

If – Else

- ◉ Imagine that a program is a bike path
- ◉ You can then think of if, else, and else if statements like forks in the path

You might choose the path based on road conditions, for example....



if else, else if: Syntax

```
4  if (ThisIsTrue) {  
5      //Do this stuff then skip to end  
6  } else {  
7      //Do this stuff  
8  }  
9      Vs  
10  
11  if (ThisIsTrue) {  
12      //Do this stuff and skip to end  
13  } else if (ThisIsTrue) {  
14      //Do this stuff skip to end  
15  } else {  
16      //Do this stuff and skip to end  
17  }  
18
```

Like the fork
in the Bike
Path, you
can only
choose one
way

Note, the Else goes to the closest if:

```
1
2  int x = 0;
3  cin >> x;
4
5  if (x == 5) {
6      x = 4;
7  } if (x < 5) {
8      x = 3;
9  } else {
10     cout << "Your X was too large... :(";
11 }
12
13
```

The programmer
probably meant to
use an else if in the
middle....

Nested if/else statements

- There are often many ways to represent the same logic with if/else statements

- You can use a series of if/else ifs, use nested if/elses, or use boolean logic:

These are Equivalent:

- if (y == 1)
 if (m == 2)
 cout << (m + n);
- if (y == 1 && m == 2)
 cout << (m + n);

As are these:

- if (y == 1)
 cout << (m + n);
else if (m == 2)
 cout << (m + n);
- if (y == 1 || m == 2)
 cout << (m + n);

Scope and If Else:

What Prints (be careful)?

```
int num = 1;

if (num = 3) {
    int num = 2;
    cout << num;
} else if (num = 1) {
    cout << num;
}
cout << num;
```

What about here?

```
int x = 4;

if (x > 2) {
    cout << x;
    int i = x + 1;
} else if (x == 2) {
    cout << (x-2);
    int i = x--;
} else {
    int i = x;
}
cout << i;
```

COMPILE ERROR!!!!