

While

Last updated 12/2/22

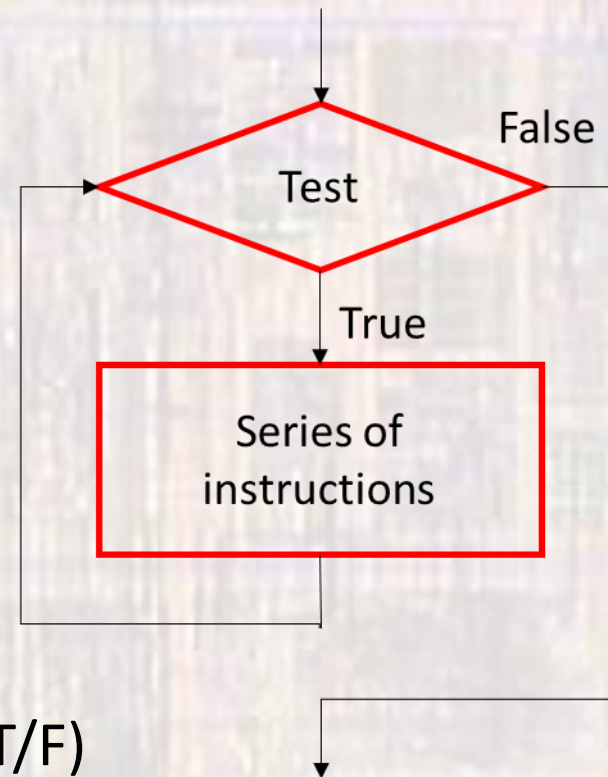
These slides introduce the while construct

While

- Structure

```
while(expression)  
    statement;
```

```
while(expression) {  
    statements;  
}
```



- **expression** is evaluated logically (T/F)
- execute statements while expression is true

While

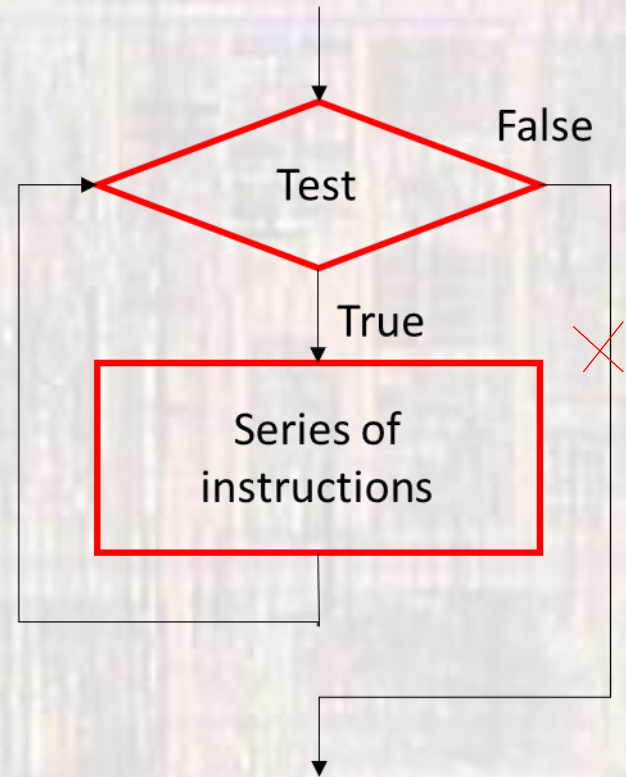
- Example

- Forever

```
while(true)  
    statement
```

```
while(1){  
    statements  
}
```

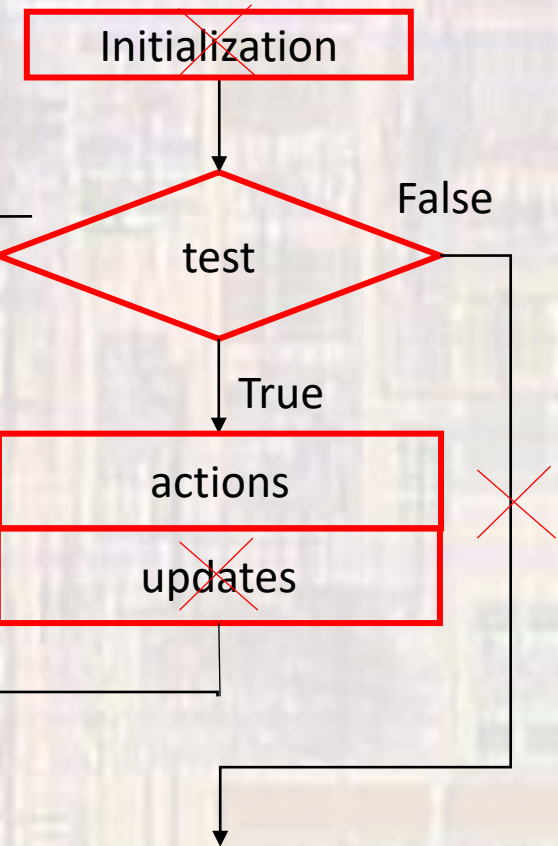
```
while(-13.2){  
    statements  
}
```



While

- Example - forever
- Thermostat – always running

```
while(1){  
    temp = get_temp();  
    setting = get_setting();  
    if (temp > setting){  
        heater_off();  
        ac_on();  
    }  
    else{  
        heater_on();  
        ac_off();  
    } // end if  
} // end while
```



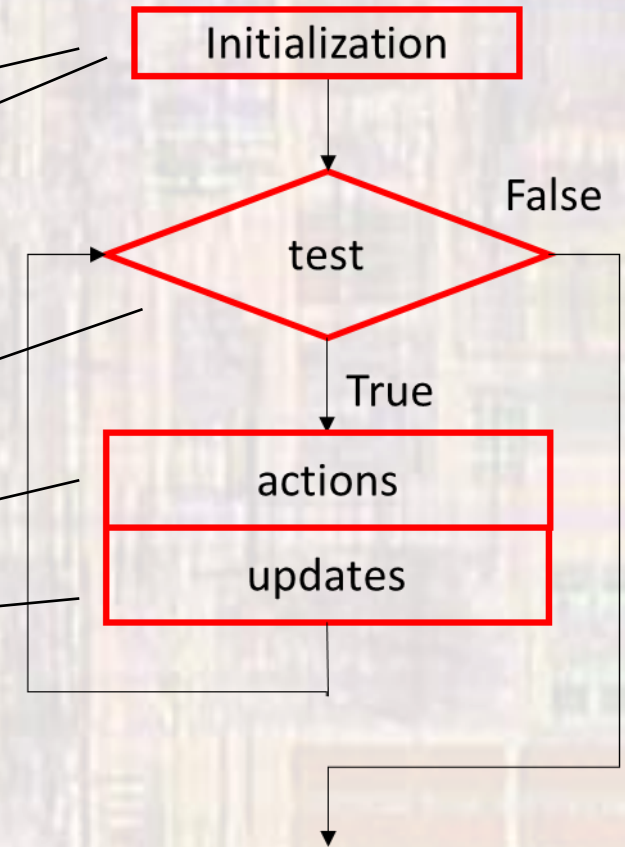
While

- Example - conditional

- Factorial – num!

```
int factorial(int num){  
    int fact;  
    fact = 1;  
    while(num > 0){  
        fact = fact * num;  
        num--;  
    } // end while  
    return fact;  
} // end factorial
```

Full
Loop



While

- Examples

```
while(a < b){
```

```
while((b - 4) != 9){
```

```
while(x){
```

```
while((a < 0) || (a > 9)){
```

```
while(var1 && var2)
```

```
while((foo & 0x08) == 8){
```