**Exp No:1.a Analyze the trend of data science job postings over the last**

**Decade**

import pandas as pd

import matplotlib.pyplot as plt

data = {'Year': list(range(2010, 2021)),'Job Postings': [150, 300, 450, 600, 800, 1200, 1600, 2100, 2700, 3400, 4200]}

df = pd.DataFrame(data)

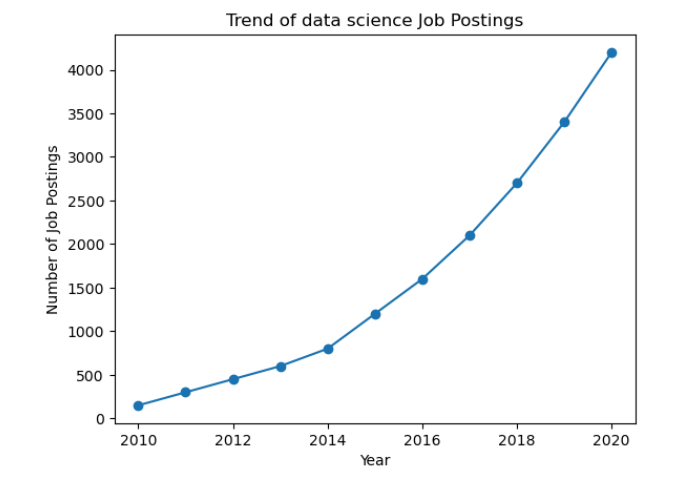
plt.plot(df['Year'], df['Job Postings'], marker='o')

plt.title('Trend of Data Science Job Postings')

plt.xlabel('Year')

plt.ylabel('Number of Job Postings')

plt.show()

**OUTPUT**

**Exp No:1.b Analyze and visualize the distribution of various data science roles (Data**

**Analyst, Data Engineer, Data Scientist, etc.) from a dataset.**

**Description: Use a dataset of job postings and categorize them into different roles. Visualize**

**the distribution using pie charts or bar plots.**

import pandas as pd

import matplotlib.pyplot as plt

roles=['data analyst','data engineer','data scientist','data administrator']

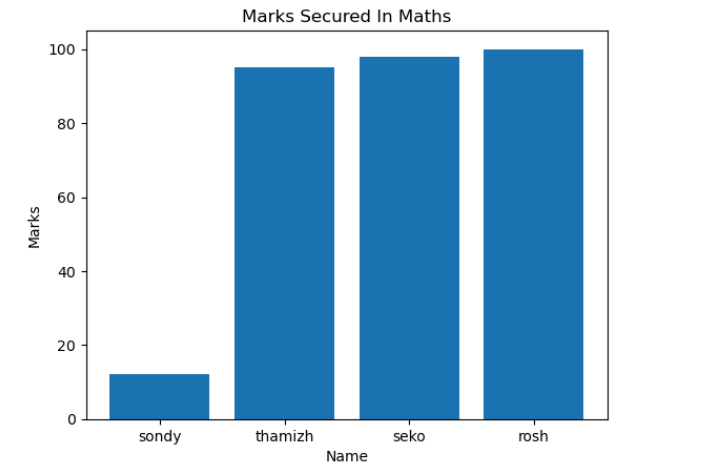
count=[5,10,50,45]

plt.bar(roles,count)

plt.xlabel('roles')

plt.ylabel('count')

plt.show()

**OUTPUT**

**Exp No:1.c Conduct an experiment to differentiate Structured , Un-structured and Semi structured data based on data sets given.**

import pandas as pd

structured\_data=pd.DataFrame({

'ID':[1,2,3],

'Name':['kabi','raja','sakthi'],

'Age':[19,27,18]

})

print("structured Data:\n",structured\_data)

**OUTPUT**

structured Data:

ID Name Age

0 1 kabi 19

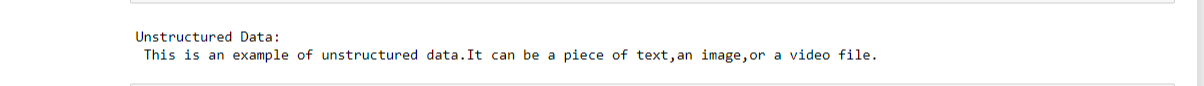
1 2 raja 27

2 3 sakthi 18

unstunstructured\_data="This is an example of unstructured data.It can be a piece of text,an image,or a video file."

print("\nUnstructured Data:\n".unstructured\_data)

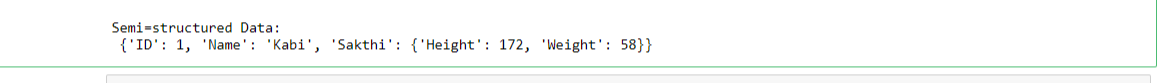
**OUTPUT**



semi\_structured\_data={'ID':1,'Name':'Kabi','Sakthi':{'Height':172,'Weight':58}}

print("\nSemi=structured Data:\n",semi\_structured\_data)

**OUTPUT**



**Exp No:1.d Conduct an experiment to encrypt and decrypt given sensitive data.**

from cryptography.fernet import Fernet

key=Fernet.generate\_key()

f=Fernet(key)

token=f.encrypt(b"computer science and engineering")

token

b'...'

f.decrypt(token)

b'computer science and engineering'

key=Fernet.generate\_key()

cipher\_suite=Fernet(key)

plain\_text=b"computer science and engineering."

cipher\_text=cipher\_suite.encrypt(plain\_text)

decrypted\_text=cipher\_suite.decrypt(cipher\_text)

encrypted\_text=cipher\_suite.encrypt(cipher\_text)

print(decrypted\_text)

print(encrypted\_text)

**OUTPUT**

