Functions

In [1]:

```
#8-1
def display_msg():
    print("In this chapter i am learning about functions.")
display_msg()
```

```
In this chapter i am learning about functions.
```

In [2]:

```
#8-2

def favourite_book(name):
    print("My Favourite book is " + name.title())
favourite_book("Rich dad Poor dad")
```

```
My Favourite book is Rich Dad Poor Dad
```

In [3]:

```
#8-3

def make_shirt(size,text):
    print("My T-shirt size is " + size + " I want to write on it, " + text)
make_shirt("5" , "Hello")
```

```
My T-shirt size is 5 I want to write on it, Hello
```

In [4]:

```
make_shirt(size = "7" , text = "Rolls Royce")
```

```
My T-shirt size is 7 I want to write on it, Rolls Royce
```

In [5]:

```
#8-4
# Task = Make default size = large.
def make_shirt(text , size = "Large"):
    print("My T-shirt size is " + size + " I want to write on it, " + text)
make_shirt("I love python")
```

```
My T-shirt size is Large I want to write on it, I love python
```

In [6]:

```
# Task = Make default message = I love Python.

def make_shirt(size,text = "I love Python"):
    print("My T-shirt size is " + size + " I want to write on it, " + text)
make_shirt("Large")
make_shirt("Medium")
```

```
My T-shirt size is Large I want to write on it, I love Python
My T-shirt size is Medium I want to write on it, I love Python
```

In [7]:

```
#8-5

def describe_city(city,country = "Pakistan"):
    print(city + " is in  " + country)
describe_city("Karachi")
describe_city("Lahore")
describe_city("Delhi")
```

```
Karachi is in  Pakistan
Lahore is in  Pakistan
Delhi is in  Pakistan
```

In [8]:

```
#8-6

def city_country(city,country):
    full =  city+" " +country
    return full
city_country("Islamabad" ,"Pakistan")
```

Out[8]:

```
'Islamabad Pakistan'
```

In [9]:

```
city_country("lahore" ,"Pakistan")
```

Out[9]:

```
'lahore Pakistan'
```

In [10]:

```
city_country("Karachi" ,"Pakistan")
```

Out[10]:

```
'Karachi Pakistan'
```

In [11]:

```
#8-7
def make_album(artist_name,artist_title):
    artist =  {"Artist Name":artist_name , "Atist Title":artist_title}
    return artist
make_album("Atif Aslam" , "Pyar")
```

Out[11]:

```
{'Artist Name': 'Atif Aslam', 'Atist Title': 'Pyar'}
```

In [12]:

```
make_album("Ali Zafar" , "PSL")
```

Out[12]:

```
{'Artist Name': 'Ali Zafar', 'Atist Title': 'PSL'}
```

In [13]:

```
make_album("Honey Singh" , "Punjabi")
```

Out[13]:

```
{'Artist Name': 'Honey Singh', 'Atist Title': 'Punjabi'}
```

In [14]:

```
#Make one optional parameter
def make_album(artist_name,artist_title,artist_age = ''):
    artist = {"Artist Name":artist_name , "Atist Title":artist_title}
    if artist_age:
        artist["Artist Age"] = artist_age
    return artist
make_album("Atif Aslam" , "Pyar" )
```

Out[14]:

```
{'Artist Name': 'Atif Aslam', 'Atist Title': 'Pyar'}
```

In [15]:

```
make_album("Atif Aslam" , "Pyar" ,"27" )
```

Out[15]:

```
{'Artist Name': 'Atif Aslam', 'Atist Title': 'Pyar', 'Artist Age': '27'}
```

In [16]:

```
#8-8
def get_formated(first_name,last_name):
    full_name = first_name + ' '+ last_name
    return ("Hello " + full_name + " how are you.")

while True:
    print("\n Enter first and last name")
    print("enter q at any time you want to quit")
    f_name = input("First Name:")
    if f_name == "q":
        break
    l_name = input("Last Name:")
    if l_name == "q":
        break
    formated_name = get_formated(f_name,l_name)
    print(formated_name)
```

```

 Enter first and last name
enter q at any time you want to quit
First Name:arif
Last Name:ali
Hello arif ali how are you.

 Enter first and last name
enter q at any time you want to quit
First Name:q
```

In [17]:

```
#8-9
magicians = ["Ali" , "Hamza" , "Farooq"]

def show_megicians(magicians):
    for i in magicians:
        print("Hello " + i)
show_megicians(magicians)
```

```
Hello Ali
Hello Hamza
Hello Farooq
```

In [26]:

```
#8-10
magicians = ["Ali" , "Hamza" , "Farooq"]
completed = []
def make_great(magicians,completed):
    while magicians:
        current = magicians.pop()
        print("Great " + current)
        completed.append("Great " + current)

def show_magicians(completed_magicians):
    for i in completed_magicians:
        print(i)

make_great(magicians,completed)

show_magicians(completed)
```

```
Great Farooq
Great Hamza
Great Ali
Great Farooq
Great Hamza
Great Ali
```

In [27]:

```
completed
```

Out[27]:

```
['Great Farooq', 'Great Hamza', 'Great Ali']
```

In [28]:

```
magicians
```

Out[28]:

```
[]
```

In [30]:

```
#8-11
magicians = ["Ali" , "Hamza" , "Farooq"]
completed = []
def make_great(magicians,completed):
    while magicians:
        current = magicians.pop()
        print("Great " + current)
        completed.append("Great " + current)

def show_magicians(completed_magicians):
    for i in completed_magicians:
        print(i)

make_great(magicians[:],completed)

show_magicians(completed)
```

```
Great Farooq
Great Hamza
Great Ali
Great Farooq
Great Hamza
Great Ali
```

In [31]:

```
magicians
```

Out[31]:

```
['Ali', 'Hamza', 'Farooq']
```

In [32]:

```
completed
```

Out[32]:

```
['Great Farooq', 'Great Hamza', 'Great Ali']
```

In [35]:

```
#8-12
def items(*sandwitch):
    print("Summary of sandwitches")
    print(sandwitch)
items("Chicken Sandwitch")
items("Chicken Sandwitch" ,"Egg Sandwitch" ,"Seafood Sandwitch" )
```

```
Summary of sandwitches
('Chicken Sandwitch',)
Summary of sandwitches
('Chicken Sandwitch', 'Egg Sandwitch', 'Seafood Sandwitch')
```

In [36]:

```
#8-13

def build_profile(f_name,l_name,**user_info):
    print("User Profile")
    profile = {}
    profile["First_Name"] = f_name
    profile["Last_Name"] = l_name
    for key,value in user_info.items():
        profile[key] = value
    return profile

user_profile = build_profile("Arif","Soomro" , Age = "23" , Education = "BSCS"
print(user_profile)
```

```
User Profile
{'First_Name': 'Arif', 'Last_Name': 'Soomro', 'Age': '23', 'Education': 'BSC
S', 'University': 'Karachi University'}
```

In [37]:

```
#8-14

def car_profile(company,model,**other_info):
    print("Car Profile")
    profile = {}
    profile["Manufacturer"] = company
    profile["Model Name"] = model
    for key,value in other_info.items():
        profile[key] = value
    return profile

car = car_profile("saburu","outbrake" , color = "blue" , tow_package = True)
print(car)
```

```
Car Profile
{'Manufacturer': 'saburu', 'Model Name': 'outbrake', 'color': 'blue', 'tow_pa
ckage': True}
```

Set Topics

Sets are used to store multiple items in a single variable.

A set is a collection which is unordered, unchangeable*, and unindexed.

* Note: Set items are unchangeable, but you can remove items and add new items.

In [38]:

```
# | for union.
# & for intersection.
# - for difference
# ^ for symmetric difference
```

In [41]:

```
set_A = {"2","3","4","6","7"}
set_B = {"2","3","4","5","8"}
print("Union " ,       set_A|set_B)
print("intersection " , set_A&set_B)
print("difference " ,   set_A-set_B)
print("symmetric difference " , set_A^set_B)
```

```
Union  {'2', '7', '6', '4', '5', '3', '8'}
intersection  {'2', '3', '4'}
difference  {'7', '6'}
symmetric difference  {'8', '7', '5', '6'}
```

making data unique with sets in python

In [51]:

```
# Jo list hm input lengay usay set banallengay because set duplicate values nh
# store karta tw hamary pass unique values aa jaen gi.
def unique(list1):
    list_1 = set(list1)
    for i in list_1:
        print(i)
list_3 = [1,1,1,2,2,2,33,3,44,4]
list_4 = [11,22,33,11,22,33,1,2,3,45,45,58,85,96]
unique(list_3)
print("--------------")
unique(list_4)
```

```
1
2
3
33
4
44
--------------
96
33
2
1
3
11
45
85
22
58
```

Calculating Exection Time

In [52]:

```
import time
```

In [58]:

```
start = time.time()
lst = ["Arif" , 1 , 5 ,75 , "Soomro"]
print(lst)

end = time.time()

print(end - start)
```

```
['Arif', 1, 5, 75, 'Soomro']
0.0009987354278564453
```

In [59]:

```
start = time.time()
#lst = ["Arif" , 1 , 5 ,75 , "Soomro"]
print(list(("Arif" , 1 , 5 ,75 , "Soomro" , "Hello")))

end = time.time()

print(end - start)
```

```
['Arif', 1, 5, 75, 'Soomro', 'Hello']
0.0009970664978027344
```

Enumerate Function

In [62]:

```
lst = ["Arif" , 1 , 5 ,75 , "Soomro"]
a = enumerate(lst)
print(list(a))
```

```
[(0, 'Arif'), (1, 1), (2, 5), (3, 75), (4, 'Soomro')]
```

In [ ]: