In [2]:
```
# Exercise 4.1
import pandas as pd
list = [1,2,3,4,5,6]
print(pd.Series(list))
```

```
0    1
1    2
2    3
3    4
4    5
5    6
dtype: int64
```

In [6]:
```
# Exercise 4.2
per1 = pd.date_range(start ='05-01-2021', end ='05-12-2021')
print(per1)
```

```
DatetimeIndex(['2021-05-01', '2021-05-02', '2021-05-03', '2021-05-04',
               '2021-05-05', '2021-05-06', '2021-05-07', '2021-05-08',
               '2021-05-09', '2021-05-10', '2021-05-11', '2021-05-12'],
              dtype='datetime64[ns]', freq='D')
```

In [10]:
```
# Exercise 4.3
dict = {
  'fist_name': ['John', 'Andrew'],
  'last_name': ['Brown', 'Purple'],
  'age': [25, 48]
}
pd.DataFrame.from_dict(dict)
```

Out[10]:

	fist_name	last_name	age
0	John	Brown	25
1	Andrew	Purple	48

In [13]:
```
# Exercise 4.4
list = [['Betteena', 25], ['Anu', 30],
        ['Aysha', 26], ['Anuja', 22]]

# creating df object with columns specified
df = pd.DataFrame(list, columns =['Name', 'Mark'])
print(df )
```

```
       Name  Mark
0  Betteena    25
1       Anu    30
2     Aysha    26
3     Anuja    22
```

In [14]:
```
# Exercise 4.5
df = pd.read_csv('data.csv')
print(df)
```

```
       Name  Age  Mark
0  Betteena   21    30
1    Anitta   26    34
2    Josiah   22    35
```

In [18]:
```
# Exercise 4.6
df = pd.DataFrame({'Name': ['Raj', 'Sonum', 'Tilak'],
                   'Age': [20, 22, 21],
                   })
```

```
print('DATAFRAME')
print(df)
print('SORTED DATAFRAME')
df.sort_values(by=['Age'], ascending=False)
```

```
DATAFRAME
    Name  Age
0    Raj   20
1  Sonum   22
2  Tilak   21
SORTED DATAFRAME
```

Out[18]:

	Name	Age
1	Sonum	22
2	Tilak	21
0	Raj	20

In [23]:

```
# Exercise 4.7

df = pd.DataFrame({
                    'Networking': [45, 34, 23],
                    'Web Engineering': [32, 43, 23],
                    'Complier Design': [14, 42, 21]
                  }, index=['Abhishek', 'Saumya', 'Ayushi']
                 )
print('Data frame with custom indexing')
print(df)
print('\nData frame with default indexing')
df.reset_index()
```

```
Data frame with custom indexing
          Networking  Web Engineering  Complier Design
Abhishek          45               32               14
Saumya            34               43               42
Ayushi            23               23               21

Data frame with default indexing
```

Out[23]:

	index	Networking	Web Engineering	Complier Design
0	Abhishek	45	32	14
1	Saumya	34	43	42
2	Ayushi	23	23	21

In [30]:

```
# Exercise 4.8
df = pd.DataFrame({
                    'Networking': [45, 34, 23],
                    'Web Engineering': [32, 43, 23],
                    'Complier Design': [14, 42, 21]
                  }, index=['Abhishek', 'Saumya', 'Ayushi']
                 )
df.head(2)
```

Out[30]:

	Networking	Web Engineering	Complier Design
Abhishek	45	32	14
Saumya	34	43	42

In [31]:

```
# Exercise 4.9
```

```
data = {
    'Name': ['Alice', 'Bob', 'Charlie', 'David', 'Eve'],
    'Occupation': ['Engineer', 'Teacher', 'Doctor', 'Engineer', 'Doctor'],
    'Salary': [60000, 45000, 75000, 65000, 80000]
}

df = pd.DataFrame(data)
print(df.groupby('Occupation')['Salary'].mean())
```

```
Occupation
Doctor      77500.0
Engineer    62500.0
Teacher     45000.0
Name: Salary, dtype: float64
```

In [27]:
```
# Exercise 4.10
import numpy as np


data = {
    'A': [1, 2, np.nan, 4, 5],
    'B': [np.nan, 2, 3, np.nan, 5],
    'C': [1, 2, 3, 4, np.nan]
}

df = pd.DataFrame(data)

df_filled = df.fillna(0)


print(df_filled)
```

```
     A    B    C
0  1.0  0.0  1.0
1  2.0  2.0  2.0
2  0.0  3.0  3.0
3  4.0  0.0  4.0
4  5.0  5.0  0.0
```

In [34]:
```
# Exercise 4.11
data = {
    'cname': ['Company A', 'Company B', 'Company C', 'Company D'],
    'profit': [10000, -5000, 0, 7500]
}

df = pd.DataFrame(data)

df['profit'] = df['profit'] > 0
df.rename(columns={'profit':'is_profit'},inplace=True)

print(df)
```

```
       cname  is_profit
0  Company A       True
1  Company B      False
2  Company C      False
3  Company D       True
```

In [33]:
```
# Exercise 4.12
data1 = {
    'eid': [101, 102, 103, 104],
    'ename': ['Alice', 'Bob', 'Charlie', 'David'],
    'stipend': [5000, 6000, 5500, 7000]
```

```
}

data2 = {
    'eid': [101, 103, 104, 105],
    'designation': ['Engineer', 'Manager', 'Analyst', 'Technician']
}

df1 = pd.DataFrame(data1)
df2 = pd.DataFrame(data2)

result_df = df1.merge(df2, on='eid', how='left')

result_df = result_df.rename(columns={'designation': 'position'})

print(result_df)
```

```
   eid    ename  stipend  position
0  101    Alice     5000  Engineer
1  102      Bob     6000       NaN
2  103  Charlie     5500   Manager
3  104    David     7000   Analyst
```

In [ ]: