7. Conditions in Python

Comparison operators

- Comparison operators compare some value or operand and based on a condition, produce a Boolean.
- Python has six comparison operators as below:

```
* Less than(<)
* Less than or equal to(<=)
* Greater than(>)
* Greater than or equal to (>=)
* Equal to(==)
* Not Equal to (!=)
```

In [17]:

```
# Take a variable

ratio=1.618

print(ratio<2)
print(ratio>2)
```

```
True
False
```

In [18]:

```
print(ratio<=2)
print(ratio<=1)
print(ratio<=1.618)
```

```
True
False
True
```

In [19]:

```
print(ratio>2)
print(ratio>1)
print(ratio>=2)
print(ratio>=1.618)
```

```
False
True
False
True
```

In [20]:

```
print(ratio==2)
print(ratio==1.618)
print(ratio!=2)  # is not equal to
print(ratio!=1.618)
```

```
False
True
True
False
```

Branching (if, elif, else)

- Decision making is require when we want ot execute a code only if a certain condition is certified.
- The if/elif/else statement is used in python for decidion making.
- An else statement can be combined with an if statement.
- An else statement contains the block of code that executes if the conditional expression in the if statement resolves to 0 or a False value.
- The else statement is an optional statement and there could be at most only one else statement following if.
- The elif statement allows you to check multiple expressions for True and execute a block of code as soon as one of the conditions evaluates to True.
- Similar to the else, the elif statement is optional.

In [21]:

```
pi=3.14
ratio=1.618


# This statement can be True or False

if pi>ratio:
    print(f'The number pi {pi} is greater than ratio {ratio}.')

else:
    print('False value')
```

```
The number pi 3.14 is greater than ratio 1.618.
```

In [22]:

```
if pi>ratio:
    print('The number pi 3 is greater than ratio 1.')

else:
    print('False value')
```

```
The number pi 3 is greater than ratio 1.
```

In [23]:

```
age=int(input('Enter your age between 1 to 10:  '))

if age>6:
    print('You can go to primary school.')

elif age==5:
    print('You should go to Kindergarten.')

else:
    print('You are a baby')
```

```
Enter your age between 1 to 10:  8
You can go to primary school.
```

In [24]:

```
imdb_point=float(input('Enter the movie rating: '))

if imdb_point >=8.5:
    print('The movie could win oscar award')

else:
    print('The movie could not win oscar.')
```

```
Enter the movie rating: 8.2
The movie could not win oscar.
```

In [25]:

```
age=int(input('Enter your age: '))

if age>=18:
    print('You are elegible for voting')

else:
    print('You are not elegibel for voting.')
```

```
Enter your age: 50
You are elegible for voting
```

In [26]:

```
# Write a program to check whetehr a number is entered by user is even or odd.

num=int(input('Enter any number: '))

if num%2==0:
    print('Number is even')
else:
    print('Number is odd')
```

```
Enter any number: 56
Number is even
```

In [27]:

```
# Write a program to check whether a number is divisible by 7 or not.

num=int(input('Enter any number: '))

if num%7==0:
    print('Number is divisible by 7')

else:
    print('Number is not divisible by 7')
```

```
Enter any number: 49
Number is divisible by 7
```

In [28]:

```
# Write a program to display 'Hello' if a number is entered by the user is a multiple of 5.


num1=int(input('Enter any number: '))

if num1%5==0:
    print('Hello')

else:
    print('Bye')
```

```
Enter any number: 50
Hello
```

In [29]:

```
# Write a program to check wheter the last digit of a number (Entered by user) is divisible by 3 or not.

num2=int(input('Enter any number: '))

Id=num2%10
if Id%3==0:
    print('Last digit of number is divisible by 3')
else:
    print('Last digit of number is not divisible by 3')
```

```
Enter any number: 45
Last digit of number is not divisible by 3
```

In [30]:

```
# Write a program to accept percentage from the user and display the grade according to the following
# criteria:

# Percentage--------------> Grade
# >90---------------------> A
# >80 and <=90------------> B
# >=60 and <=80-----------> C
# below 60----------------> D

per=int(input('Enter your percentage: '))

if per>90:
    print('Grade is A')
elif per>80 and per<=90:
    print('Grade is B')
elif per>=60 and per<=80:
    print('Grade is C')
elif per<60:
    print('Grade is D')
```

```
Enter your percentage: 80
Grade is C
```

In [31]:

```
# Write a program to accept a number from 1 to 7
# and display the name of the day like 1 for sunday, 2 for monday and so on.
num3=int(input('Enter any number for 1 to 7: '))

if num3==1:
    print('Sunday')
elif num3==2:
    print('Monday')

elif num3==3:
    print('Tuesday')

elif num3==4:
    print('Wednesday')
elif num3==5:
    print('Thursday')
elif num3==6:
    print('Friday')
elif num3==7:
    print('Saturday')
else:
    print('Please! Enter number between 1 to 7')
```

```
Enter any number for 1 to 7: 1
Sunday
```

In [ ]:

```
# Write a program to accept a number from 1 to 12 and display the month in that month like 1 for january
# and number of days 31 and so on.
```

In [11]:

```
# Write a program to accept any city from the user and display monument of that city.
# City--------------------> Monument

# Delhi-------------------> Red Fort
# Agra--------------------> Taj Mahal
# Jaipur------------------> Jal Mahal
# Jammu & Kashmir---------> Vaishnu Devi
# Bihar-------------------> Tomb of Sher Shah Suri.

city=input('Enter name of the given city: ')
print('Agra',',','Delhi',',','Jaipur',',','Jammu & Kashmir',',','Bihar')

if city.lower()=='agra':
    print('Monument name: Taj Mahal')
elif city.lower()=='delhi':
    print('Monument name: Red Fort')
elif city.lower()=='jaipur':
    print('Monument name: Jal Mahal')
elif city.lower()=='jammu & kashmir':
    print('Monument name: Vaishnu Devi')
elif city.lower()=='bihar':
    print('Monument name: Tomb of sher shah suri')
else:
    print('Enter the name of given city only')
```

```
Enter name of the given city: bihar
Agra , Delhi , Jaipur , Jammu & Kashmir , Bihar
Monument name: Tomb of sher shah suri
```

In [14]:

```
# Write a program to check whether a person is senior citizen or not.

age=int(input('Enter your age: '))

if age>=50:
    print('You are a Senior Citizen')
else:
    print('You are not Senior Citizen')
```

```
Enter your age: 45
You are not Senior Citizen
```

In [16]:

```
# Write a program to find the lowest number out of two numbers accepted from user.

num1=int(input('Enter first number: '))
num2=int(input('Enter second number: '))

if num1>num2:
    print('Smaller number is: ',num2)
else:
    print('Smaller number is: ',num1)
```

```
Enter first number: 100
Enter second number: 1001
Smaller number is:  100
```

In [ ]:

```

```