```python
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
#create array
arr1 = np.array([1,2,3,4,5])
print(arr1)
#print 2 d type
arr2 = np.array([(1,2,3) , (4,5,6)])
arr2
print(arr2)
#2 row 3 element
print(arr2[1,2])
#print 1 upto 19
arr = np.arange(1,20)
arr
#print 2-15 with 2 jump
arr[2:15:2]
#arr
arr4 = np.array([(1,2,3,4,5,6,7,8,9,10) , (11,12,13,14,15,16,17,18,19,20)])
arr4
print(arr4[1,2])
print(arr4[1][2])
print(arr4[1,1:5])
#print 1-50
arr5 = np.arange(1,51)
print(arr5)
#print 3 index thi 9 index
print(arr5[3:9])
#print 3 index se 9th index with 2 jump
print(arr5[3:9:2])
#1-100 element
arr6 = np.arange(1,101)
arr6
#51-60 element
arr7 = np.arange(51,61)
arr7
print("Size of array:- ",format(arr7.itemsize))
#create array than matrix
arr8 = np.arange(1,10)
mat1 = arr8.reshape(3,3)
mat1
#print 25 number devisible by 5
arr9 = np.arange(1,125,5)
arr9
#print 5*5 matrix
print(arr9.reshape(5,5))
#vstack
arr10 = np.arange(1,10)
mat2 = arr10.reshape(3,3)
arr11 = np.arange(11,20)
mat3 = arr11.reshape(3,3)
a = np.vstack((mat2,mat3))
```

```python
print(a)
print(np.hstack((mat2,mat3)))
print(np.hstack((arr10,arr11)))




-------------------Pandas-----------------------------
df1 = pd.read_csv("employees.csv")
df1
#first 5
df1.head()
#first 7
df1.head(7)
#last 5
df1.tail()
#tail last 6
df1.tail(6)
#specific row
df1["Gender"]
#column location
df1.iloc[4]
#column loc
df1.loc[df1["Gender"]=="Female"]
df1["Gender"]=="Female"
#person with hightest salary data
df1.loc[df1["Salary"].idxmax()]
#salary min
df1.loc[df1["Salary"].idxmin()]
#female with highest salary
df2 = df1.loc[df1["Gender"]=="Female"]
df2
df2.loc[df2["Salary"].idxmax()]
#check for null values
df1.isnull()
#check for not null
df1.notnull()
#fill empty cell with yesha word
df1.fillna("Yesha")
#mean of salary
df1["Salary"].mean()
#drop nan
df1.dropna()
#multiple column
df1[["Salary","Gender"]]
#description(statistical)
df1.describe()
#information
df1.info()
#salary max hoy ani gender
df = df1.loc[df1["Salary"].idxmax()]
df["Gender"]
#sum of null value count
```

```python
df1.isnull().sum().sum()
#fill na with mean / Average
df1["Salary"].mean()
df1.fillna(df1["Salary"].mean())
```

------------------------------------matplotlib.pyplot-------------------

```python
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
data={'x':range(1,11),'y':[5,7,3,8,10,6,2,4,9,3]}
df = pd.DataFrame(data)
df
plt.plot(df['x'],df['y'],marker='o',linestyle="dashed")
# plt.title("line chart plot")
# plt.xlabel("x axis")
# plt.ylabel("yaxis")
plt.show()


plt.bar(df1['x'],df1['y'],color="orange")
plt.title("bar plot")
plt.xlabel("Alphabets")
plt.ylabel("Numbers")
plt.show()

plt.bar(df['Name'],df['Salary'],color='orange')
plt.title("Bar Plot")
plt.xlabel("Name")
plt.ylabel("Salary")
plt.show()


plt.barh(df['Name'],df['Salary'],color='purple')
plt.title("Bar Chart")
plt.xlabel("X axis")
plt.ylabel("Y label")
plt.show()



plt.scatter(df['Salary'],df['Bonus'],linewidth=15,marks=4)
plt.title('Scatter')
plt.xlabel("x axis")
plt.ylabel("y axis")
plt.show()



data3 = {'labels':['A','B','C','D','E'] , 'sizes':[15,30,25,10,20]}
df1 = pd.DataFrame(data3)
df1
```

```python
plt.pie(df1['sizes'],labels=df1['labels'])
plt.title("pie chart")
plt.show()
```

type:- line plot , bar plot , barh , scatter, pie

```python
line plot :- plt.plot(x,y,marker="o",linestyle="dashed")
plt.title()
plt.xlabel()
plt.ylabel()
plt.show()
```

```python
bar plot = plt.bar(x,y,color)
title
xlabel
ylabel
show
```

```python
barh
plt.brah(x,y,color)
title
xlabel
ylabel
show
```

```python
scatter = plt.scatter(x,y,linewidth=,marker=)
title
xlabel
ylabel
show
```

```python
pie = plt.pie(number,labels=name)
title
show()
```