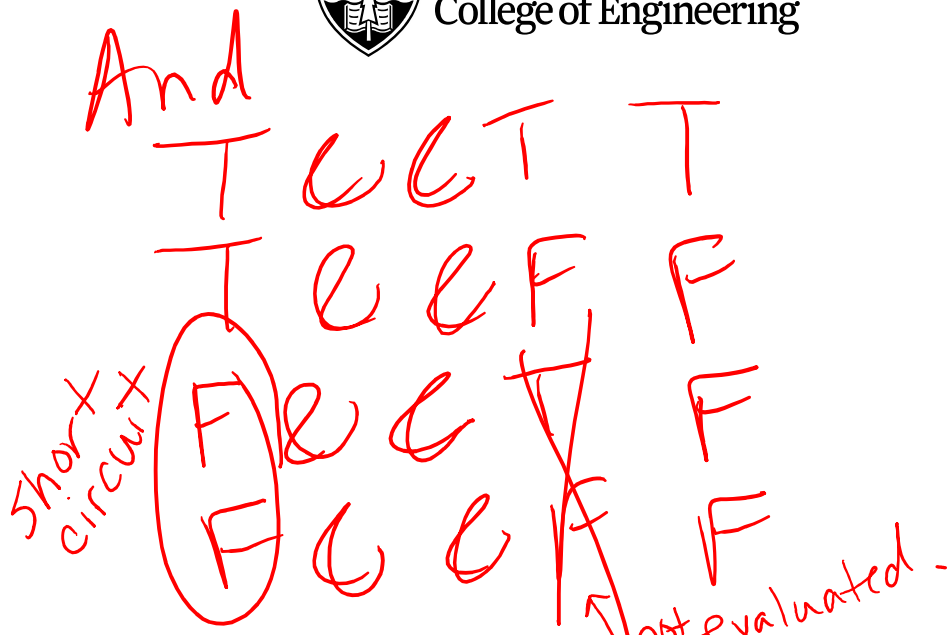


Logical Operators

- AND: if((1>2) && (2<5))
- OR: if((1>2) || (2<5))
- NOT: if(!(1>2) && (2<5))



- Precedence of Operators: http://en.cppreference.com/w/cpp/language/operator_precedence