

```
import pandas as pd
purchase_1=pd.Series({'Name':'Chris',
                      'Item Purchased':'Dog Food',
                      'Cost':22.50})
purchase_2=pd.Series({'Name':'Kevin',
                      'Item Purchased':'Kitty Litter',
                      'Cost':2.50})
purchase_3=pd.Series({'Name':'Vinod',
                      'Item Purchased':'Bird Seed',
                      'Cost':5.00})
df=pd.DataFrame([purchase_1,purchase_2,purchase_3],
                 index=['Store1','Store1','Store2'])
df.head()
```



	Name	Item Purchased	Cost
<b>Store1</b>	Chris	Dog Food	22.5
<b>Store1</b>	Kevin	Kitty Litter	2.5
<b>Store2</b>	Vinod	Bird Seed	5.0

#Merging Dataframes

```
df['Date']=['December 1','January 1','mid-May']
df
```



	Name	Item Purchased	Cost	Date
<b>Store1</b>	Chris	Dog Food	22.5	December 1
<b>Store1</b>	Kevin	Kitty Litter	2.5	January 1
<b>Store2</b>	Vinod	Bird Seed	5.0	mid-May

```
df['Delivered']=True
df
```



	Name	Item Purchased	Cost	Date	Delivered
<b>Store1</b>	Chris	Dog Food	22.5	December 1	True
<b>Store1</b>	Kevin	Kitty Litter	2.5	January 1	True
<b>Store2</b>	Vinod	Bird Seed	5.0	mid-May	True

```
df['Feedback']=['Positive',None,'Negative']
df
```



	Name	Item Purchased	Cost	Date	Delivered	Feedback
<b>Store1</b>	Chris	Dog Food	22.5	December 1	True	Positive
<b>Store1</b>	Kevin	Kitty Litter	2.5	January 1	True	None
<b>Store2</b>	Vinod	Bird Seed	5.0	mid-May	True	Negative

```
adf=df.reset_index()
adf
```

	index	Name	Item Purchased	Cost	Date	Delivered	Feedback
<b>0</b>	Store1	Chris	Dog Food	22.5	December 1	True	Positive
<b>1</b>	Store1	Kevin	Kitty Litter	2.5	January 1	True	None
<b>2</b>	Store2	Vinod	Bird Seed	5.0	mid-May	True	Negative

```
adf['Date']=pd.Series({0:'December 1', 2:'mid-May'})
adf
```

	index	Name	Item Purchased	Cost	Date	Delivered	Feedback
<b>0</b>	Store1	Chris	Dog Food	22.5	December 1	True	Positive
<b>1</b>	Store1	Kevin	Kitty Litter	2.5	NaN	True	None
<b>2</b>	Store2	Vinod	Bird Seed	5.0	mid-May	True	Negative

```
staff_df=pd.DataFrame([{'Name':'Kelly','Role':'Director of HR'},
                        {'Name':'Sally','Role':'Course liasion'},
                        {'Name':'James','Role':'Grader'}])
staff_df=staff_df.set_index('Name')
print(staff_df)
```

	Role
Name	
Kelly	Director of HR
Sally	Course liasion
James	Grader

```
student_df=pd.DataFrame([{'Name':'Mike','School':'Business'},
                          {'Name':'Sally','School':'Law'},
                          {'Name':'James','School':'Engineering'}])
student_df=student_df.set_index('Name')
print(student_df)
```

	School
Name	
Mike	Business
Sally	Law
James	Engineering

```
pd.merge(staff_df,student_df,how='outer',left_index=True,
right_index=True)
```

	Role	School
Name		
James	Grader	Engineering
Kelly	Director of HR	NaN
Mike	NaN	Business
Sally	Course liasion	Law

```
pd.merge(staff_df,student_df,how='left',
left_index=True,right_index=True)
```

	Role	School
Name		
Kelly	Director of HR	NaN
Sally	Course liasion	Law
James	Grader	Engineering

```
pd.merge(staff_df,student_df,how='right',
left_index=True,right_index=True)
```

	Role	School
Name		
Mike	NaN	Business
Sally	Course liasion	Law
James	Grader	Engineering

```
pd.merge(staff_df,student_df,how='inner',
left_index=True,right_index=True)
```

	Role	School
Name		
Sally	Course liasion	Law
James	Grader	Engineering

```
staff_df=staff_df.reset_index()
staff_df
student_df=student_df.reset_index()
student_df
```

	Name	School
0	Mike	Business
1	Sally	Law
2	James	Engineering

staff\_df

	Name	Role
0	Kelly	Director of HR
1	Sally	Course liasion
2	James	Grader

```
pd.merge(staff_df,student_df,how='inner',left_on='Name',
        right_on='Name')
```

	Name	Role	School
0	Sally	Course liasion	Law
1	James	Grader	Engineering

```
staff_df['Location']=['101','102','s101']
student_df['Location']=['401','402','s101']
print(staff_df)
print()
print(student_df)
```

	Name	Role	Location
0	Kelly	Director of HR	101
1	Sally	Course liasion	102
2	James	Grader	s101

  

	Name	School	Location
0	Mike	Business	401
1	Sally	Law	402
2	James	Engineering	s101

```
pd.merge(staff_df,student_df,how='left',left_on='Name',
        right_on='Name')
```

	Name	Role	Location_x	School	Location_y
0	Kelly	Director of HR	101	NaN	NaN
1	Sally	Course liasion	102	Law	402
2	James	Grader	s101	Engineering	s101

```
pd.merge(staff_df,student_df,how='inner',
         left_on=['Name','Location'],right_on=['Name','Location'])
```

↗

	Name	Role	Location	School
0	James	Grader	s101	Engineering

```
## Group by
```

```
import numpy as np
from google.colab import drive
drive.mount('/content/gdrive')
!cat '/content/gdrive/My Drive/MyFile/census.csv'
```

↗

```

050,2,3,55,113,Wisconsin,Sawyer County,16557,16557,16573,16543,16551,16511,16435,16376,16,-30
050,2,3,55,115,Wisconsin,Shawano County,41949,41955,41934,41789,41615,41554,41552,41304,-21,-
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050,2,3,55,119,Wisconsin,Taylor County,20689,20689,20639,20766,20483,20579,20561,20455,-50,12
050,2,3,55,121,Wisconsin,Trempealeau County,28816,28816,28850,29048,29370,29577,29515,29550,3
050,2,3,55,123,Wisconsin,Vernon County,29773,29771,29742,30037,30209,30283,30360,30506,-29,29
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050,2,3,55,127,Wisconsin,Walworth County,102228,102228,102188,102798,103055,103041,103499,102
050,2,3,55,129,Wisconsin,Washburn County,15911,15911,15930,15784,15831,15657,15678,15552,19,-
050,2,3,55,131,Wisconsin,Washington County,131887,131885,131967,132225,132649,132758,133301,1
050,2,3,55,133,Wisconsin,Waukesha County,389891,389938,390076,390808,392710,394025,395335,396
050,2,3,55,135,Wisconsin,Waupaca County,52410,52410,52422,52342,52035,52213,52088,51945,12,-8
050,2,3,55,137,Wisconsin,Waushara County,24496,24496,24506,24581,24484,24332,24173,24033,10,7
050,2,3,55,139,Wisconsin,Winnebago County,166994,166994,167059,167630,168717,169486,169639,16
050,2,3,55,141,Wisconsin,Wood County,74749,74749,74807,74647,74384,73996,73597,73435,58,-160,
040,4,8,56,000,Wyoming,Wyoming,563626,563767,564516,567768,577080,583131,584304,586107,749,32
050,4,8,56,001,Wyoming,Albany County,36299,36299,36428,36908,37396,37647,37918,37956,129,480,
050,4,8,56,003,Wyoming,Big Horn County,11668,11668,11672,11745,11785,12002,11919,12022,4,73,4
050,4,8,56,005,Wyoming,Campbell County,46133,46133,46244,46600,47881,48121,48243,49220,111,35
050,4,8,56,007,Wyoming,Carbon County,15885,15885,15837,15817,15678,15787,15856,15559,-48,-20,
050,4,8,56,009,Wyoming,Converse County,13833,13833,13826,13728,14025,14343,14172,14236,-7,-98
050,4,8,56,011,Wyoming,Crook County,7083,7083,7114,7129,7148,7160,7264,7444,31,15,19,12,104,1
050,4,8,56,013,Wyoming,Fremont County,40123,40123,40222,40591,41129,41024,40717,40315,99,369,
050,4,8,56,015,Wyoming,Goshen County,13249,13247,13408,13597,13666,13565,13509,13383,161,189,
050,4,8,56,017,Wyoming,Hot Springs County,4812,4812,4813,4818,4846,4846,4793,4741,1,5,28,0,-5
050,4,8,56,019,Wyoming,Johnson County,8569,8569,8581,8636,8610,8619,8552,8585,12,55,-26,9,-67
050,4,8,56,021,Wyoming,Laramie County,91738,91881,92271,92663,94894,96006,96469,97121,390,392
050,4,8,56,023,Wyoming,Lincoln County,18106,18106,18091,18022,17943,18328,18564,18722,-15,-69
050,4,8,56,025,Wyoming,Natrona County,75450,75450,75472,76420,78699,81156,81603,82178,22,948,
050,4,8,56,027,Wyoming,Niobrara County,2484,2484,2492,2485,2475,2548,2530,2542,8,-7,-10,73,-1
050,4,8,56,029,Wyoming,Park County,28205,28205,28259,28473,28863,29237,29126,29228,54,214,390
050,4,8,56,031,Wyoming,Platte County,8667,8667,8678,8701,8732,8728,8776,8812,11,23,31,-4,48,3
050,4,8,56,033,Wyoming,Sheridan County,29116,29116,29146,29275,29594,29794,30020,30009,30,129
050,4,8,56,035,Wyoming,Sublette County,10247,10247,10244,10142,10418,10086,10039,9899,-3,-102
050,4,8,56,037,Wyoming,Sweetwater County,43806,43806,43593,44041,45104,45162,44925,44626,-213
050,4,8,56,039,Wyoming,Teton County,21294,21294,21297,21482,21697,22347,22905,23125,3,185,215
050,4,8,56,041,Wyoming,Uinta County,21118,21118,21102,20912,20989,21022,20903,20822,-16,-190,
050,4,8,56,043,Wyoming,Washakie County,8533,8533,8545,8469,8443,8443,8316,8328,12,-76,-26,0,-
050,4,8,56,045,Wyoming,Weston County,7208,7208,7181,7114,7065,7160,7185,7234,-27,-67,-49,95,2

```

	SUMLEV	REGION	DIVISION	STATE	COUNTY	STNAME	CTYNAME	CENSUS2010POP	ESTIM
<b>0</b>	40	3	6	1	0	Alabama	Alabama	4779736	
<b>1</b>	50	3	6	1	1	Alabama	Autauga County	54571	
<b>2</b>	50	3	6	1	3	Alabama	Baldwin County	182265	
<b>3</b>	50	3	6	1	5	Alabama	Barbour County	27457	
<b>4</b>	50	3	6	1	7	Alabama	Bibb County	22915	

5 rows × 100 columns















