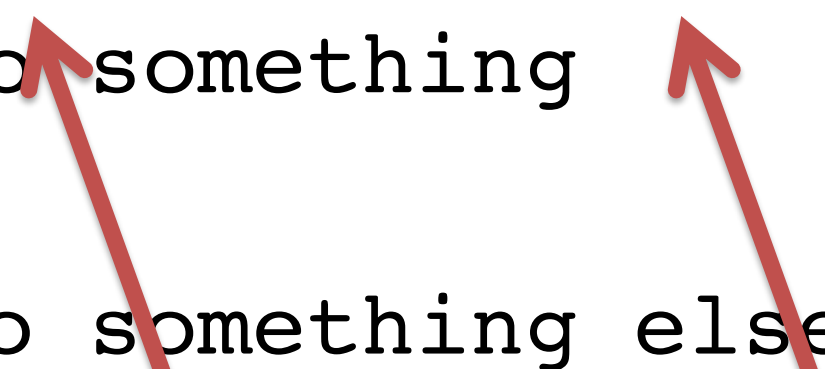- Write a program that asks the user if they want to calculate the area of a square or a triangle. (The user will type in `square` or `triangle`.)
  - If they enter `square`, ask the user for the length of a side and print the area.
  - If they enter `triangle`, ask the user for the base and height and print the area.
- Write a program that lets the user type in two strings from the keyboard. The program will print which string comes first alphabetically. (Play around with this to figure out which sorts of strings come before other strings [i.e., letters, symbols, punctuation marks…])

Multiple tests at once
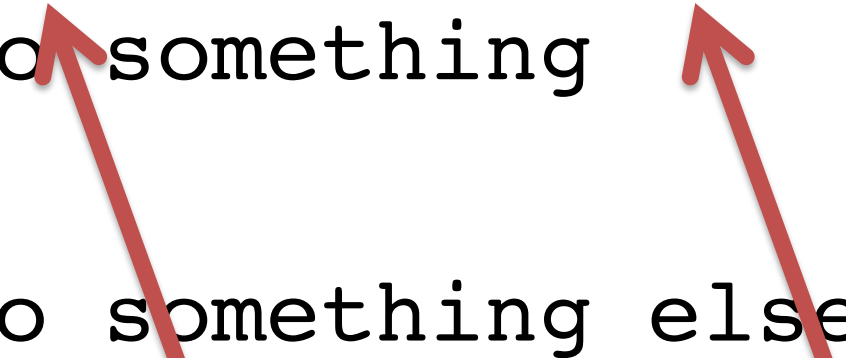
Multiple tests at once

```
if _____ and _____ :
    # do something
else:
    # do something else
```

Both individual tests must be **True** to make the entire if statement **True**.

Multiple tests at once

```
if _____ or _____ :
    # do something
else:
    # do something else
```

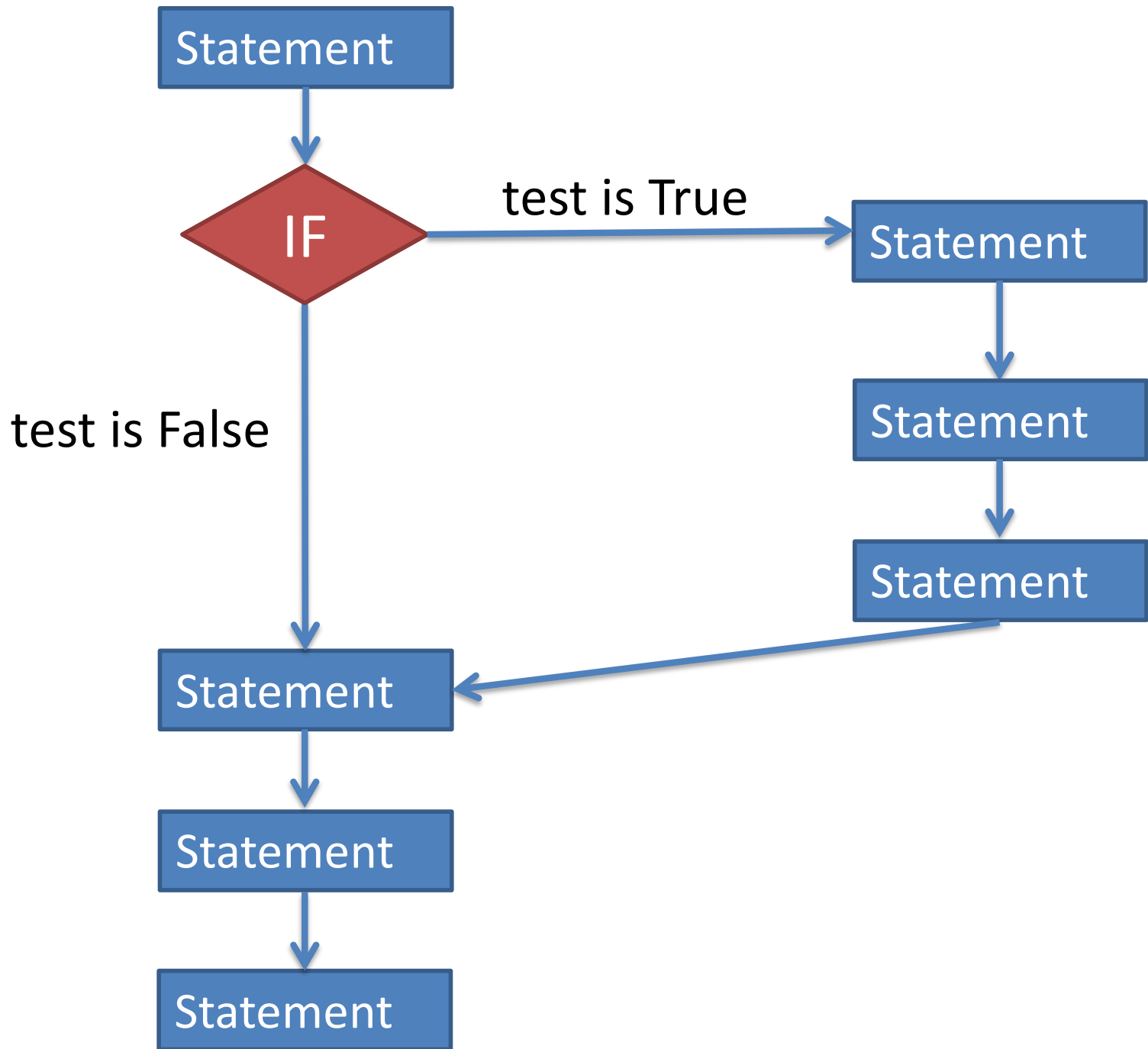Either (or both) individual tests must be **True** to make the entire if statement **True**.

TN passes a new law that says you can't drink once you reach the age of 80.

```
age = int(input("What is your age? "))
if _____ :
  print("You may drink!")
else:
  print("You can't drink!")
```

You're writing an app that monitors the thermostat in your house and alerts you if the house temperature drops to 50 degrees or rises to 90 degrees.

```
temp = read temperature somehow…
if _____ :
    # send a temperature alert here
    print("It's uncomfortable in here!")
```

Comparison of if vs if-else
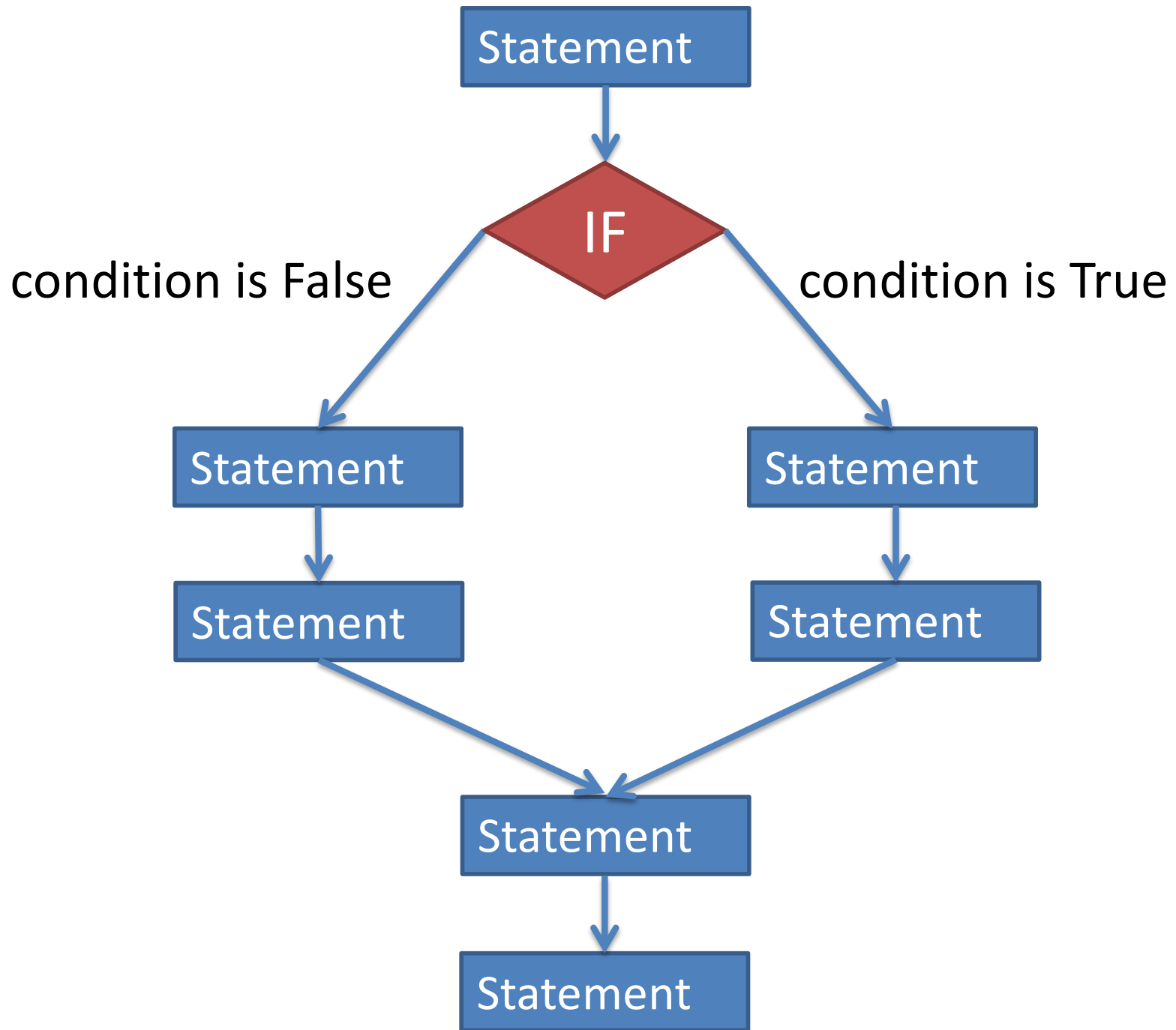
```
                    Statement

                       │
                       ▼
                                    test is True
                      ◆ IF ◆ ─────────────────────►    Statement
                       │                                    │
                       │                                    ▼
        test is False  │                               Statement
                       │                                    │
                       │                                    ▼
                       ▼                               Statement
                    Statement  ◄───────────────────────────┘

                       │
                       ▼
                    Statement

                       │
                       ▼
                    Statement
```

```
if  condition :
    statement
    statement
    more statements…
statement
statement
more statements…
```

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

Statement

IF

condition is False

condition is True

Statement

Statement

Statement

Statement

Statement

Statement

```
if  condition :
    statement

    more statements…
else:

    statement

    more statements…
more statements…
```
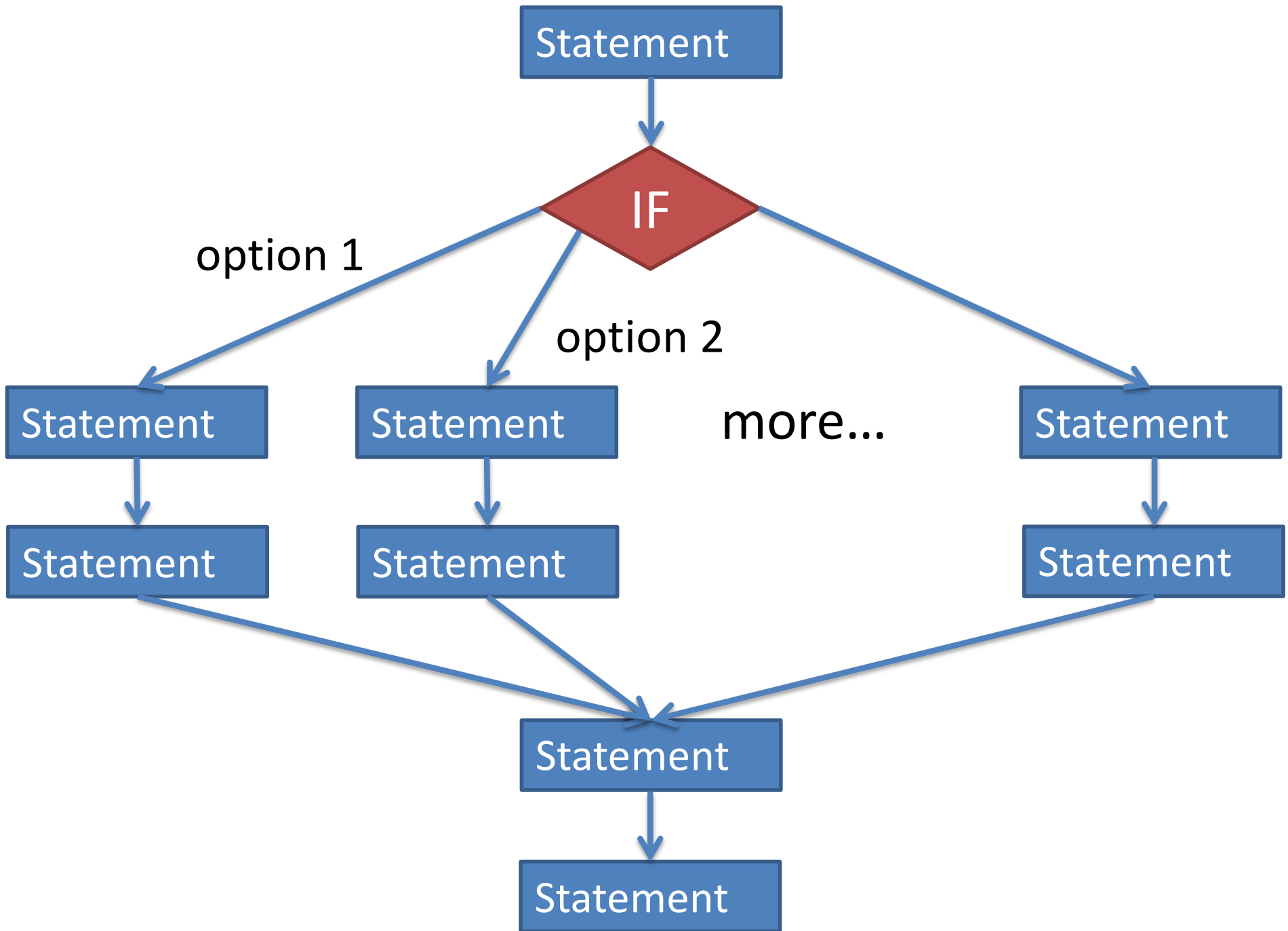
```
if ___condition1___:
    statements…
elif ___condition2___:
    statements…
elif ___condition3___:
    statements…
(etc)
else:
    statements…
```

- Python runs each test in order, top to bottom.
- Once a test is found that is True, the corresponding statements are run, *and the rest of the tests and statements are ignored.*

```
x = 5
if x < 2:
  print("A")
elif x < 6:
  print("B")
elif x < 10:
  print("C")
```

Let's say a class has a grading scale of:

A = 90 and above

B = 80-89

C = 70-79

D = 60-69

F = below 60

- See lab handout