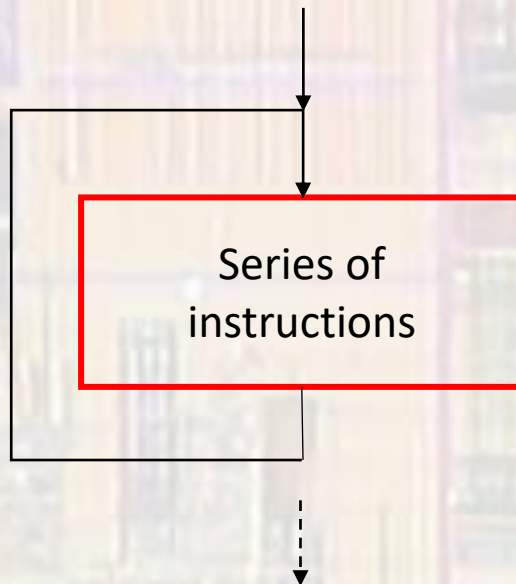# Repetition

Last updated 10/29/20

Repetition

- These slides introduce the concept of repetition

- Upon completion: You should be able to interpret and develop solutions with repetition
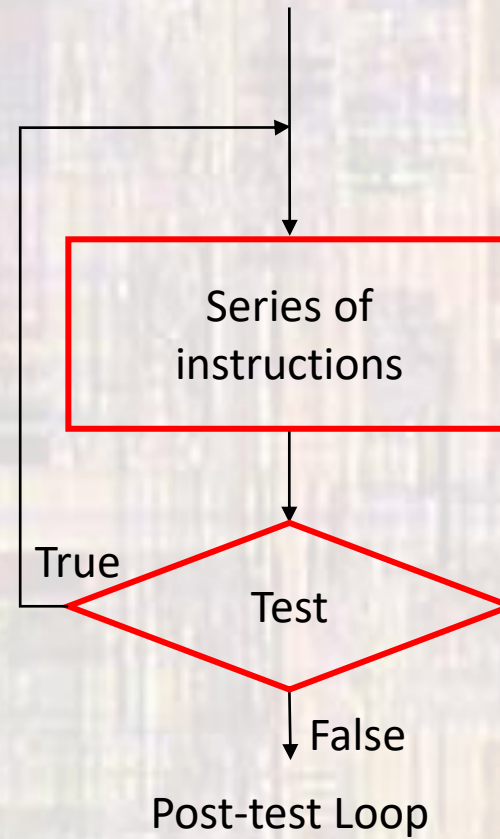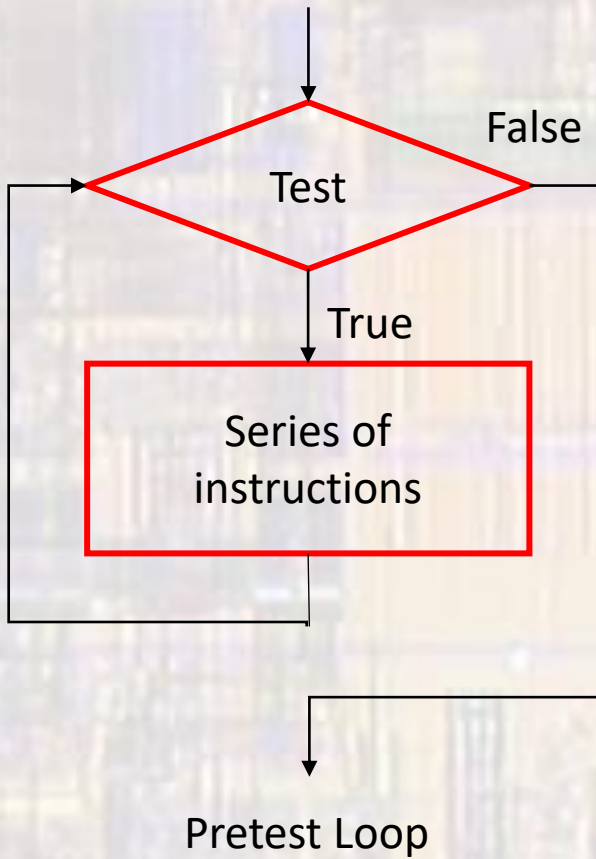
Repetition

- Repeat a series of instructions - loop

  - How many times
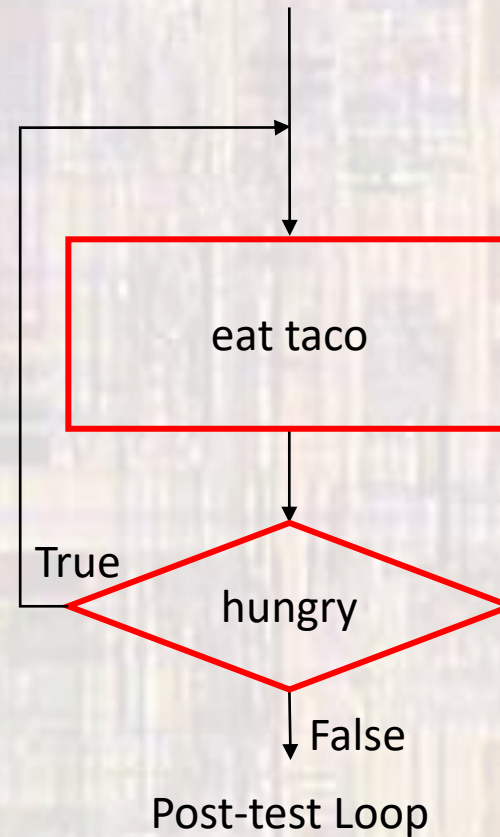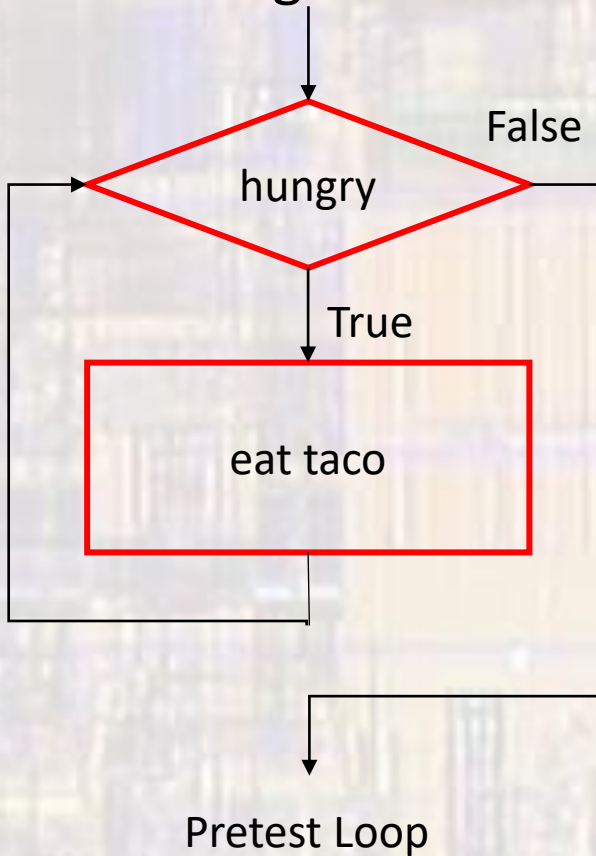 - Under what conditions
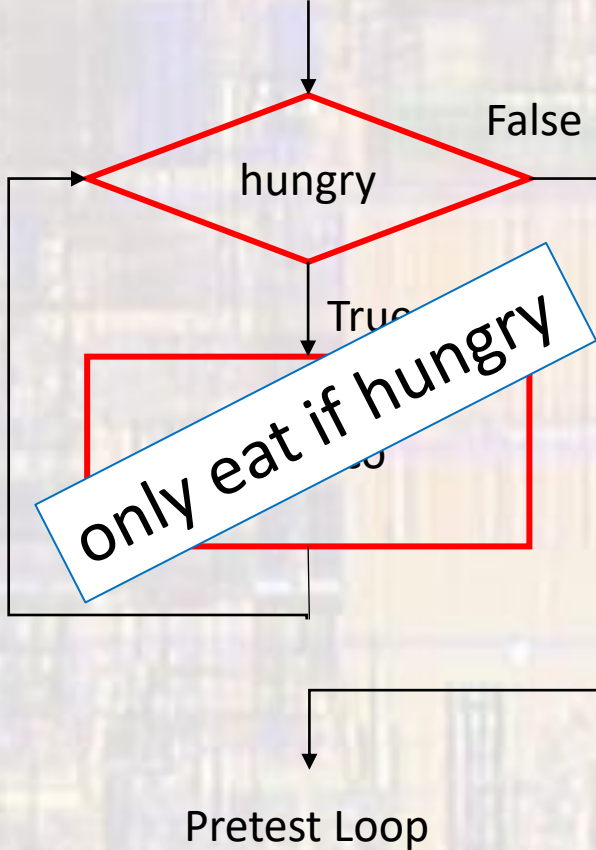
  - Test to determine if we are done

Series of
instructions

- Loop Testing

False

Test

True

Series of
instructions

Pretest Loop

Series of
instructions

True

Test

False

Post-test Loop

Repetition

- Loop Testing
  - Eating tacos
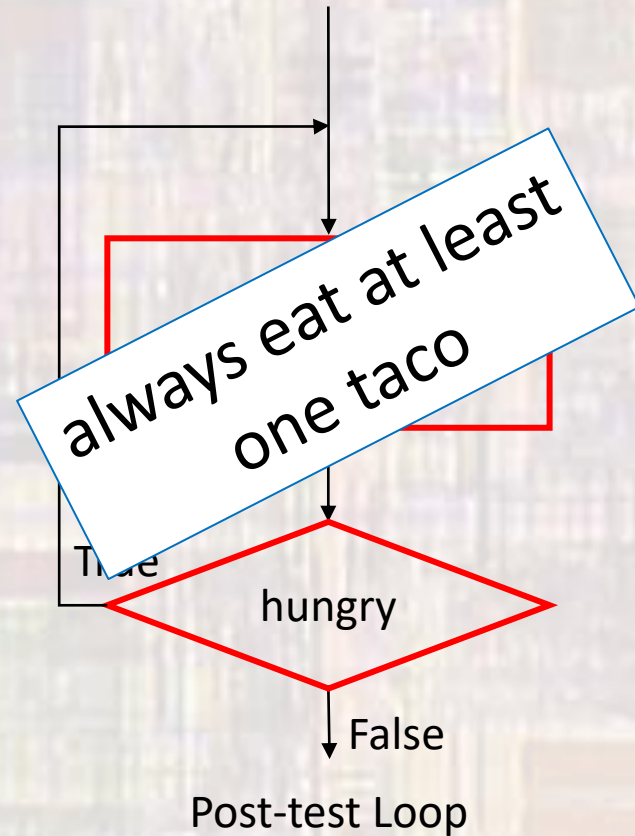

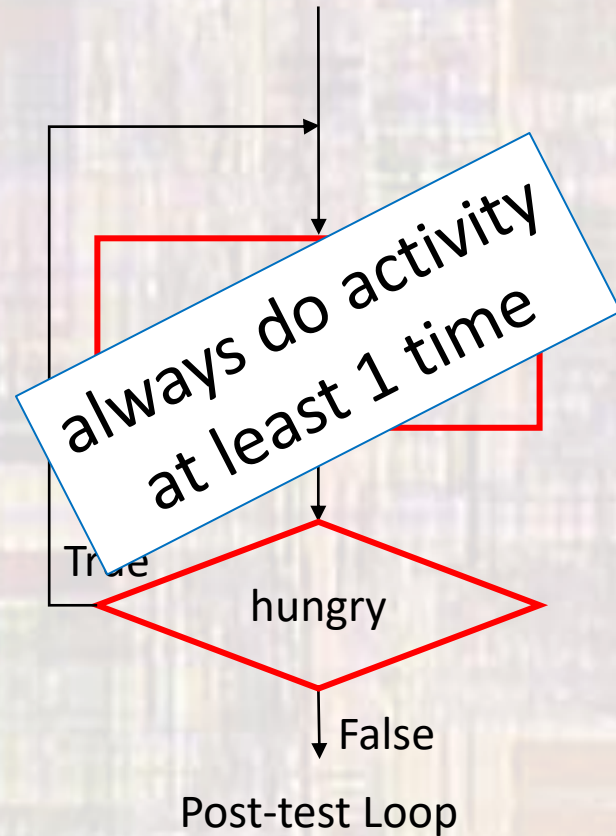Pretest Loop
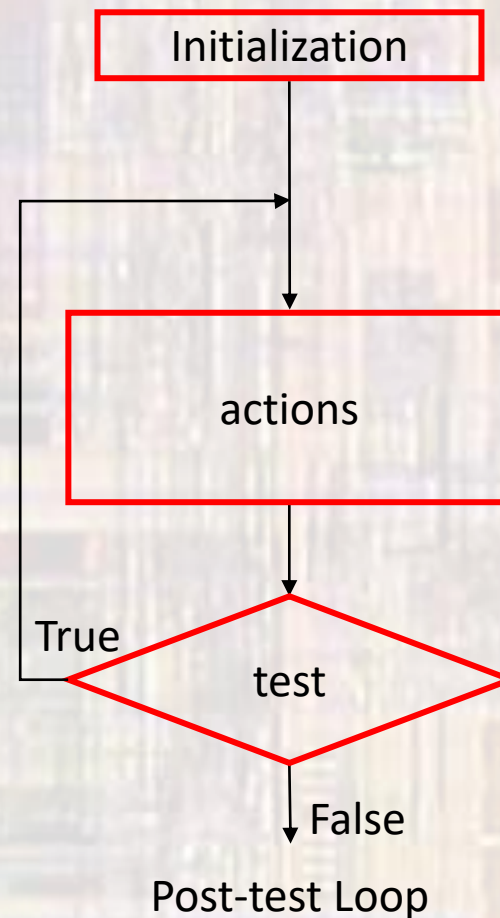
Post-test Loop

Repetition

- Loop Testing
  - Eating tacos

only eat if hungry

always eat at least one taco

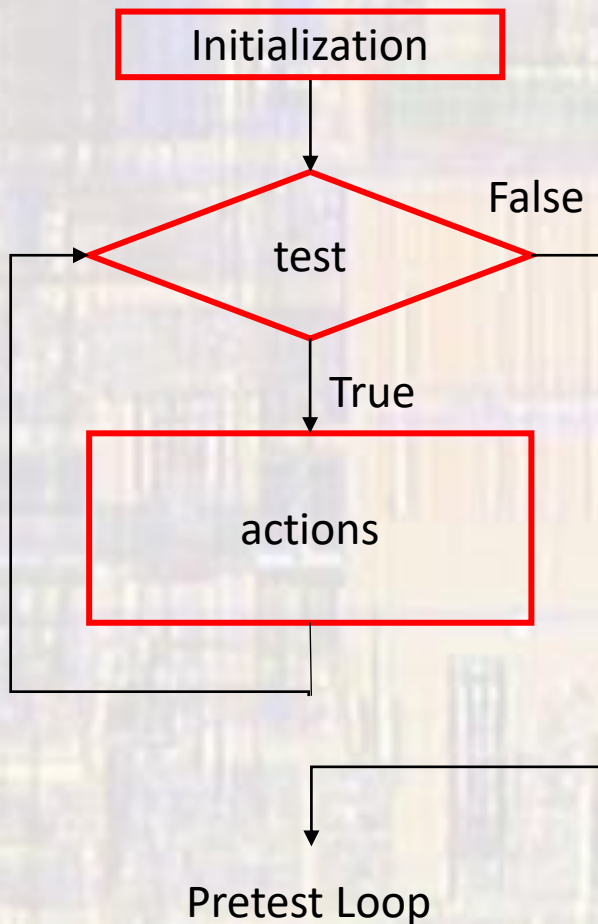Pretest Loop

Post-test Loop

Repetition

- Loop Testing
  - Eating tacos

False

hungry

may do activity
0, 1, or more times

Pretest Loop

always do activity
at least 1 time

True

hungry

False
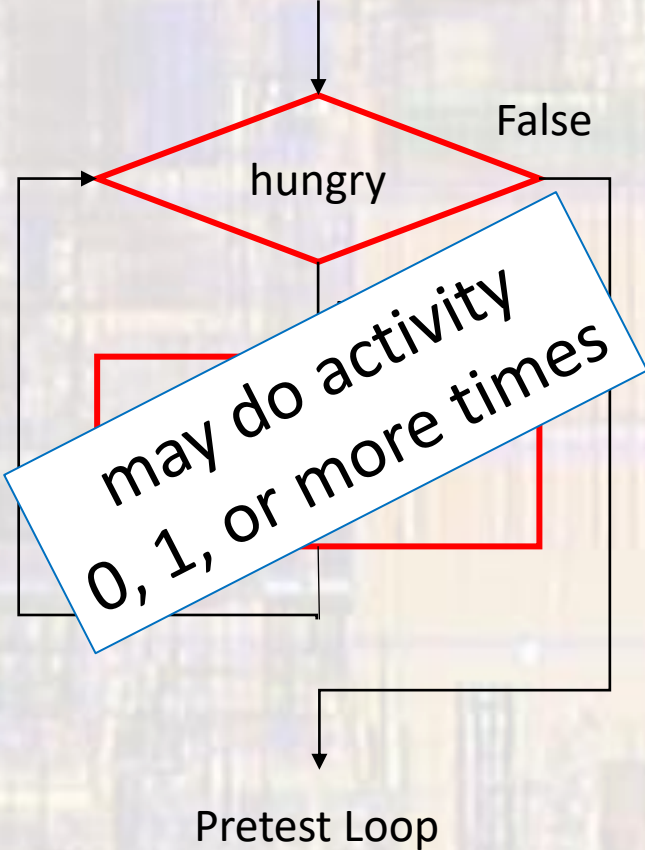
Post-test Loop

Repetition

- Loop Initialization
  - Initialize any required loop parameters (variables)

Pretest Loop

Post-test Loop

Repetition

- Loop Update
    - Update any required loop parameters (variables)

Pretest Loop
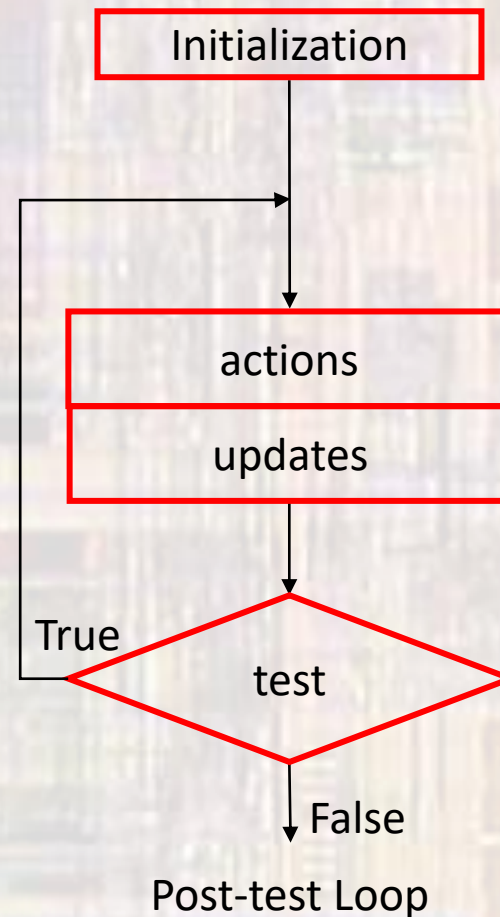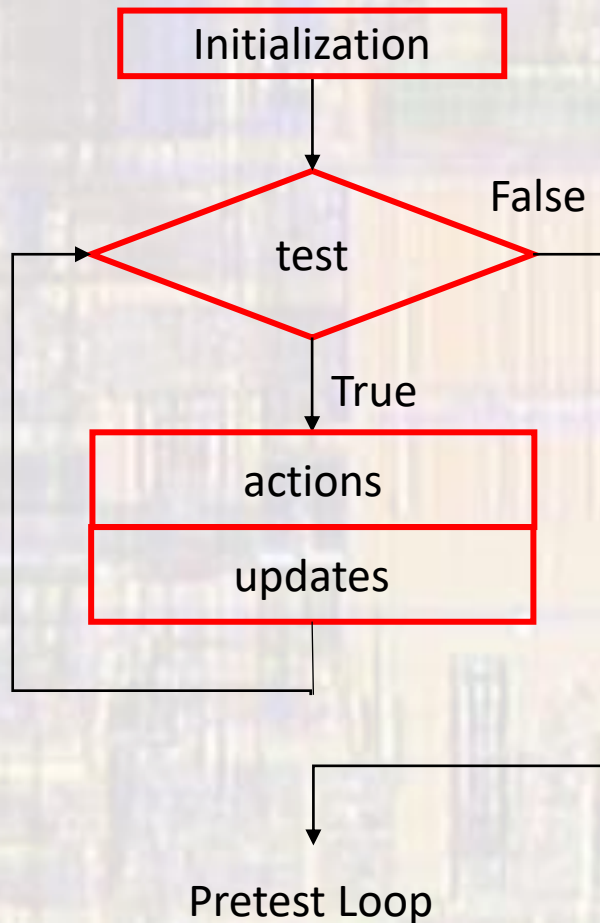
Post-test Loop

Repetition

- Loop Comparison

	Pretest	Post-test
Initialization	1	1
# of tests	n+1	n
Actions executed	n	n
Updates executed	n	n
Min iterations	0	1

Repetition

- Loops in C

  - while
    - pretest loop

  - for
    - pretest loop

  - do ... while
    - post-test loop