Exp.1(a): Analyze the trend of data science job postings over the last decade.

Code:

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')

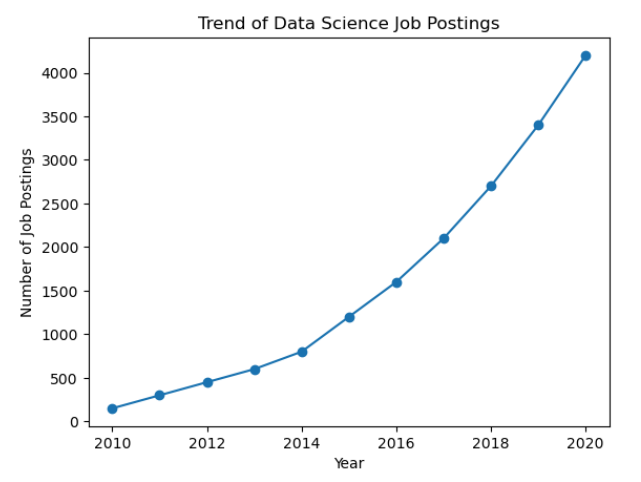
plt.title('Trend of Data Science Job Postings')

plt.xlabel('Year')

plt.ylabel('Number of Job Postings')

plt.show()

output:



Exp.1(b): Analyze and visualize the distribution of various data science roles from a dataset.(Bargraph)

Code:

import pandas as pd

import matplotlib.pyplot as plt

name=['Data Scientist','Data engineer','Data analyst']

data=[30,50,10]

plt.bar(name,data)

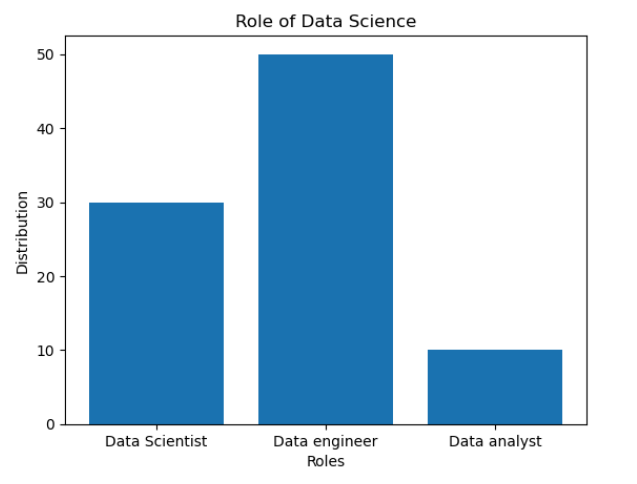
plt.title('Role of Data Science')

plt.xlabel('Roles')

plt.ylabel('Distribution')

plt.show()

Output:



Exp.1(b): Analyze and visualize the distribution of various data science roles from a dataset.(pie chart)

Code:

import pandas as pd

import matplotlib.pyplot as plt

name=['Data Scientist','Data Analyst','Data Engineer','ML Engineer']

data=[30,50,10,20]

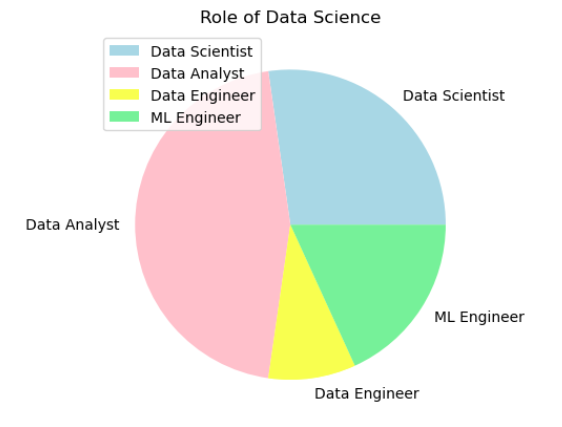
plt.pie(data,labels=name,colors=['lightblue','pink','yellow','lightgreen'])

plt.title('Role of Data Science')

plt.legend()

plt.show()

Output:



Exp.1©: Conduct an experiment to differentiate structured, un-structured and semi-structured data based on data sets given.

Code:

import pandas as pd

import matplotlib.pyplot as plt

structured\_data=pd.DataFrame({'ID':[1,2,3],'Name':['Alice','Bob','Charles'],

'age':[25,30,35]})

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

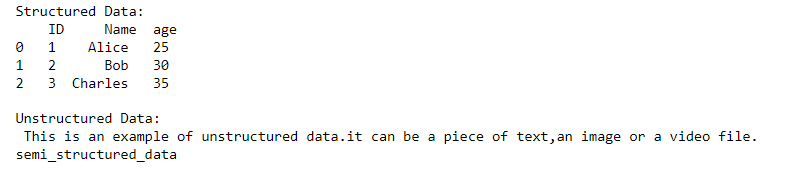
unstructured\_data="This is an example of unstructured data.it can be a piece of text,an image or a video file."

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

semi\_structured\_data={'ID':1,'Name':'Alice','Attributes':{'height':165,'Weights':68}}

print("semi\_structured\_data")

Output:



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

Code:

from cryptography.fernet import Fernet

key= Fernet.generate\_key()

f=Fernet(key)

token = f.encrypt(b"Fundamentals of Data science")

token

b'...'

f.decrypt(token)

b'Fundamentals of data science'

key= Fernet.generate\_key()

chiper\_suite=Fernet(key)

plain\_text=b"Fundamentals of Data Science"

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

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

print("Original Data:",plain\_text)

print("Encrypted Data:",chiper\_text)

print("Decrypted Data:",decrypted\_text)

Output:

