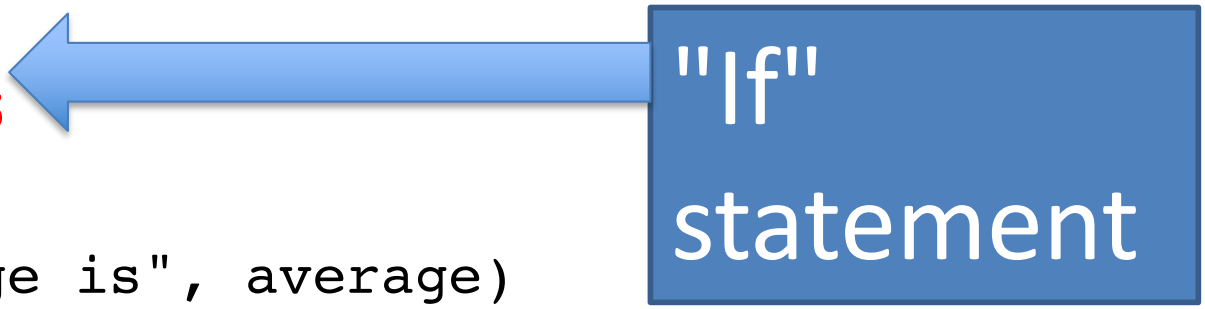
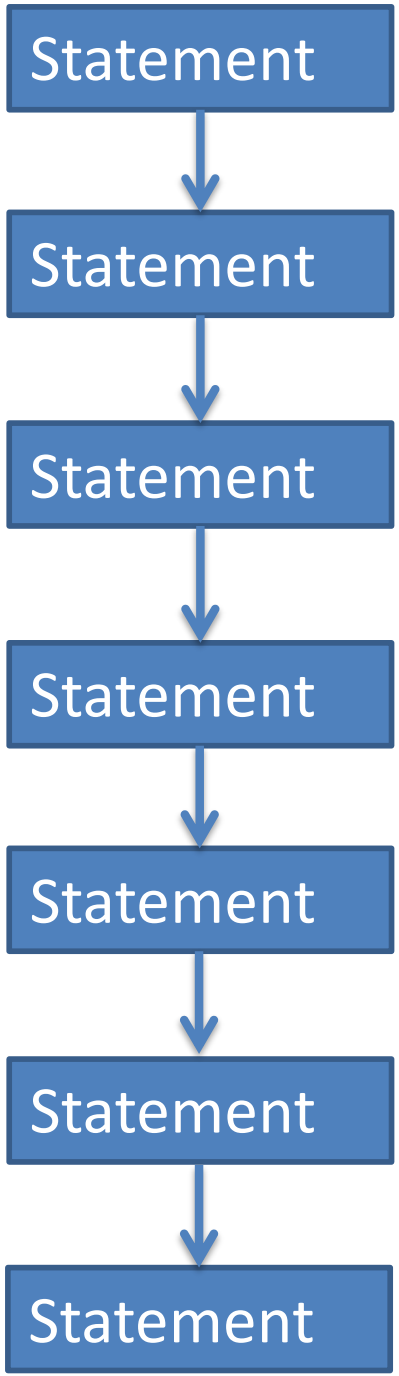
Conditionals/Branching

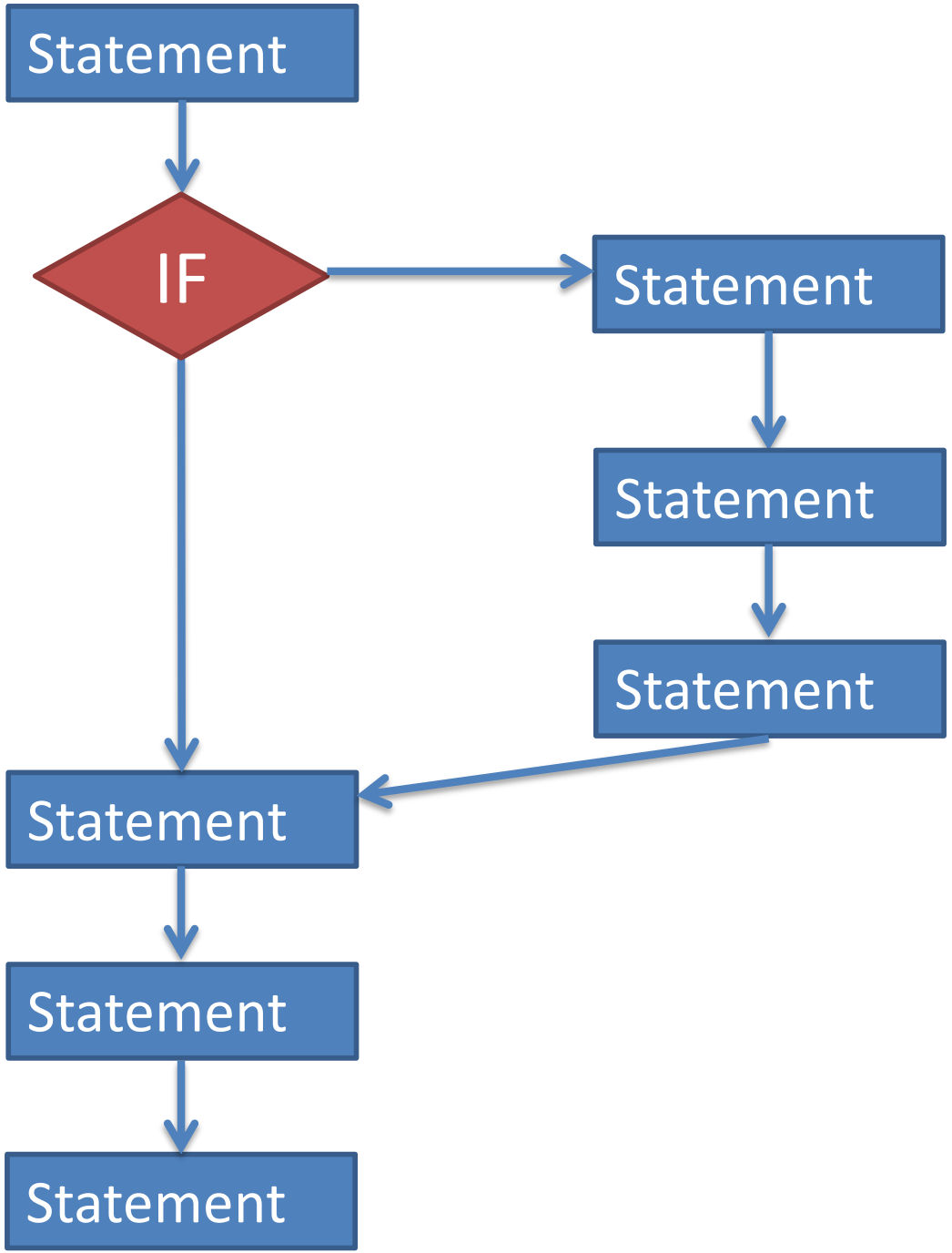
```
exam1 = int(input("What is your first exam score? "))
exam2 = int(input("What is your second exam score? "))
exam3 = int(input("What is your third exam score? "))
average = (exam1 + exam2 + exam3) / 3
print("Your exam average is", average)
```

```
exam1 = int(input("What is your first exam score? "))
exam2 = int(input("What is your second exam score? "))
exam3 = int(input("What is your third exam score? "))
average = (exam1 + exam2 + exam3) / 3

extra_pts = int(input("How many extra credit points
                                    did you earn? "))
average = average + extra_pts

print("Your exam average is", average)
```

```
exam1 = int(input("What is your first exam score? "))
exam2 = int(input("What is your second exam score? "))
exam3 = int(input("What is your third exam score? "))
average = (exam1 + exam2 + exam3) / 3

choice = input("Did you do the extra assignment? ")
if choice == "yes":
  average = average + 5

print("Your exam average is", average)
```




Statement
Statement
Statement
Statement
Statement
Statement
Statement


Statement
IF
Statement
Statement
Statement
Statement
Statement
Statement

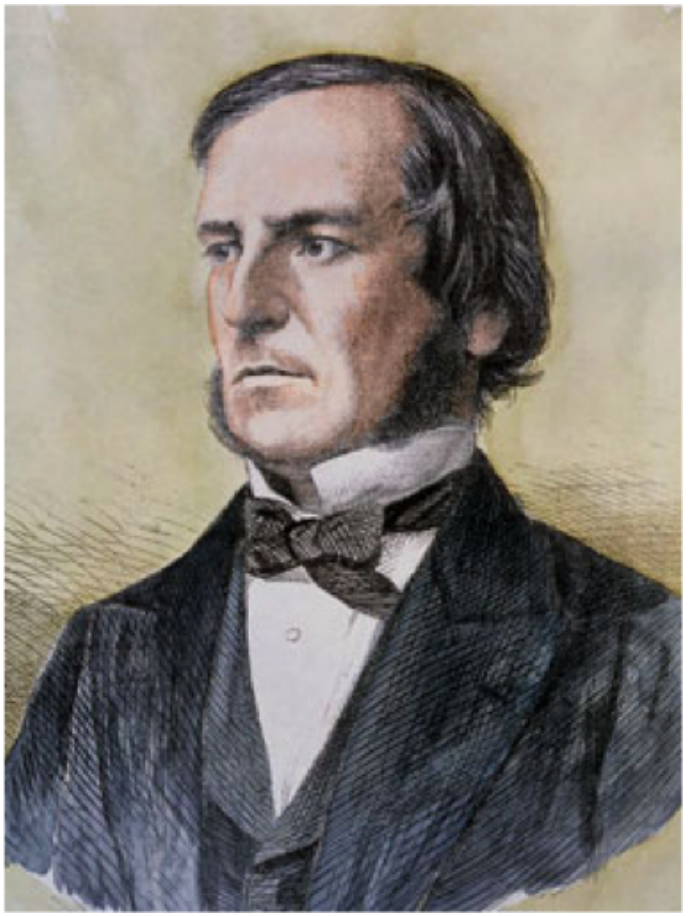
```
if condition :
    statement
    statement
    more statements…
statement
statement
more statements…
```

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

Boolean data type

- What is an example of an integer literal?
- A floating-point literal?
- A string literal?

- New data type: boolean



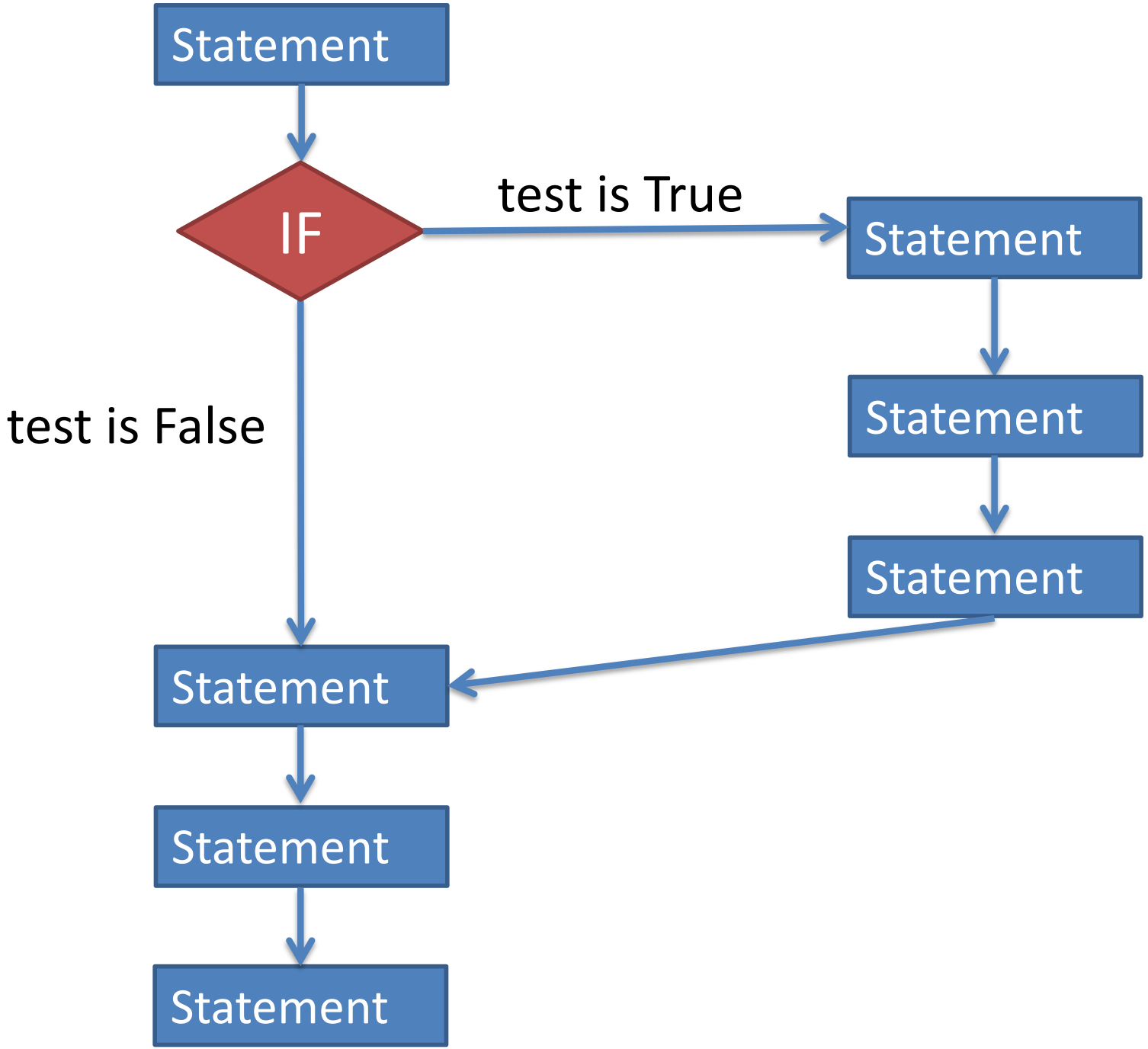
```
a = 1
b = 2
c = 3

a < b

a + 1 < b

a + 1 <= b

c == 3

a + b != 3
```

```
x = "hello"
y = "computer"
z = 141

x == "hello"

x == "Hello"

x < y

x < "Hello"

x < z
```

- Relational operators:

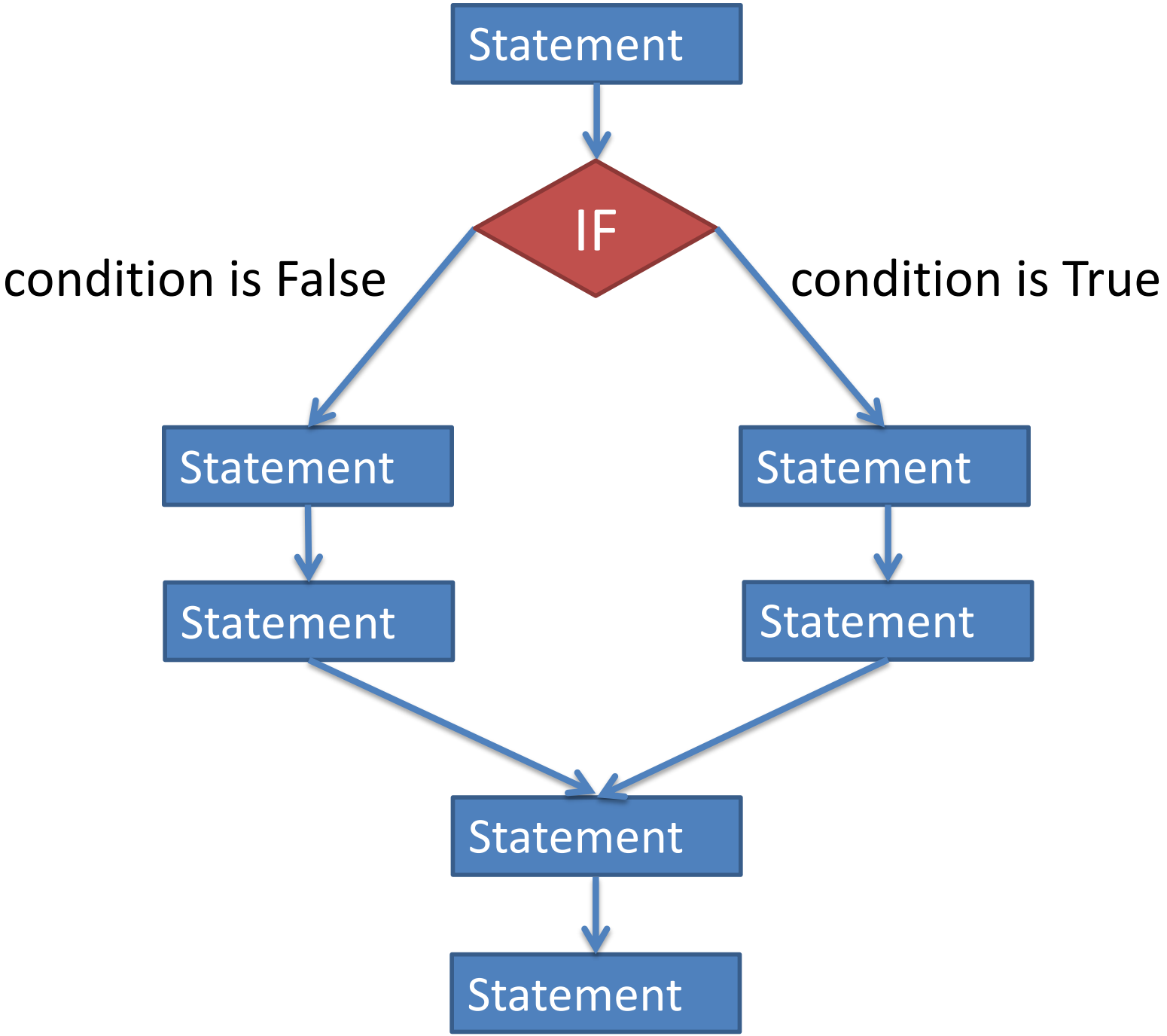
  `==` `!=` `<` `<=` `>` `>=`

- These operators compare two values, and give you back a Boolean value.
- Can compare ints, floats, or strings.
  - ints and floats are comparable to each other.
  - strings are only comparable to other strings.


Statement
IF
test is True
Statement
Statement
Statement
test is False
Statement
Statement
Statement

- If statement:
  - Run some extra statements if a condition is true.
- But what if you want run one set of statements if a condition is `True`, and a different set of statements if the condition is `False`?

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


Statement
IF
condition is False
condition is True
Statement
Statement
Statement
Statement
Statement
Statement

```
exam1 = int(input("What is your first exam score? "))
exam2 = int(input("What is your second exam score? "))
exam3 = int(input("What is your third exam score? "))
average = (exam1 + exam2 + exam3) / 3

choice = input("Did you do the extra assignment? ")
if choice == "yes":
  print("Your exam average is", average + 5)
else:
  print("Your exam average is", average)
```

- Write a program that asks the user to type in his or her age, and prints whether or not they are (legally) able to drink. ***[use if-else]***
- 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`, then ask the user for the length of a side and print the area.
  - If they enter `triangle`, then ask the user for the base and height and print the area.