Comparison Operators

What is Comparison Operator?

- There are 6 comparison operators:
  - **> (Greater Than)**
  - **>= (Greater Than Equal To)**
  - **< (Less Than)**
  - **<= (Less Than Equal To)**
  - **== (Equal)**
  - **!= (not Equal)**
- The result of a comparison operator is always a boolean value.

Greater Than Operator (>)

- The first value is strictly greater than the second value. For ex-

```
a = 5;
b = 4;
print(a>b);     # Outputs True
```

- The first value is less than or equal to the second value. For ex-

```
a = 5;
b = 5;
print(a>b);      # Outputs False
```

Code 1: Check whether the Ram age is greater than Mohan or not

```
age_of_ram = 25;
age_of_mohan = 30;
print(age_of_ram > age_of_mohan);  # Outputs False
```

Code 2: Check whether Sunil is passed or not, where the passing mark is 35

```
sunil_marks = 36;
passing_marks = 35;

is_passed = sunil_marks>passing_marks;
print(is_passed);                  # true : Sunil is passed
```

There is some problem with the above solution, what if the Sunil mark is 35

In that case, the above code will give the result false but in reality, it should be true

```
sunil_marks = 35;
passing_marks = 35;

is_passed = sunil_marks>passing_marks;
print(is_passed);                # false : Sunil is failed
```

thus, we will use ≥ **(greater than or equal to)** to solve this problem

```
sunil_marks = 35;
passing_marks = 35;

is_passed = sunil_marks>=passing_marks;
print(is_passed);                # true : Sunil is passed
```

Note :

- **3 > 3 is False**
- **2 > -3 is True**

Greater Than Equal To Operator (>=)

- The first value is greater than or equal to the second value. For ex :

```
a = 5;
b = 5;
print(a>=b);     #   True
```

- The first value is less than the second value. For ex :

```
a = 3;
b = 5;
print(a>=b);     #  False
```

Code 3: Try these questions on Replit

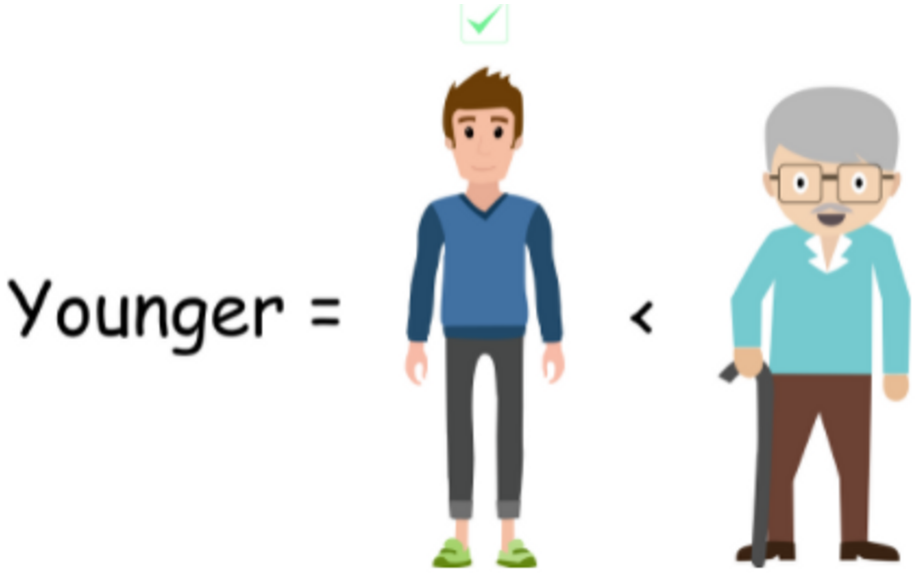
```
'''**Questions:**
 10>6, 10>=6, 10>=10, 10>10, -9>-8'''

# **Solutions:**
print(10>6);
print(10>=6);
print(10>=10);
print(10>10);
print(-9>-8);
```

Note :

- **3 >= 3 is True**
  - **2 >= -3 is True**

Less Than Operator (<)



- The first value is strictly less than the second value. For ex :

```
a = 4;
b = 5;
print(a<b);    # True
```

- The first value is greater than or equal to the second value. For ex :

```
a = 5;
b = 2;
print(a<b);   # False
```

Code 4: Check whether Sunil failed or not, where the passing mark is 35

```
sunil_marks = 34;
passing_marks = 35;
```

```
is_failed = sunil_marks<passing_marks;
print(is_failed);               # true : Sunil is failed
```

Note: In the above code, we can not use ≤ (lesser than or equal to), it will give the wrong result

Less Than Equal to Operator (<=)

- The first value is strictly less than or equal to the second value. For ex :

```
a = 4;
b = 5;
print(a<=b);         # True
```

- The first value is greater than the second value. For ex :

```
a = 6;
b = 5;
print(a<=b);      #  False
```

https://s3-us-west-2.amazonaws.com/secure.notion-static.com/a6e5e8f2-0341-44da-b705-96c87db990d8/Untitled_design_(1).mp4

Problems

Code 5: Those customers will be eligible for the amazon discount whose spending is equal to or above 4000. Check whether a customer Sam is eligible for a discount or not

Wrong Code

```
minimum_purchase = 4000;
sam_purchase = 5000;
eligible_for_discount = sam_purchase>minimum_purchase;
print(eligible_for_discount);
```

- The problem with the above code, we have used only greater than but in the question it was given that “**eligible for the amazon discount whose spending is equal to or above 4000”.**

Correct Code

```
minimum_purchase = 4000;
sam_purchase = 5000;
eligible_for_discount = sam_purchase>=minimum_purchase;
print(eligible_for_discount);
```

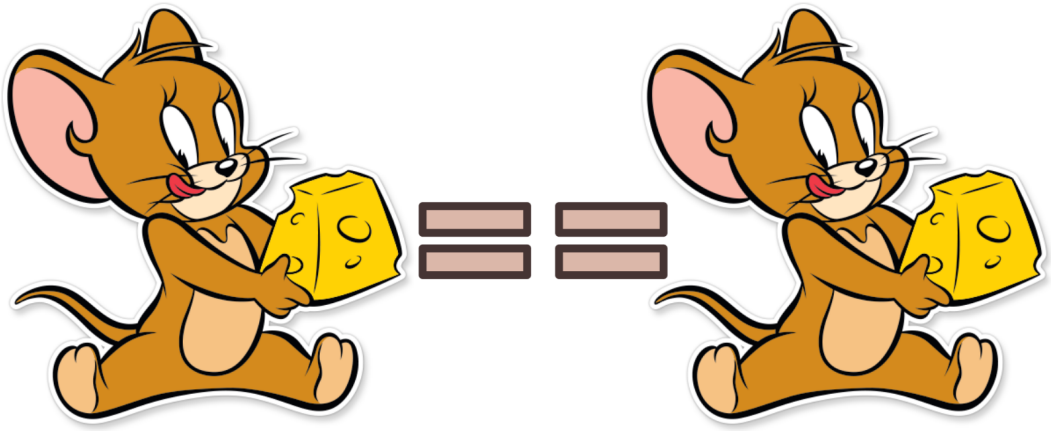
Code 6: Check whether Heeralal is eligible for driving a vehicle in India.

- The legal age in India for driving a vehicle is 18 +.

```
age_of_heeralal = 18;
legal_age = 18;
drive_vehicle = age_of_heeralal>=legal_age;
print(drive_vehicle);
```

Equal (==)

It checks whether the two operands are identical or not.



For Ex :

5 == 5 is True,

"b" == "b" is True,

5 == "5" is False

Code 7: On Replit

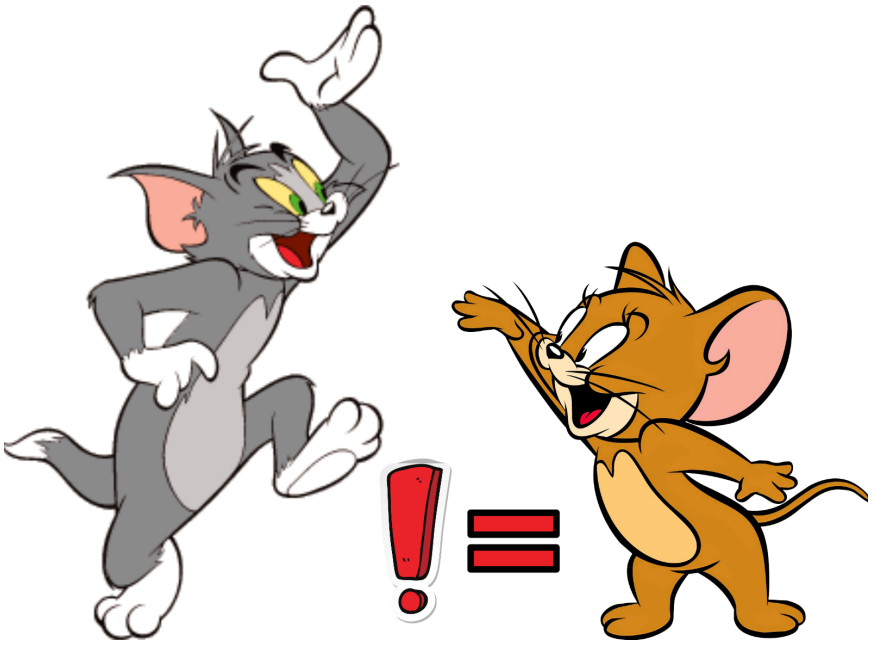
```
ram = "ram";
print(5==5);
print("masai"=="masai");
print(5=="5");
print(ram == "ram");
print(5=="ram");
```

Code 8: Find the output

```
a = 5;
b = 6;
c = "6";
d = -2;
e = "m";
print(b==c);
print(c==e);
print(a>=c);
print(d<=a);
```

Not Equal (! =)

!= opposite of **==**



For Ex :

5 != 4 is True,

"a" != "A" is True,

"a" == "A" is False

Code 9: Find the output

```
print(5==5);
print(5!=5);
print(6=="6");
print(6!=7);
print("a"=="a");
print("a"!="a");
```

Code 10: Find the output

```
masai = 5;
a = "masai";
b = masai;
```

```
    print(a==b);
    print(a!=b);
```

Happy Coding!