# Loops II

Warmup

- Write a loop to continuously ask the user for an integer from the keyboard. Stop looping only when they type in a number between 1 and 10.

- Edit your loop from last time that asks for names and prints the one earlier in the alphabet. Change the loop so the loop ends only when the first name is "STOP." That is, the user should no longer have to explicitly answer the question, "Do you want to keep going?"

```
while   test   :
    statement

    statement

    more statements…
statement

statement

more statements…
```

The *test* must be something that is True or False.

The indented statements are called the body of the loop.
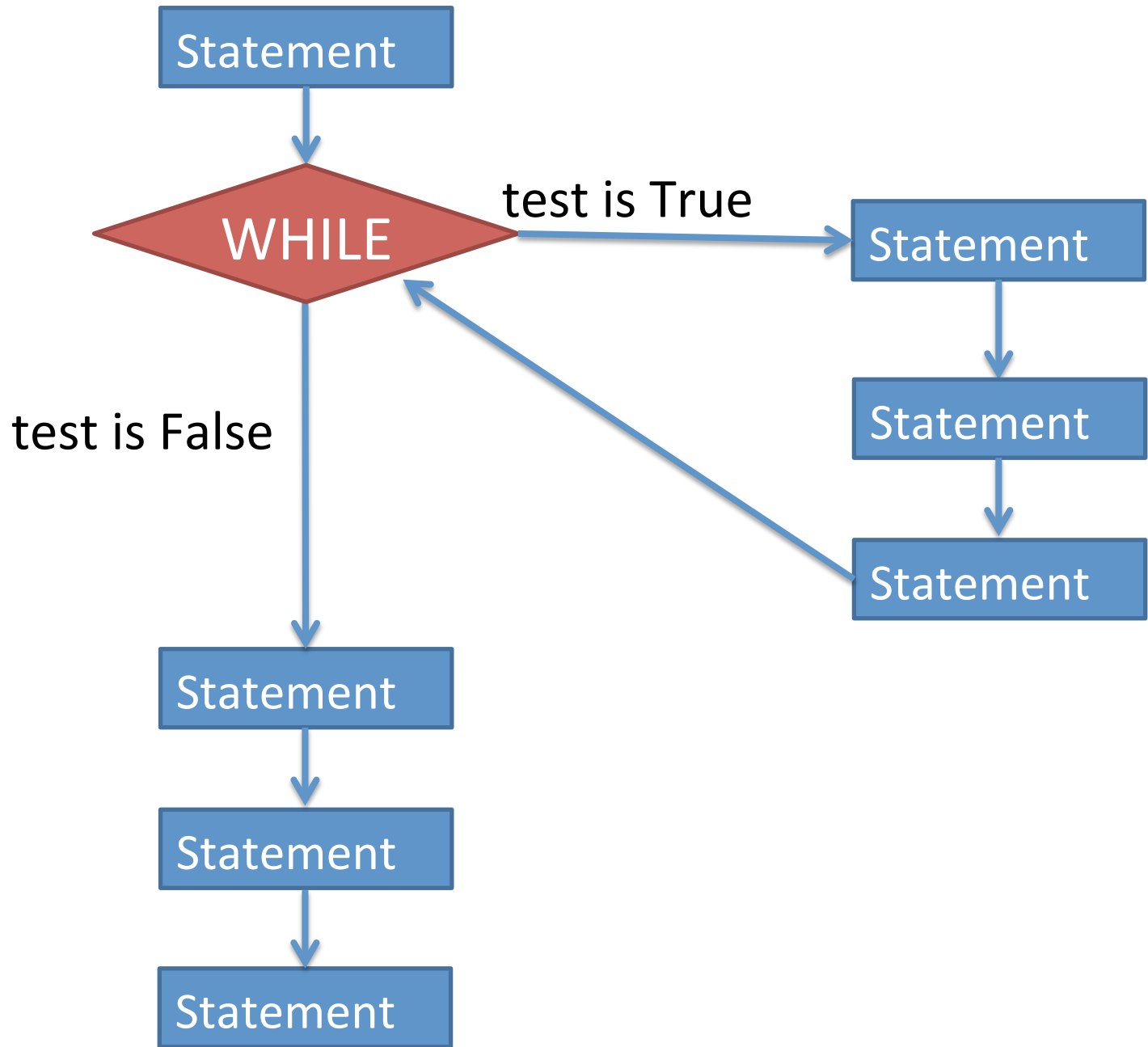
- Pseudocode is an informal way of writing algorithms for humans to read (not computers!)

- Illustrates the logic of an algorithm, but omits details that people can fill in automatically.

- You get to make it up as you go along, as long as you (and other people) can easily understand it.

- Instead of saying

  ```
  name = input("What is your name?")
  ```

- Pseudocode might use a line that says

  ```
  name = ask user for name
  ```

- Instead of saying

```
if x >= 0 and x <= 100:
    print("$%.2f" % x)
```

- Pseudocode might use a line that says

```
if x is between 0 and 100:
    print x with 2 decimal places
```

The point is to get your ideas down on paper quickly, so you can worry about programming details and exact syntax later.

To write any while loop:

1. Write out pseudocode for what the loop does, explicitly repeating lines until you've repeated the code at least twice.

2. Include an "if" statement in your code that will be True if you want the loop to keep going.

3. Make sure the code repeats the "if" statement at least twice.

To write any while loop:

4. Find the statements between consecutive "if" statements. These statements will become the body of the loop.

5. The "if" test will become the "while" test.

6. If there's anything before the first "if" test, it will go immediately before the while loop (outside of the body).