```
from google.colab import drive

drive.mount('/content/gdrive')
```

```
Mounted at /content/gdrive
```

```
import pandas as pd
```

```
df= pd.read_excel(r'/content/gdrive/My Drive/Practice/FDIdata.xlsx')

display(pd.DataFrame(df))
```

	Sector	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
0	METALLURGICAL INDUSTRIES	22.69	14.14	36.61	8.11	200.38	149.13	169.94	1175.75
1	MINING	1.32	6.52	10.06	23.48	9.92	7.40	6.62	444.36
2	POWER	89.42	757.44	59.11	27.09	43.37	72.69	157.15	988.68
3	NON-CONVENTIONAL ENERGY	0.00	0.00	1.70	4.14	1.27	1.35	2.44	58.82
4	COAL PRODUCTION	0.00	0.00	0.00	0.04	0.00	9.14	1.30	14.08
...	...	...	...	...	...	...	...	...	...
58	PRINTING OF BOOKS (INCLUDING LITHO PRINTING IN...	0.00	0.00	6.30	0.00	0.06	9.90	20.04	35.54
59	COIR	0.00	0.00	0.00	0.00	0.47	0.59	0.04	0.01
60	CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES	0.00	0.00	0.00	0.00	0.00	0.93	64.06	182.92
61	CONSTRUCTION DEVELOPMENT: Townships, housing, ...	24.33	51.75	36.10	47.04	152.06	228.71	1392.95	3887.33
62	MISCELLANEOUS INDUSTRIES	832.07	221.37	218.76	235.48	121.83	164.76	304.87	528.42

63 rows × 18 columns

Generate	Using ...	randomly select 5 items from a list	🔍	Close

```python
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```python
pd.get_option('display.max_rows')
```

    60

```python
pd.get_option('display.max_columns')
```

    20

```python
df.shape
```

    (63, 18)

```python
df.ndim
```

    2

```python
df.head()
```

	Sector	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
0	METALLURGICAL INDUSTRIES	22.69	14.14	36.61	8.11	200.38	149.13	169.94	1175.75	959.94
1	MINING	1.32	6.52	10.06	23.48	9.92	7.40	6.62	444.36	34.16
2	POWER	89.42	757.44	59.11	27.09	43.37	72.69	157.15	988.68	907.66
3	NON-CONVENTIONAL ENERGY	0.00	0.00	1.70	4.14	1.27	1.35	2.44	58.82	125.88
4	COAL PRODUCTION	0.00	0.00	0.00	0.04	0.00	9.14	1.30	14.08	0.22

```python
sum(df.duplicated())
```

    0

```python
df.columns
```

    Index(['Sector', '2000-01', '2001-02', '2002-03', '2003-04', '2004-05',
           '2005-06', '2006-07', '2007-08', '2008-09', '2009-10', '2010-11',
```

```
           '2011-12', '2012-13', '2013-14', '2014-15', '2015-16', '2016-17'],
         dtype='object')


Year=['2000-01', '2001-02', '2002-03', '2003-04', '2004-05',
      '2005-06', '2006-07', '2007-08', '2008-09', '2009-10', '2010-11',
      '2011-12', '2012-13', '2013-14', '2014-15', '2015-16', '2016-17']
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 63 entries, 0 to 62
Data columns (total 18 columns):
 #   Column   Non-Null Count  Dtype
---  ------   --------------  -----
 0   Sector   63 non-null     object
 1   2000-01  63 non-null     float64
 2   2001-02  63 non-null     float64
 3   2002-03  63 non-null     float64
 4   2003-04  63 non-null     float64
 5   2004-05  63 non-null     float64
 6   2005-06  63 non-null     float64
 7   2006-07  63 non-null     float64
 8   2007-08  63 non-null     float64
 9   2008-09  63 non-null     float64
 10  2009-10  63 non-null     float64
 11  2010-11  63 non-null     float64
 12  2011-12  63 non-null     float64
 13  2012-13  63 non-null     float64
 14  2013-14  63 non-null     float64
 15  2014-15  63 non-null     float64
 16  2015-16  63 non-null     float64
 17  2016-17  63 non-null     float64
dtypes: float64(17), object(1)
memory usage: 9.0+ KB
```

```
df.isnull().sum()
```

```
Sector    0
2000-01   0
2001-02   0
2002-03   0
2003-04   0
2004-05   0
2005-06   0
2006-07   0
2007-08   0
2008-09   0
2009-10   0
2010-11   0
2011-12   0
2012-13   0
2013-14   0
2014-15   0
2015-16   0
2016-17   0
dtype: int64
```

```
#Average Exchange Rate
Rates= [45.68,47.69,48.39,45.95,44.93,44.27,45.24,40.26,45.99,47.44,45.56,47.92,54.40,60.
```

```
#Creating a function tp convert fdi's value from usd to inr
def multiply_columns(df,col_list,num):
  for col in col_list:
    df[col]=df[col]*Rates[col_list.index(col)]/10
  return df
```

```
FDI_InUSD=df.copy()
FDI_02 =multiply_columns(df,Year,Rates)
```

```
FDI_02.style.set_caption("FDI INFLOWS (Amount in ₹ Crores)").format(precision=2)
```

FI

	Sector	2000-01	2001-02	2002-03	2003-04	2004-05
0	METALLURGICAL INDUSTRIES	103.65	67.43	177.16	37.27	900.31
1	MINING	6.03	31.09	48.68	107.89	44.57
2	POWER	408.47	3612.23	286.03	124.48	194.86
3	NON-CONVENTIONAL ENERGY	0.00	0.00	8.23	19.02	5.71
4	COAL PRODUCTION	0.00	0.00	0.00	0.18	0.00
5	PETROLEUM & NATURAL GAS	42.71	1006.59	274.76	370.54	461.79
6	BOILERS AND STEAM GENERATING PLANTS	0.00	0.00	0.00	0.18	2.43
7	PRIME MOVER (OTHER THAN ELECTRICAL GENERATORS)	0.00	0.00	0.00	0.00	11.95
8	ELECTRICAL EQUIPMENTS	364.34	313.61	167.96	336.35	437.62
9	COMPUTER SOFTWARE & HARDWARE	1043.29	2000.07	1520.61	1692.43	2371.85
10	ELECTRONICS	38.10	59.47	1431.76	378.21	395.83
11	TELECOMMUNICATIONS	811.69	4164.43	927.15	397.42	531.66
12	INFORMATION & BROADCASTING (INCLUDING PRINT MEDIA)	372.29	21.65	176.62	63.04	44.26
13	AUTOMOBILE INDUSTRY	892.27	1124.34	2032.19	547.22	548.01
14	AIR TRANSPORT (INCLUDING AIR FREIGHT)	0.00	0.00	18.39	4.32	18.47
15	SEA TRANSPORT	11.01	94.47	141.88	100.86	166.02
16	PORTS	0.00	73.82	9.82	534.67	58.59
17	RAILWAY RELATED COMPONENTS	0.00	0.00	2.71	13.56	48.30
18	INDUSTRIAL MACHINERY	25.03	152.80	93.88	14.61	39.94
19	MACHINE TOOLS	6.49	20.55	68.57	250.47	49.60
20	AGRICULTURAL MACHINERY	16.63	4.96	65.23	218.45	0.00
21	EARTH-MOVING MACHINERY	0.00	0.52	66.63	0.05	0.45
22	MISCELLANEOUS MECHANICAL & ENGINEERING INDUSTRIES	203.28	292.82	218.09	104.44	57.65
23	COMMERCIAL, OFFICE & HOUSEHOLD EQUIPMENTS	55.73	23.23	11.27	47.83	63.49
24	MEDICAL AND SURGICAL APPLIANCES	24.76	201.97	104.67	9.05	24.04
25	INDUSTRIAL INSTRUMENTS	4.61	24.18	6.34	1.38	4.85
26	SCIENTIFIC INSTRUMENTS	36.86	11.11	0.92	0.09	0.13
27	MATHEMATICAL,SURVEYING AND	0.00	0.00	0.00	0.00	0.00

27	DRAWING INSTRUMENTS	0.00	0.00	0.00	0.00	0.00
28	FERTILIZERS	0.00	0.00	79.26	99.16	60.48
29	CHEMICALS (OTHER THAN FERTILIZERS)	507.69	416.00	619.97	93.00	311.77
30	PHOTOGRAPHIC RAW FILM AND PAPER	0.00	0.00	2.90	1.10	27.68
31	DYE-STUFFS	4.80	0.86	0.00	1.98	5.30
32	DRUGS & PHARMACEUTICALS	164.17	371.70	193.90	500.44	1318.07
33	TEXTILES (INCLUDING DYED,PRINTED)	9.41	25.18	262.18	42.92	193.38
34	PAPER AND PULP (INCLUDING PAPER PRODUCTS)	274.26	79.64	35.62	32.85	12.13
35	SUGAR	0.00	0.00	19.21	0.00	13.21
36	FERMENTATION INDUSTRIES	73.18	52.65	39.05	7.81	624.53
37	FOOD PROCESSING INDUSTRIES	208.99	1046.27	178.46	501.87	197.60
38	VEGETABLE OILS AND VANASPATI	0.00	0.00	0.00	7.77	40.84
39	SOAPS, COSMETICS & TOILET PREPARATIONS	0.00	0.00	0.00	0.00	4.00
40	RUBBER GOODS	0.46	221.23	79.46	29.27	179.99
41	LEATHER,LEATHER GOODS AND PICKERS	44.54	0.95	0.05	34.69	1.98
42	GLUE AND GELATIN	0.00	4.48	25.26	0.00	0.00
43	GLASS	154.72	39.92	217.66	24.08	37.56
44	CERAMICS	18.41	3.72	1.02	6.75	120.37
45	CEMENT AND GYPSUM PRODUCTS	309.34	667.18	102.01	44.02	0.72
46	TIMBER PRODUCTS	0.00	0.24	0.19	0.51	0.31
47	DEFENCE INDUSTRIES	0.00	0.00	0.00	0.00	0.22
48	CONSULTANCY SERVICES	19.41	315.80	124.36	212.29	1134.12
49	SERVICES SECTOR (Fin.,Banking,Insurance,Non Fin/Business,Outsourcing,R&D,Courier,Tech. Testing and Analysis, Other)	326.06	896.33	1433.99	1245.93	2049.48
50	HOSPITAL & DIAGNOSTIC CENTRES	0.00	33.05	140.96	110.65	117.67
51	EDUCATION	0.00	0.00	0.00	0.87	8.85
52	HOTEL & TOURISM	60.30	153.18	163.32	226.81	166.29
53	TRADING	52.49	206.35	184.51	143.00	63.89
54	RETAIL TRADING	0.00	0.00	0.00	0.00	0.00
55	AGRICULTURE SERVICES	80.03	67.05	53.28	2.71	17.21
56	DIAMOND,GOLD ORNAMENTS	86.02	1.72	6.29	9.01	38.55