

Exp No:1.a

Analyze the trend of data science job postings over the last

Decade

Code:

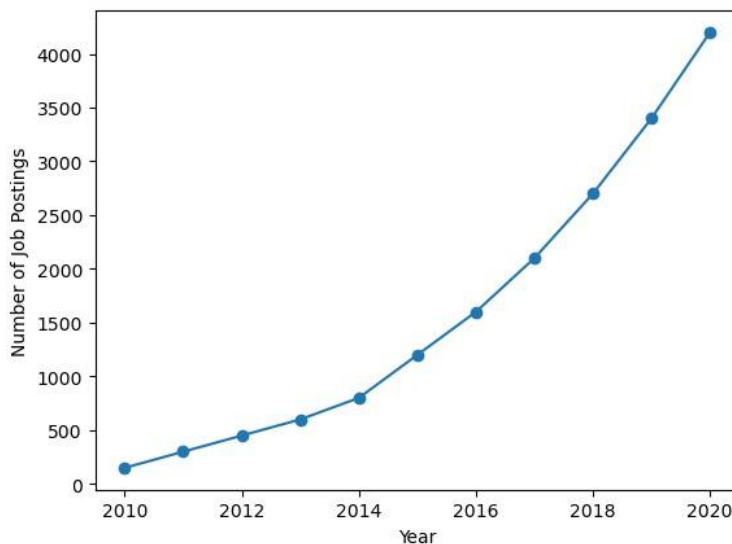
```
import pandas as pd
import matplotlib.pyplot as plt
data={'Year':list(range(2010,2021)), 'Job Postings':[150,300,450,600,800,1200,1600,2100,2700,3400,4200]}
df=pd.DataFrame(data)
plt.plot(df['Year'],df['Job Postings'],marker='o')
plt.xlabel('Year')
plt.ylabel('Number of Job Postings')
plt.show()
```

Sample Data Input:

Year =2010, 2021

Job Postings=150, 300, 450, 600, 800, 1200, 1600, 2100, 2700, 3400, 4200

Sample 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.

Code:

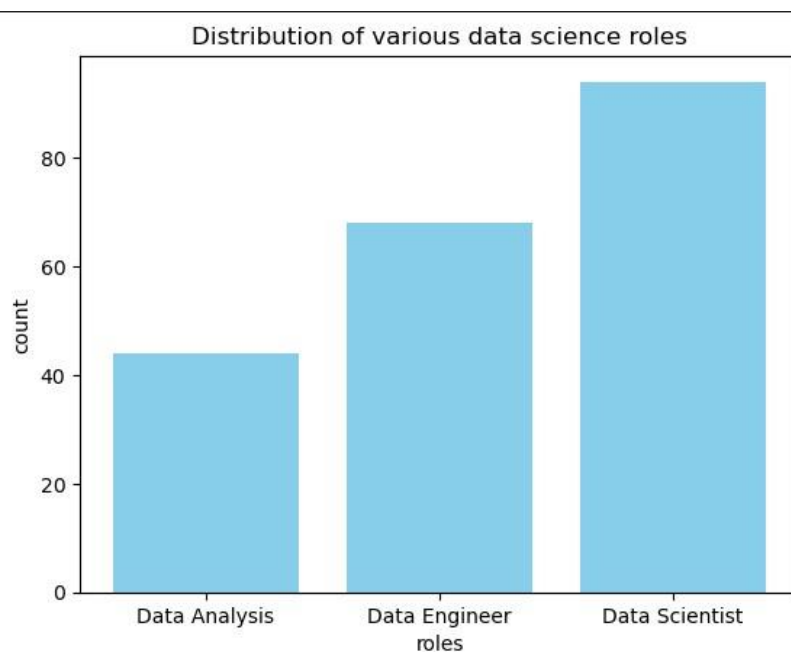
```
import pandas as pd
import matplotlib.pyplot as plt
roles=['Data Analysis','Data Engineer','Data Scientist']
count=[44,68,94]
plt.bar(roles,count,color='Skyblue')
plt.title('Distribution of various data science roles')
plt.xlabel('roles')
plt.ylabel('count')
plt.show()
```

Sample Data Input:

Roles=Data Analysis,Data Engineer,Data Scientist

Counts=44,68,94

Sample Output:



Exp No:1.c

Conduct an experiment to differentiate Structured , Un-structured and Semi structured data based on data sets given.

Code:

```
import pandas as pd
structured_data=pd.DataFrame({
    'ID':[22,23,24],
    'Name':['Ajith','Kumar','Vijay'],
    'Age':[53,50,51]
})
print("structured data:\n",structured_data)

unstructured_data="every one need to attend the gmeet today"
print("unstructured data:\n",unstructured_data)

semistructured_data={'ID':22,'Name':'Ajith','Age':53}
print("semistructured_data:\n",semistructured_data)
```

Output:

```
structured data:
   ID  Name  Age
0  22  Ajith   53
1  23  Kumar   50
2  24  Vijay   51
unstructured data:
every one need to attend the gmeet today
semistructured_data:
{'ID': 22, 'Name': 'Ajith', 'Age': 53}
```

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"Github event") token
b'...'
f.decrypt(token) b'Github
event'
key=Fernet.generate_key()
cipher_suite=Fernet(key)
plain_text=b"Github event"
cipher_text=cipher_suite.encrypt(plain_text)
decrypted_text=cipher_suite.decrypt(cipher_text)
print("original data",plain_text) print("encrypted
data",cipher_text) print("decrypted
data",decrypted_text)
```

Output:

```
original data b'Github event'
encrypted data b'gAAAAABmwrGe2s-PbNynCyU85oSOjSxbY-yXHR27RU21laB9qIFiM2VoT0Df
OOatZ-CbLjGja7oQxtqNaomvS9U-JsHN5bXvjQ==' decrypted data b'Github event'
```