In [1]:
```
#iVeman : Pandas Operations
```

In [2]:
```
import pandas as pd
import numpy as np
```

In [3]:
```
p_id = [2000,2001,2002,2003,2004]
p_name = ['Veman','Pranav','Mayur','Kunal','Shashi']
p_role = ['DS','SW','GD','RE','TS']
```

In [4]:
```
d1 ={"Id" : p_id,"Name" : p_name,"Role" : p_role}
```

In [5]:
```
Person = pd.DataFrame(d1)
```

In [6]:
```
Person
```

Out[6]:

	Id	Name	Role
0	2000	Veman	DS
1	2001	Pranav	SW
2	2002	Mayur	GD
3	2003	Kunal	RE
4	2004	Shashi	TS

In [7]:
```
Person["Age"]=[20,21,25,23,27] # adding one more columns
```

In [8]:
```
Person
```

Out[8]:

	Id	Name	Role	Age
0	2000	Veman	DS	20
1	2001	Pranav	SW	21
2	2002	Mayur	GD	25
3	2003	Kunal	RE	23
4	2004	Shashi	TS	27

In [9]:
```
Person.shape
```

Out[9]:
```
(5, 4)
```

In [10]:
```
#renameing columns
```

In [11]:
```
Person.rename(columns={"Id" : "Roll_no"},inplace= True)
```

In [12]:
```
Person
```

Out[12]:

	Roll_no	Name	Role	Age
0	2000	Veman	DS	20
1	2001	Pranav	SW	21
2	2002	Mayur	GD	25
3	2003	Kunal	RE	23
4	2004	Shashi	TS	27

In [13]:
```
p_uid = [1,2,3,4,5]
Roll_no = [2000,2001,2001,2000,2003]
p_units = [30,2,78,35,25]
p_name = ["Clothing","Foods","Wearables","Gifting","Acessories"]
```

In [14]:
```
d2 = {"uid":p_uid,"id":p_id,"units":p_units,"name":p_name}
```

In [15]:
```
d2
```

Out[15]:
```
{'uid': [1, 2, 3, 4, 5],
 'id': [2000, 2001, 2002, 2003, 2004],
 'units': [30, 2, 78, 35, 25],
 'name': ['Clothing', 'Foods', 'Wearables', 'Gifting', 'Acessories']}
```

In [16]:
```
D2 = pd.DataFrame(d2)
```

In [17]:
```
D2
```

Out[17]:

	uid	id	units	name
0	1	2000	30	Clothing
1	2	2001	2	Foods
2	3	2002	78	Wearables
3	4	2003	35	Gifting
4	5	2004	25	Acessories

D2.shape

In [18]:
```
D2.columns
```

Out[18]:
```
Index(['uid', 'id', 'units', 'name'], dtype='object')
```

In [19]:
```
#print details of id number 100
[D2["id"]==2000]
```

Out[19]:
```
[0     True
 1    False
 2    False
 3    False
 4    False
 Name: id, dtype: bool]
```

In [20]:
```
D2[D2["id"]==2000]
```

Out[20]:

	uid	id	units	name
0	1	2000	30	Clothing

In [21]:
```
#printing only name of the prodct

D2[D2["id"]==2003]["name"]
```

Out[21]:
```
3    Gifting
Name: name, dtype: object
```

In [22]:
```
p_id = [100,101,102,103,104]
p_name = ['Shampoo','Deodrant','Toothpaste','Soap','Hairgel']
p_role = ['DS','SW','GD','RE','TS']
p_price = [50,30,50,70,40]
```

In [23]:
```
a1 = {"pid":p_id,"pname":p_name,"prole":p_role,"price":p_price}
```

In [24]:
```
Product = pd.DataFrame(a1)
```

In [25]:
```
Product
```

Out[25]:

	pid	pname	prole	price
0	100	Shampoo	DS	50
1	101	Deodrant	SW	30
2	102	Toothpaste	GD	50
3	103	Soap	RE	70
4	104	Hairgel	TS	40

In [26]:
```
p_uid = [1,2,3,4,5]
p_pid = [101,101,103,101,103]
p_units = [30,2,78,35,25]
p_name = ["Clothing","Foods","Wearables","Gifting","Acessories"]
```

In [27]:
```
a2={"id":p_uid,"pid":p_pid,"units":p_units,"name":p_name}
```

In [28]:
```
Order = pd.DataFrame(a2)
```

In [29]:
```
Order
```

Out[29]:

	id	pid	units	name
0	1	101	30	Clothing
1	2	101	2	Foods
2	3	103	78	Wearables
3	4	101	35	Gifting
4	5	103	25	Acessories

In [30]:
```
#merging columns

#applying inner joing
pd.merge(Product, Order, how="inner", on="pid")
```

Out[30]:

	pid	pname	prole	price	id	units	name
0	101	Deodrant	SW	30	1	30	Clothing
1	101	Deodrant	SW	30	2	2	Foods
2	101	Deodrant	SW	30	4	35	Gifting
3	103	Soap	RE	70	3	78	Wearables
4	103	Soap	RE	70	5	25	Acessories

In [31]:
```
pd.merge(Product, Order, how="left", on="pid")
```

Out[31]:

	pid	pname	prole	price	id	units	name
0	100	Shampoo	DS	50	NaN	NaN	NaN
1	101	Deodrant	SW	30	1.0	30.0	Clothing
2	101	Deodrant	SW	30	2.0	2.0	Foods
3	101	Deodrant	SW	30	4.0	35.0	Gifting
4	102	Toothpaste	GD	50	NaN	NaN	NaN
5	103	Soap	RE	70	3.0	78.0	Wearables
6	103	Soap	RE	70	5.0	25.0	Acessories
7	104	Hairgel	TS	40	NaN	NaN	NaN

In [32]:
```
pd.merge(Product, Order, how="right", on="pid")
```

Out[32]:

	pid	pname	prole	price	id	units	name
0	101	Deodrant	SW	30	1	30	Clothing
1	101	Deodrant	SW	30	2	2	Foods
2	103	Soap	RE	70	3	78	Wearables
3	101	Deodrant	SW	30	4	35	Gifting
4	103	Soap	RE	70	5	25	Acessories

In [33]:
```
Order
```

Out[33]:

	id	pid	units	name
0	1	101	30	Clothing
1	2	101	2	Foods
2	3	103	78	Wearables
3	4	101	35	Gifting
4	5	103	25	Acessories

In [34]:
```
#adding new row

new_row = {"id":6,"pid":102,"units":20,"name":"Gaming"}
```

In [35]:
```
new_df = pd.DataFrame(new_row,index = [5])
```

In [36]:
```
pd.concat([Order,new_df],axis = 0)
```

Out[36]:

	id	pid	units	name
0	1	101	30	Clothing
1	2	101	2	Foods
2	3	103	78	Wearables
3	4	101	35	Gifting
4	5	103	25	Acessories
5	6	102	20	Gaming

In [37]:
```
#creating a another column df2 to merge pdf
```

In [38]:
```
df2=pd.merge(Product,Order,how = "right",on="pid")
```

In [39]:
```
df2["total_price"]=df2["price"]*df2["units"]
```

In [40]:
```
Order["total_price"] = df2["total_price"]
```

In [41]:
```
Order
```

Out[41]:

	id	pid	units	name	total_price
0	1	101	30	Clothing	900
1	2	101	2	Foods	60
2	3	103	78	Wearables	5460
3	4	101	35	Gifting	1050
4	5	103	25	Acessories	1750

In [42]:
```
empcode = [101,102,103,104,105]
empcode
```

Out[42]:
```
[101, 102, 103, 104, 105]
```

In [43]:
```
empcode = np.array([101,102,103,104,105])
empcode
```

Out[43]:
```
array([101, 102, 103, 104, 105])
```

In [44]:
```
empname = np.array(["Veman","Sourabh","Harsh","Vivek","Aryan"])
```

In [45]:
```
empname
```

Out[45]:
```
array(['Veman', 'Sourabh', 'Harsh', 'Vivek', 'Aryan'], dtype='<U7')
```

In [46]:
```
empcol = pd.Series(empname,empcode)
```

In [47]:
```
empcol
```

Out[47]:
```
101      Veman
102    Sourabh
103      Harsh
104      Vivek
105      Aryan
dtype: object
```

In [48]:
```
empcol = pd.Series(empname,index=empcode)
```

In [49]:
```
empcol
```

Out[49]:
```
101      Veman
102    Sourabh
103      Harsh
104      Vivek
105      Aryan
dtype: object
```

In [50]:
```
designation = pd.Series(["DS","AS","FD","WE","JH"],index = empcode)
```

In [51]:
```
designation
```

Out[51]:
```
101    DS
102    AS
103    FD
104    WE
105    JH
dtype: object
```

In [52]:
```
age = pd.Series([20,24,23,21,26])
```

In [53]:
```
age
```

Out[53]:
```
0    20
1    24
2    23
3    21
4    26
dtype: int64
```

In [54]:
```
age = pd.Series([20,24,23,21,26],index = empcode)
age
```

Out[54]:
```
101    20
102    24
103    23
104    21
105    26
dtype: int64
```

In [55]:
```
d1 = {"Empname":empcol,"Designation":designation,"Age":age}
d1
```

Out[55]:
```
{'Empname': 101      Veman
 102    Sourabh
 103      Harsh
 104      Vivek
 105      Aryan
 dtype: object,
 'Designation': 101    DS
 102    AS
 103    FD
 104    WE
 105    JH
 dtype: object,
 'Age': 101    20
 102    24
 103    23
 104    21
 105    26
 dtype: int64}
```

In [56]:
```
df = pd.DataFrame(d1)
```

In [57]:
```
df
```

Out[57]:

	Empname	Designation	Age
101	Veman	DS	20
102	Sourabh	AS	24
103	Harsh	FD	23
104	Vivek	WE	21
105	Aryan	JH	26

In [58]:
```
df.shape
```

Out[58]:
```
(5, 3)
```

In [59]:
```
df.columns
```

Out[59]:
```
Index(['Empname', 'Designation', 'Age'], dtype='object')
```

In [60]:
```
df.head(2)
```

Out[60]:

	Empname	Designation	Age
101	Veman	DS	20
102	Sourabh	AS	24

In [61]:
```
df.tail()
```

Out[61]:

	Empname	Designation	Age
101	Veman	DS	20
102	Sourabh	AS	24
103	Harsh	FD	23
104	Vivek	WE	21
105	Aryan	JH	26

In [62]:
```
## exercise
first_name = ["Richie","Mark"]
nums = [800678,800456]
```

In [63]:
```
series_1 = pd.Series(nums)
series_1
```

Out[63]:
```
0    800678
1    800456
dtype: int64
```

In [64]:
```
series_2 = pd.Series(nums,index = first_name)
series_2
```

Out[64]:
```
Richie    800678
Mark      800456
dtype: int64
```

In [65]:
```
df
```

Out[65]:

	Empname	Designation	Age
101	Veman	DS	20
102	Sourabh	AS	24
103	Harsh	FD	23
104	Vivek	WE	21
105	Aryan	JH	26

In [66]:
```
df.T
```

Out[66]:

	101	102	103	104	105
Empname	Veman	Sourabh	Harsh	Vivek	Aryan
Designation	DS	AS	FD	WE	JH
Age	20	24	23	21	26

In [67]:
```
df.dtypes
```

Out[67]:
```
Empname        object
Designation    object
Age             int64
dtype: object
```

In [68]:
```
df.Empname
```

Out[68]:
```
101      Veman
102    Sourabh
103      Harsh
104      Vivek
105      Aryan
Name: Empname, dtype: object
```

In [69]:
```
df["Empname"]
```

Out[69]:
```
101      Veman
102    Sourabh
103      Harsh
104      Vivek
105      Aryan
Name: Empname, dtype: object
```

In [70]:
```
df[["Empname","Designation"]]
```

Out[70]:

	Empname	Designation
101	Veman	DS
102	Sourabh	AS
103	Harsh	FD
104	Vivek	WE
105	Aryan	JH

In [71]:
```
df.loc[[101,102]]
```

Out[71]:

	Empname	Designation	Age
101	Veman	DS	20
102	Sourabh	AS	24

In [72]:
```
df.loc[102:104,["Empname"]]
```

Out[72]:

	Empname
102	Sourabh
103	Harsh
104	Vivek

In [ ]: