

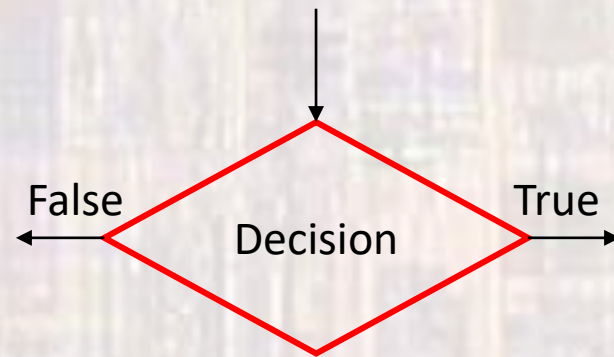
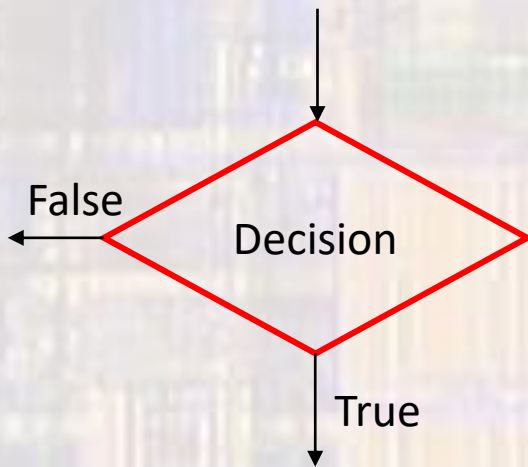
If - Else

Last updated 6/15/23

These slides introduce the if-else construct in C

If-Else

- Two way decisions



If-Else

- Structure

...

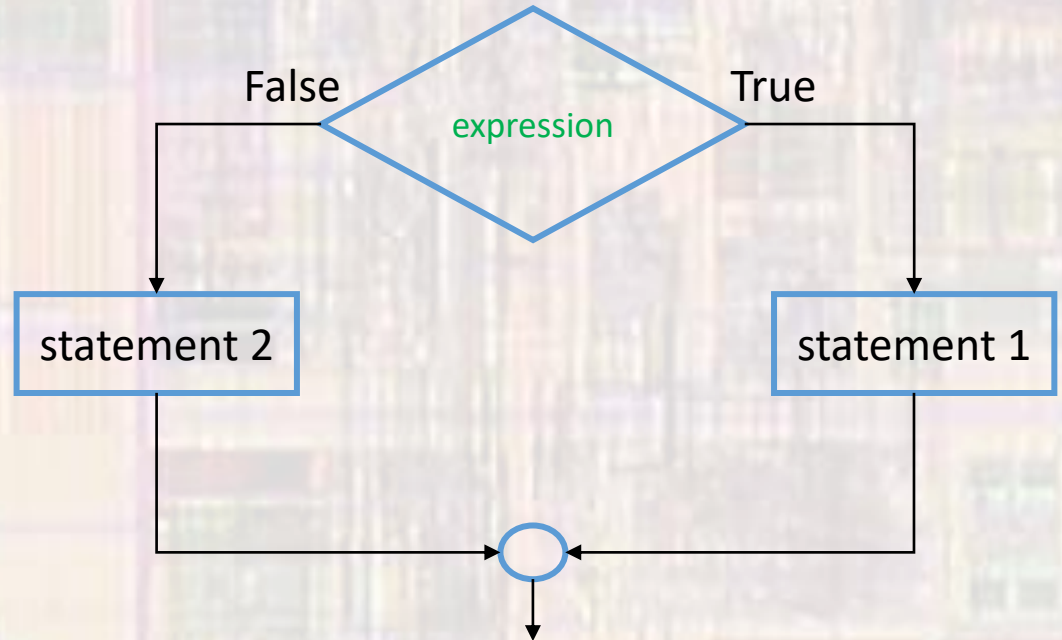
```
if (expression)
```

```
    statement 1
```

```
else
```

```
    statement 2
```

...



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 each be a single statement – but remember we can use {...} to combine multiple statements to be considered one statement

If-Else

- Examples

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

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


If-Else

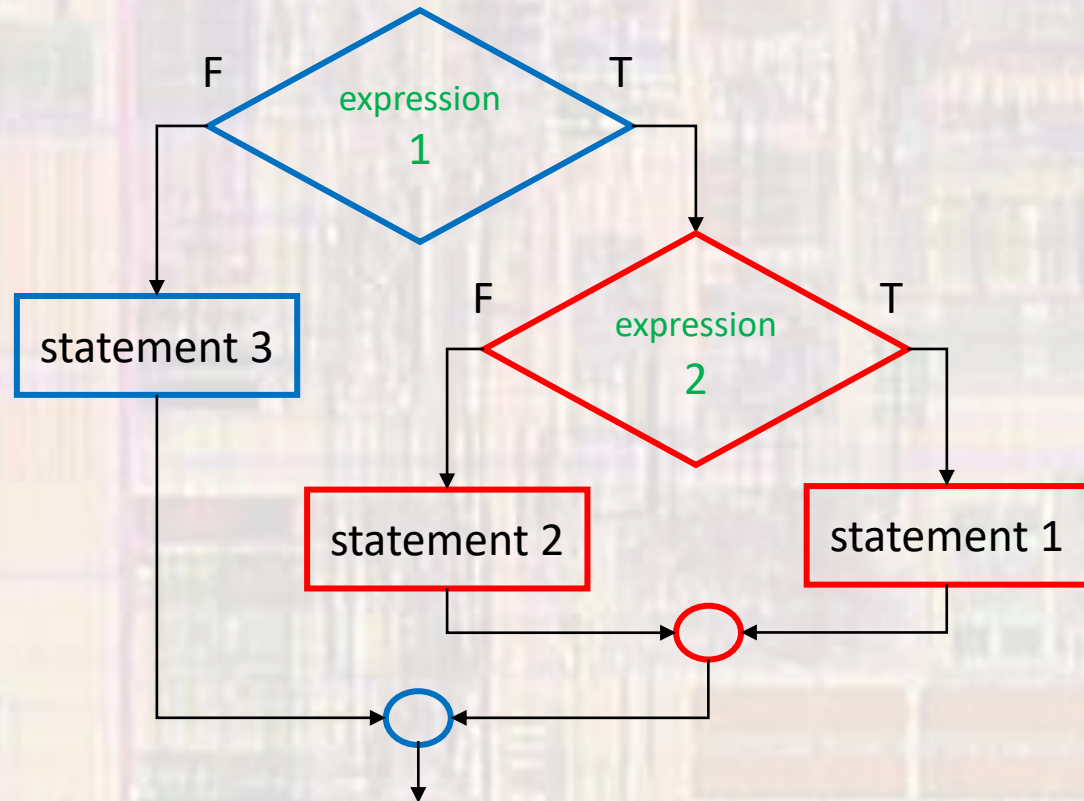
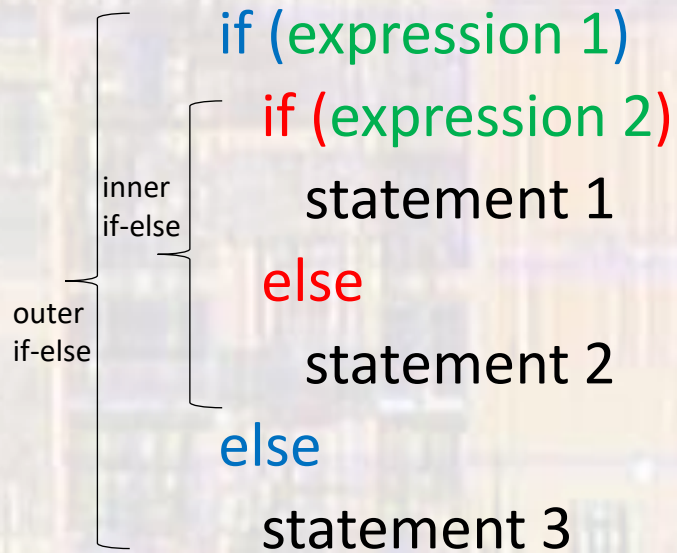
- Examples

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

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

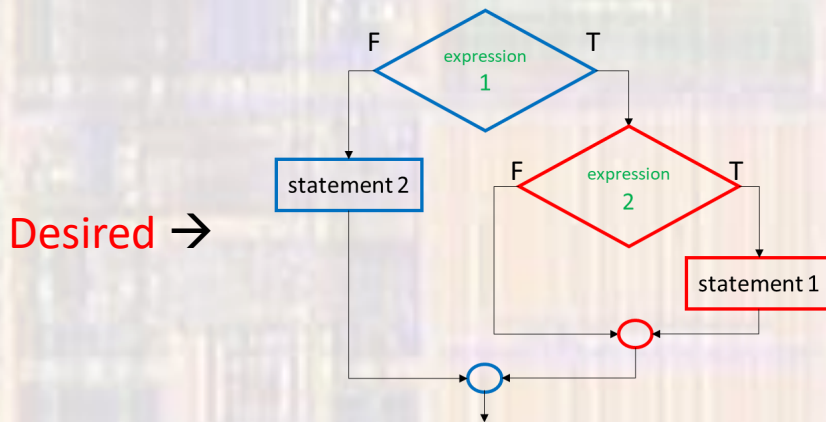
If-Else

- Nested if-else



If-Else

- Nested if-else - **Warning**
 - **else** is paired with the most recent **if**



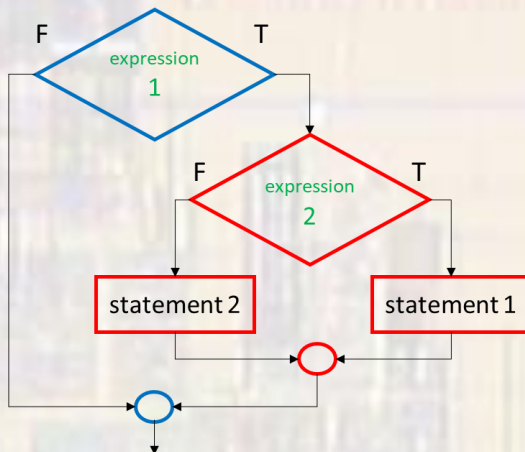
Written →

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

↓ **Actual interpretation**

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

← **Actual**

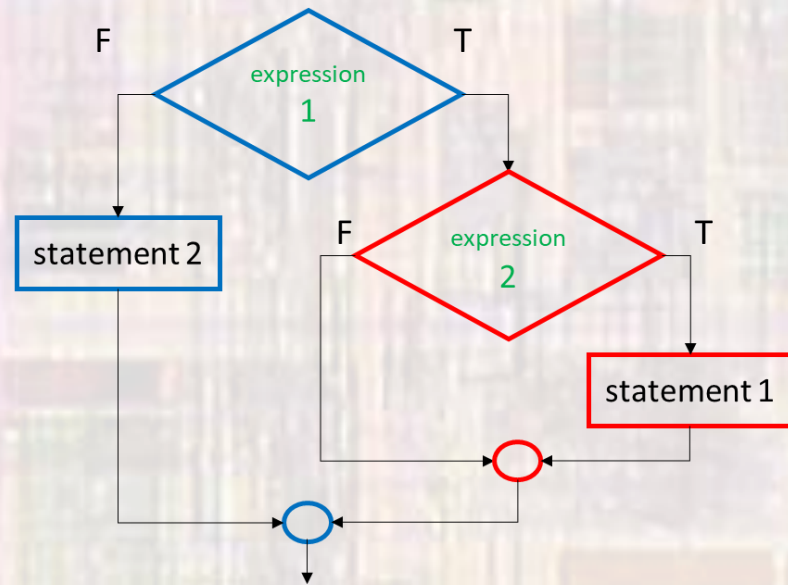


If-Else

- Nested if-else – **warning** - solutions
 - **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

- Examples

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

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

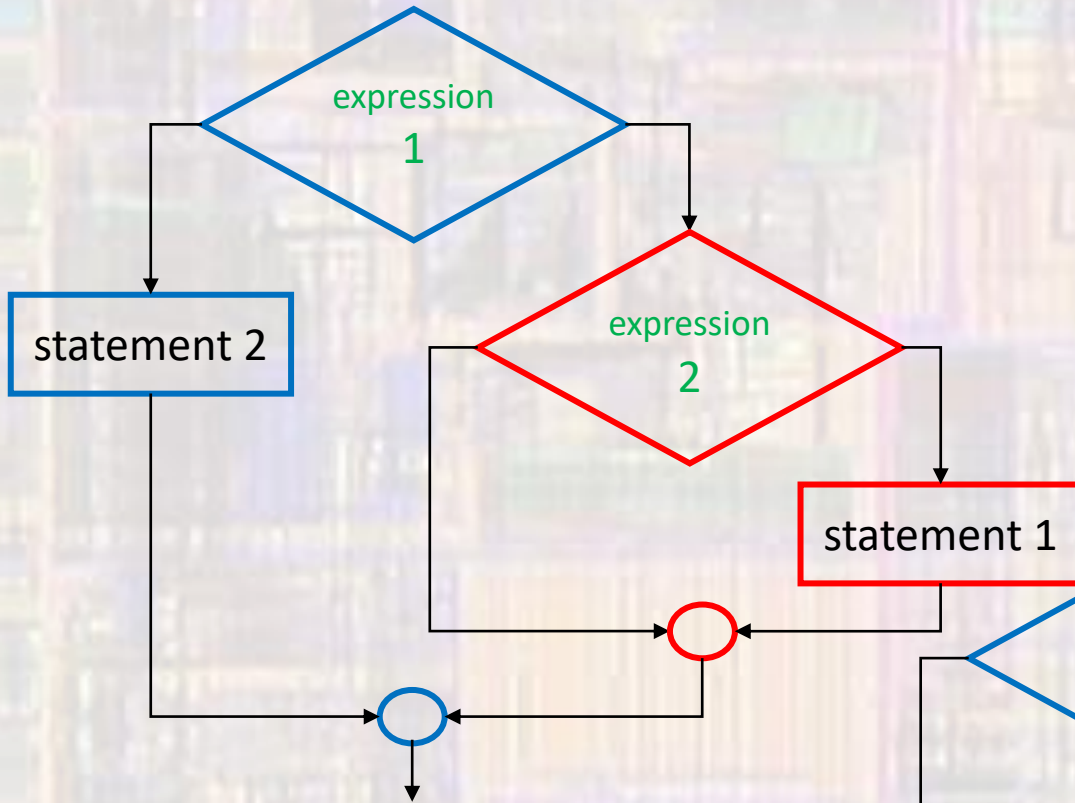
```
if ((a - b) > 0){
```

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

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

```
if (a = 2){           // arggggg, never do this
```

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



Diagrams

