

If - Else

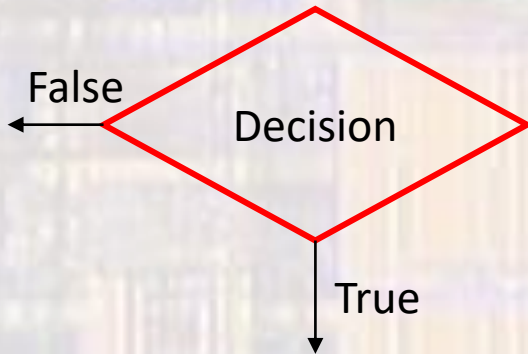
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If - Else

- These slides introduce the if-else statement
- Upon completion: You should be able interpret and code using these statements

If-Else

- Two way decisions



If-Else

- Two way decisions

- if ... else

...

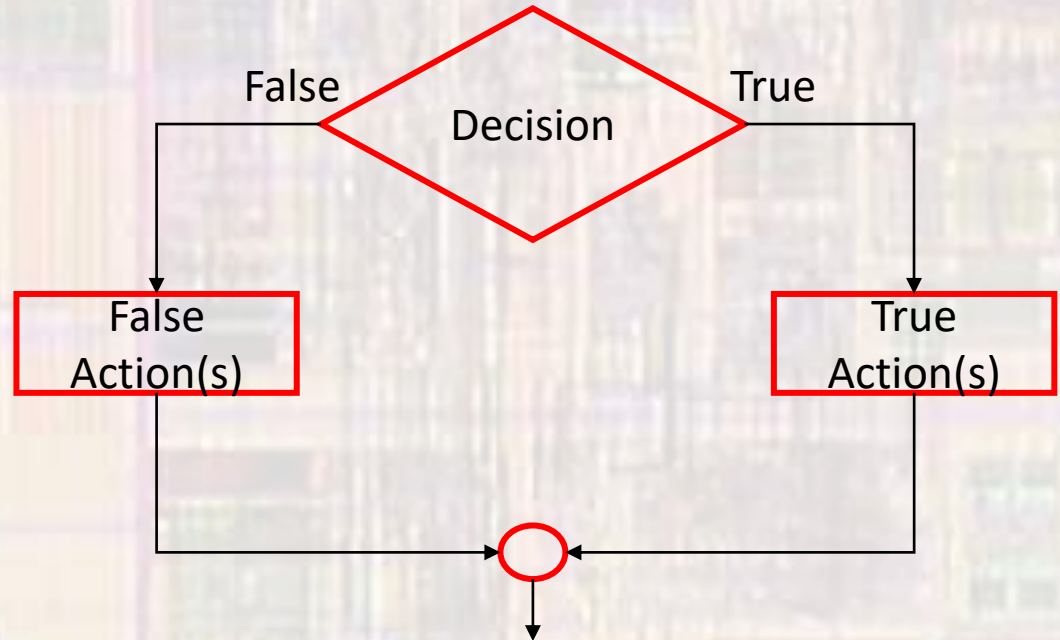
if (expression)

statement 1

else

statement 2

...



If-Else

- Two way decisions
 - if ... else – Rules
 - 1) expression must be in parenthesis
 - 2) no semicolon (unless statements need one)
 - 3) expression can have side effects
 - 4) statements can be anything – including another if-else
 - 5) statement 1 and statement 2 must be a single statement – but remember we can use {...} to combine multiple statements to be considered one statement

If-Else

- Two way decisions

```
if (j == 1)
    a++;
else
    a--;
```

```
if (j <= 5){
    a++;           // compound statement
    b = a + 3;
}
else
    a--;
```

If-Else

- Two way decisions

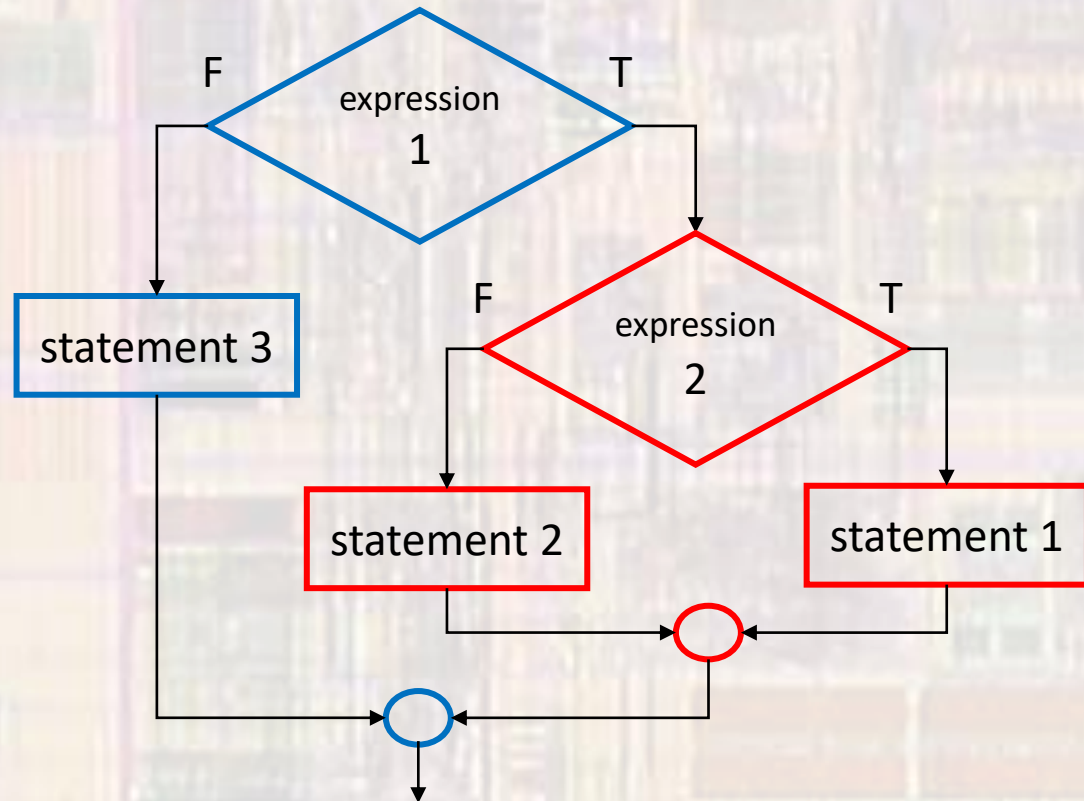
```
if (j == 1)
    a++;
else
    ;                // null else statement
```

```
if (j <= 5){
    a++;
    b = a + 3;
}                // null else statement (nothing at all)
```

If-Else

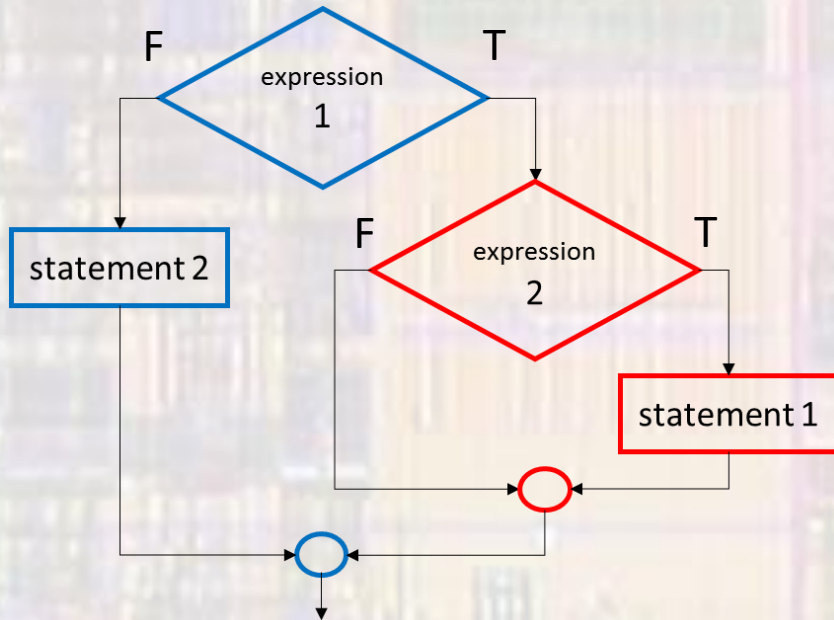
- Two way decisions
 - Nested if-else

```
if (expression 1)
  if (expression 2)
    statement 1
  else
    statement 2
else
  statement 3
```



If-Else

- Two way decisions
 - Nested if-else



if (expression 1)
 if (expression 2)
 statement 1
 else
 statement 2

Not what you expect

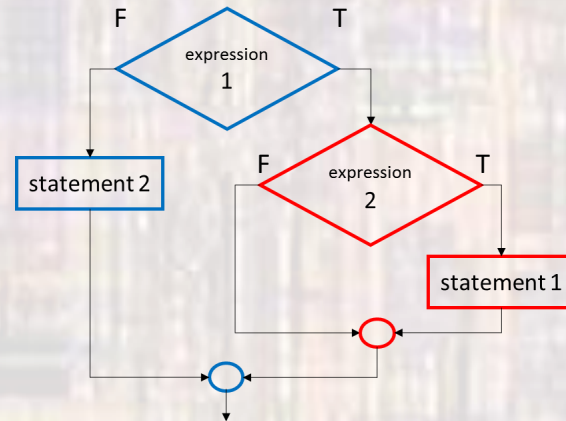
If-Else

- Two way decisions
 - Nested if-else
 - **else** is paired with the most recent **if**

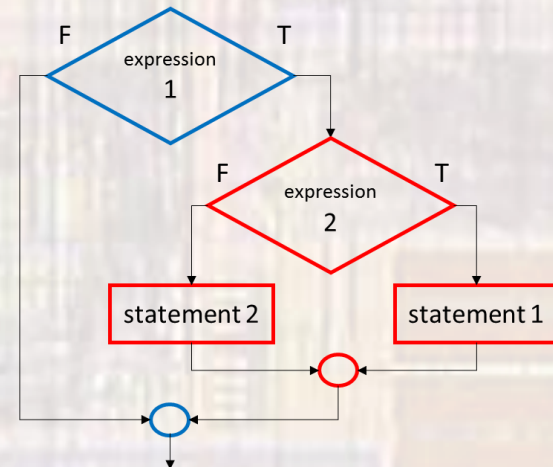
```
if (expression 1)
  if (expression 2)
    statement 1
else
  statement 2
```

```
if (expression 1)
  if (expression 2)
    statement 1
else →
  statement 2
```

Desired →



Actual →

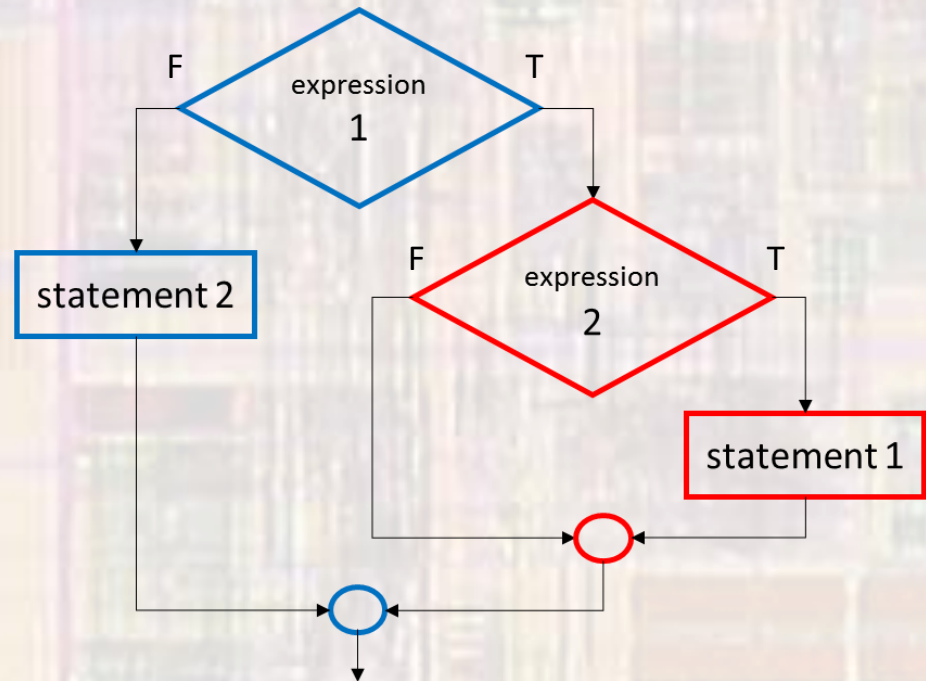


If-Else

- Two way decisions
 - Nested if-else
 - **else** is paired with the most recent **if**

```
if (expression 1)  
  if (expression 2)  
    statement 1  
  else  
    ;  
else  
  statement 2
```

```
if (expression 1){  
  if (expression 2)  
    statement 1  
}  
else  
  statement 2
```



If-Else

- Two way decisions

```
if (a < b){
```

```
if (!a){
```

```
if ((a - b) > 0){
```

```
if (myChar == 'a'){
```

```
if (a == 2) {           // always do this
```

```
if (a = 0) {           // arggggg, never do this
```

```
if (a == 0 || b && !c){
```

If-Else

- Two way decisions
 - If myChar is the letter e (small or capital), make it the same type but an f
 - If a is positive, decrement it, otherwise increment it
 - If either a or b are false, increment c, otherwise set c equal to 5
 - Assume a and b are floats. If they are equal clear a.

