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

Decade.

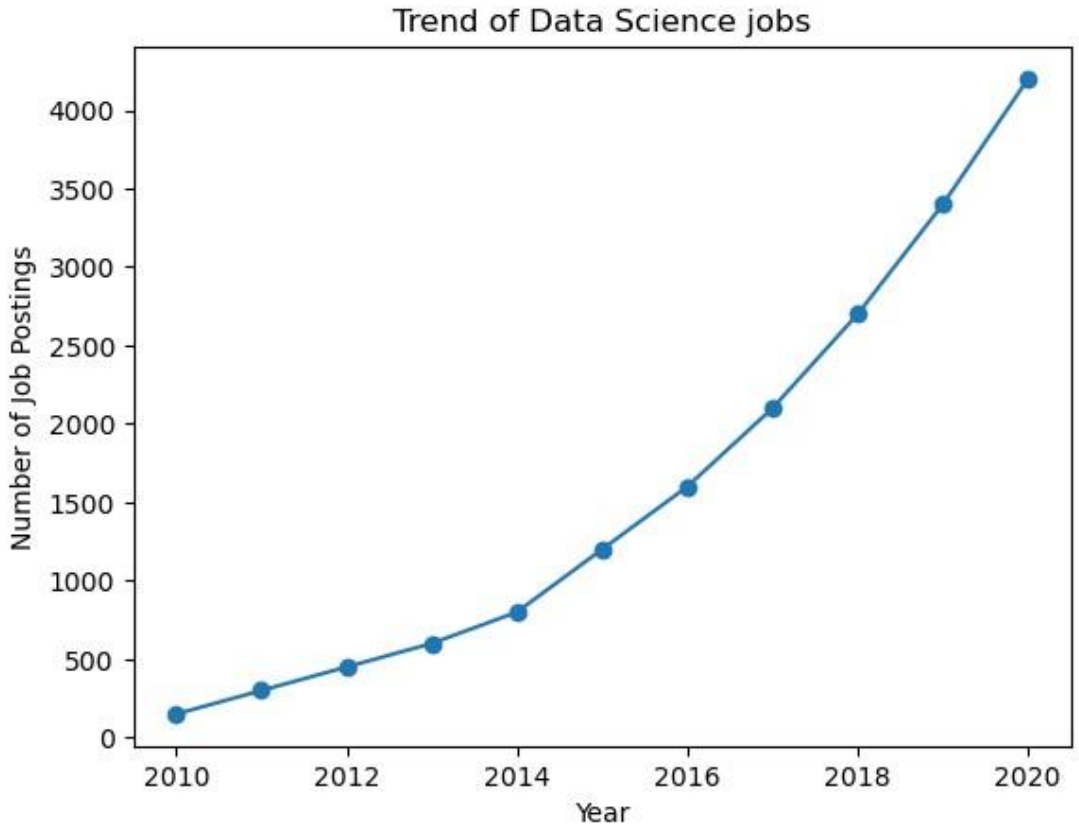
Code:

```
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.title('Trend of Data Science jobs')
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.

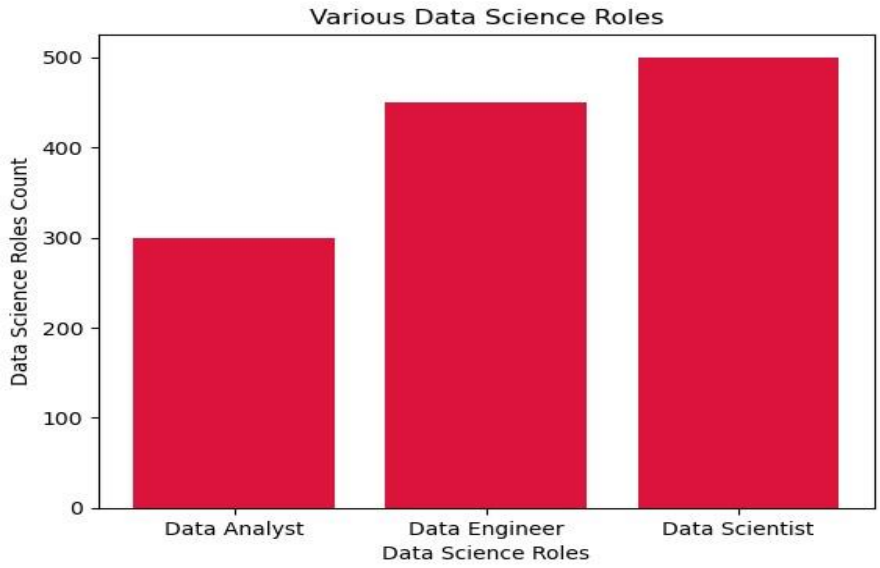
Code:

```
import matplotlib.pyplot as plt  role=['Data
Analyst','Data Engineer','Data Scientist']
count=[300,450,500]
plt.title('Various Data Science Roles')
plt.bar(role,count,color='crimson')
plt.xlabel('Data Science Roles') plt.ylabel('Data
Science Roles Count') plt.show()
```

Sample Data Input:

roles = Data Analyst, Data Engineer, Data Scientist, ML Engineer, Business Analyst. counts = 300, 500, 450, 200, 150.

Sample Output:



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

Code:

```
#structured data example import
pandas as pd
structured_data=pd.DataFrame({
  'ID':[1,2,3],
  'Name':['Alice','Bob','Charlie'],
  'Age':[25,30,35]
})
print("Structured Data:\n",structured_data)
#unstructured data example unstructured_data="Example of unstructured data can be in the
form of text,audio,vidoes\n" print("Unstructured Data: ",unstructured_data)
#semi structured data example
semistructured_data={'ID':1,'Name':'Alice','Age':25,'Attributes':{'Height':'180cm','Weight':'78kg'}}
print("Semi Structured data: ",semistructured_data)
```

Output:

```
Structured Data:
    ID     Name  Age
0   1    Alice   25
1   2      Bob   30
2   3  Charlie   35
Unstructured Data:  Example of unstructured data can be in the form of tex
t,audio,vidoes

Semi Structured data:  {'ID': 1, 'Name': 'Alice', 'Age': 25, 'Attributes':
{'Height': '180cm', 'Weight': '78kg'}}
```

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) fkey=f.encrypt(b'Kaif

Rehman - CSE') fkey

b'...'

f.decrypt(fkey) b'kamalesh’ - CSE'

key=Fernet.generate_key()

cipher=Fernet(key) plain_txt=b'Kaif

Rehman - CSE'

cipher_txt=cipher.encrypt(plain_txt)

decrypt_txt=cipher.decrypt(cipher_

txt) print("Original data:",plain_txt)

print("Encrypted data:",cipher_txt)

print("Decrypted

data:",decrypt_txt)
```

OUTPUT:

```
Original data: b'kamalesh’ - CSE'
Encrypted data: b'gAAAAABmwrJmvg5KBa0eps9jZGw14SAe1XG6UB-RYDJyGjZ6S8hlCCKV
NPMsFTXO7rPaZ1PPjAiVulwxWy4OwlJQBano55qwyNcauPtTDCl4Cj6vr2f_eeo='
Decrypted data: b'kamalesh’- CSE'
```