TOPIC : Artificial Intelligence with Python - INMOVIDU - Jahnavi N

PANDAS

Pandas officially stands for 'Python Data Analysis Library'

Pandas uses fast, flexible, most important Python tool which allows users to explore, manipulate and visualise data in an extremely efficient manner.

In [8]:
```
import pandas as pd
```

There are two types : SERIES , DATAFRAMES

The Pandas Series data structure is a one-dimensional labelled array

Series can only contain single list with index, whereas dataframe can be made of more than one series or we can say that a dataframe is a collection of series that can be used to analyse the data.

series

In [9]:
```
import pandas as p
l=['hai','helo', 'good evening']
dt=p.Series(l)
print(dt)
```

```
0            hai
1           helo
2    good evening
dtype: object
```

In [10]:
```
print(dt[2])
```

```
good evening
```

dataframes

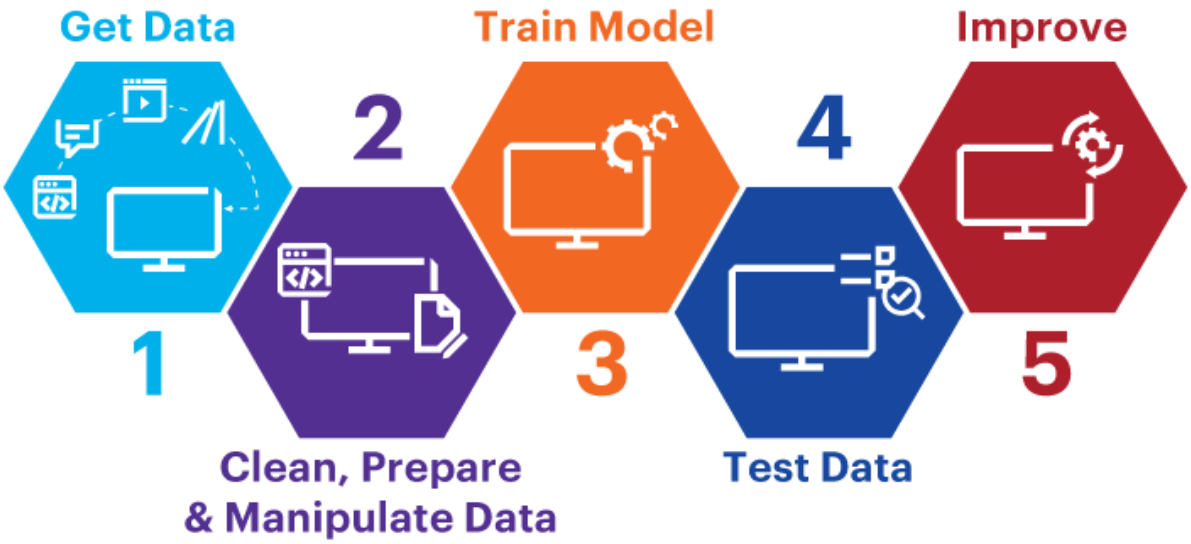
In [11]:
```
import pandas as p
l1=['hai','helo', 'good evening']
l2=[100,200,300]
dt=p.DataFrame({'num':l1 ,'no':l2 ,'gender':['m','f','m']})


print(dt)
```

```
            num   no gender
0           hai  100      m
1          helo  200      f
2  good evening  300      m
```

In [12]:
```
from IPython import display
display.Image("https://www.accenture.com/t20191024T093636Z__w__/th-en/_acnmedia/Acce
```

Out[12]:



load data

In [13]:
```
import pandas as pd
data=pd.read_csv("iris_csv.csv")
```

In [14]:
```
print(data)
```

```
     sepallength  sepalwidth  petallength  petalwidth           class
0            5.1         3.5          1.4         0.2     Iris-setosa
1            4.9         3.0          1.4         0.2     Iris-setosa
2            4.7         3.2          1.3         0.2     Iris-setosa
3            4.6         3.1          1.5         0.2     Iris-setosa
4            5.0         3.6          1.4         0.2     Iris-setosa
..           ...         ...          ...         ...             ...
145          6.7         3.0          5.2         2.3  Iris-virginica
146          6.3         2.5          5.0         1.9  Iris-virginica
147          6.5         3.0          5.2         2.0  Iris-virginica
148          6.2         3.4          5.4         2.3  Iris-virginica
149          5.9         3.0          5.1         1.8  Iris-virginica

[150 rows x 5 columns]
```

In [15]:
```
data1 = pd.read_csv(r'C:\Users\JAHNAVI\Desktop\class\iris_csv.csv',sep=",")
```

In [16]:
```
print(data1)
```

```
     sepallength  sepalwidth  petallength  petalwidth           class
0            5.1         3.5          1.4         0.2     Iris-setosa
1            4.9         3.0          1.4         0.2     Iris-setosa
2            4.7         3.2          1.3         0.2     Iris-setosa
3            4.6         3.1          1.5         0.2     Iris-setosa
4            5.0         3.6          1.4         0.2     Iris-setosa
..           ...         ...          ...         ...             ...
145          6.7         3.0          5.2         2.3  Iris-virginica
```

```
146          6.3         2.5          5.0         1.9  Iris-virginica
147          6.5         3.0          5.2         2.0  Iris-virginica
148          6.2         3.4          5.4         2.3  Iris-virginica
149          5.9         3.0          5.1         1.8  Iris-virginica

[150 rows x 5 columns]
```

In [17]:
```
print(data1.info())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
 #   Column       Non-Null Count  Dtype  
---  ------       --------------  -----  
 0   sepallength  150 non-null    float64
 1   sepalwidth   150 non-null    float64
 2   petallength  150 non-null    float64
 3   petalwidth   150 non-null    float64
 4   class        150 non-null    object 
dtypes: float64(4), object(1)
memory usage: 6.0+ KB
None
```

In [18]:
```
print(data1.notnull())
```

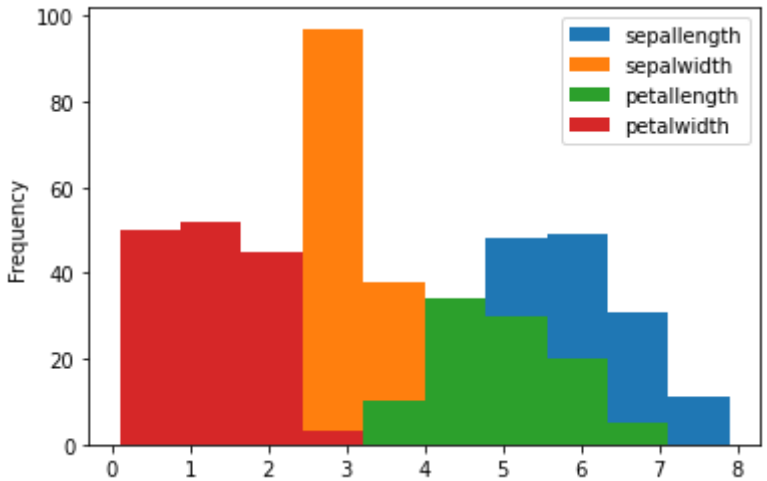
```
     sepallength  sepalwidth  petallength  petalwidth  class
0           True        True         True        True   True
1           True        True         True        True   True
2           True        True         True        True   True
3           True        True         True        True   True
4           True        True         True        True   True
..           ...         ...          ...         ...    ...
145         True        True         True        True   True
146         True        True         True        True   True
147         True        True         True        True   True
148         True        True         True        True   True
149         True        True         True        True   True

[150 rows x 5 columns]
```

visualize

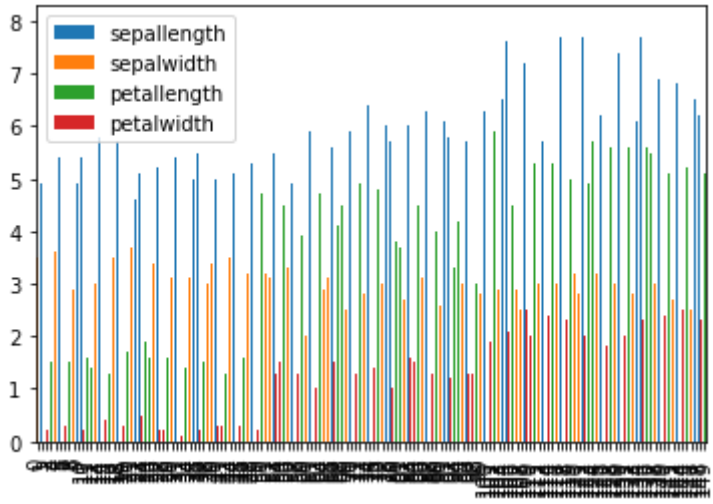
In [19]:
```
data1.plot.hist()
```

Out[19]:
```
<AxesSubplot:ylabel='Frequency'>
```



In [20]:
```
data1.plot.bar()
```

Out[20]: <AxesSubplot:>

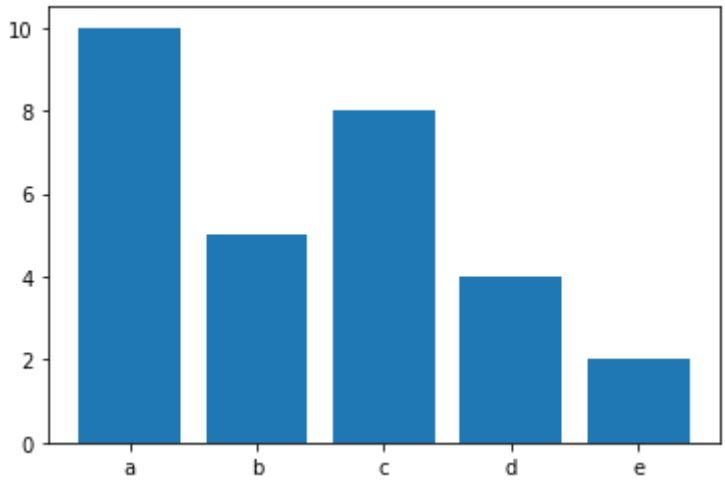


In [ ]:

MATPLOTLIB

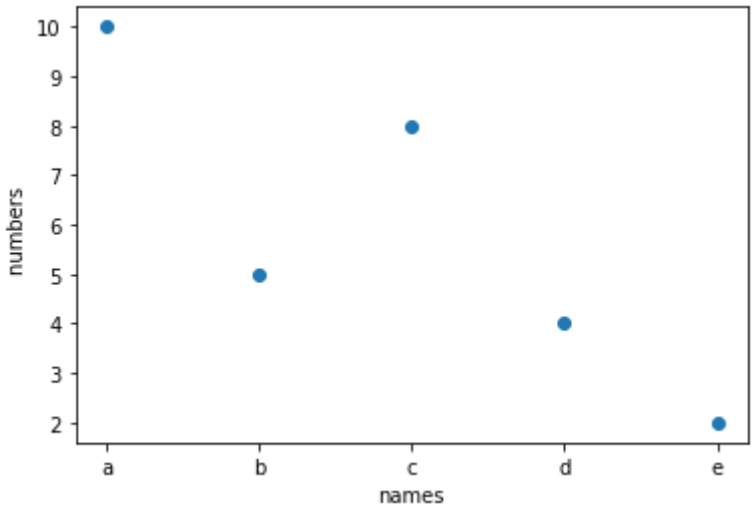
In [21]:
```
from matplotlib import pyplot as plt
x = ['a','b','c','d','e']
y = [10, 5, 8, 4, 2]
plt.bar(x,y)
```

Out[21]: <BarContainer object of 5 artists>



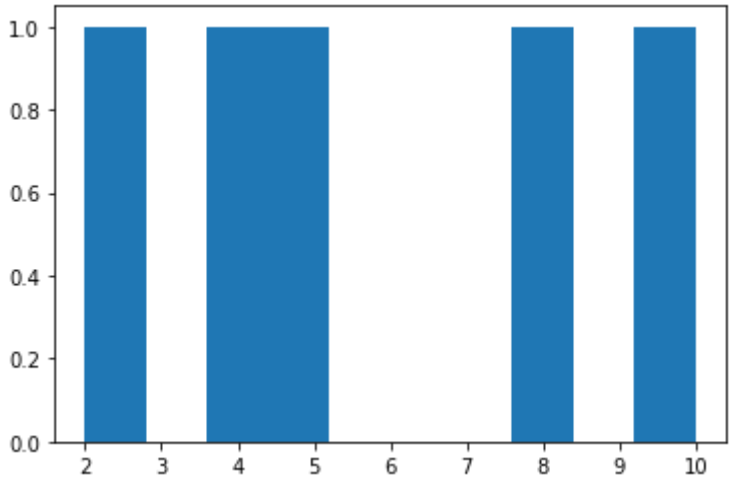
In [22]:
```
plt.scatter(x, y)
plt.xlabel("names")
plt.ylabel("numbers ")
```

Out[22]: Text(0, 0.5, 'numbers ')



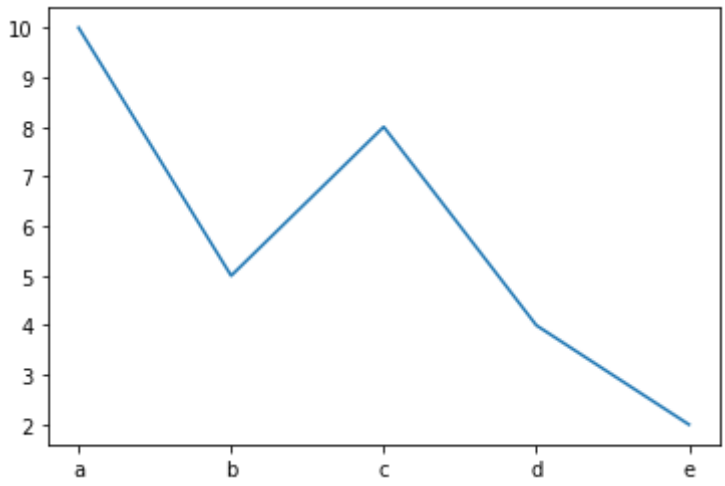
In [23]:
```
plt.hist(y)
```

Out[23]:
```
(array([1., 0., 1., 1., 0., 0., 0., 1., 0., 1.]),
 array([ 2. ,  2.8,  3.6,  4.4,  5.2,  6. ,  6.8,  7.6,  8.4,  9.2, 10. ]),
 <BarContainer object of 10 artists>)
```

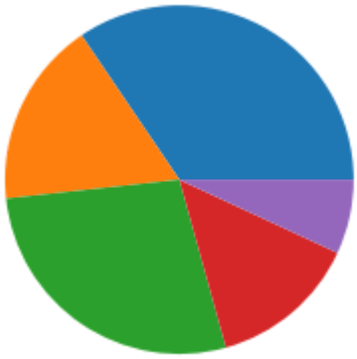


In [24]:
```
plt.plot(x,y)
```

Out[24]:
```
[<matplotlib.lines.Line2D at 0x1909f51d3c8>]
```



In [25]:
```
plt.pie(y)
plt.show()
```



In [ ]: