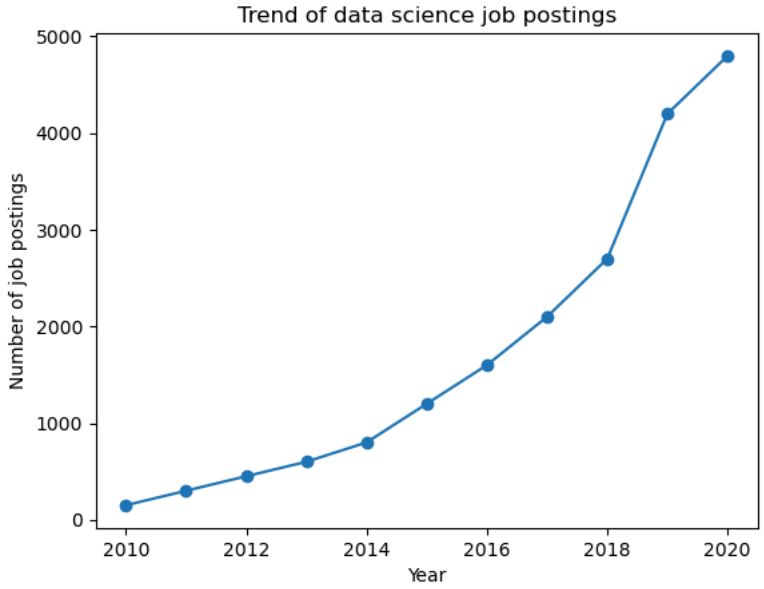
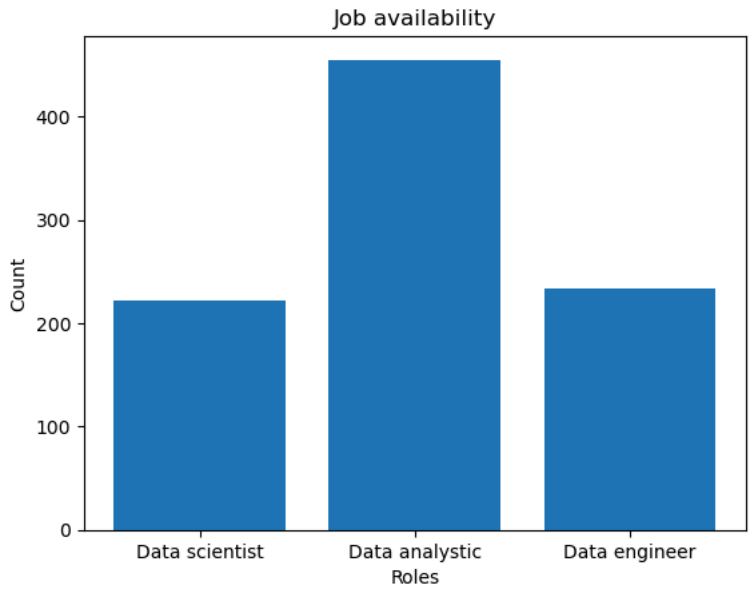
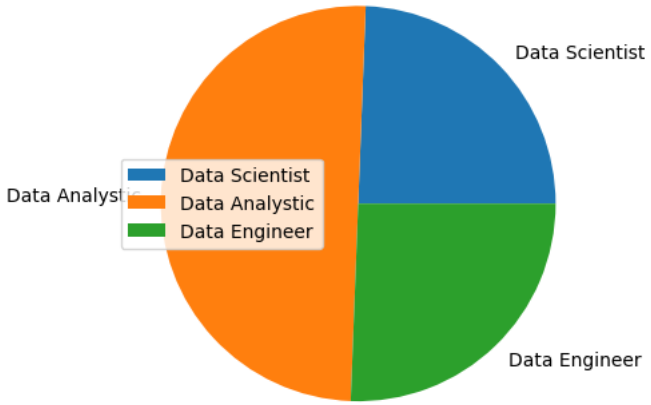
In [1]:
```
#Analyze the trend of data science job postings over the last decade
import pandas as pd
import matplotlib.pyplot as plt
data ={'Year':list(range(2010,2021)),
       'job postings':(150,300,450,600,800,1200,1600,2100,2700,4200,4800)}
df=pd.DataFrame(data)
plt.plot(df['Year'],df['job postings'],marker='o')
plt.title('Trend of data science job postings')
plt.xlabel('Year')
plt.ylabel('Number of job postings')
plt.show()
```



In [2]:
```
#Analyse and visaulize the distribution of various data science roles(Data Analysis,Data Engineer,Data Scientist) from a dat
import matplotlib.pyplot as plt
post=['Data scientist','Data analystic','Data engineer']
number=[222,455,233]
plt.bar(post,number)
plt.title('Job availability')
plt.xlabel('Roles')
plt.ylabel('Count')
plt.show()
```



In [3]:
```
#Analyse and visaulize the distribution of various data science roles(Data Analysis,Data Engineer,Data Scientist) from a data
import matplotlib.pyplot as plt
roles=['Data Scientist','Data Analystic','Data Engineer']
Vacancy=[222,455,233]
plt.pie(Vacancy,labels=roles)
plt.legend()
plt.show()
```



In [4]:
```
#Create small dataset of UnStructured type and display it in structured from.
import pandas as pd
data ={ 'Name':{0:'Leeela' ,1:'Swathi' ,2:'Ram' ,3:'Ragu' ,4:'Teju'},
       'Grade':{0:'A', 1:'O', 2:'B', 3:'A' ,4:'A'}}
semi_data = pd.DataFrame(data)
print("Semi_Structred data")

print(semi_data)
```

```
Semi_Structred data
     Name Grade
0  Leeela     A
1  Swathi     O
2     Ram     B
3    Ragu     A
4    Teju     A
```

In [5]:
```
#Create small dataset of Structured type and display it in structured form.
import pandas as pd
data ={'Id':[1,2,3,4],
       'Name':['Alice','Bob','Charlie','Ram'],
      'Age':[25,30,35,26]
      }
structured_data = pd.DataFrame(data)
print("Structured data\n",structured_data)
```

```
Structured data
    Id     Name  Age
0   1    Alice   25
1   2      Bob   30
2   3  Charlie   35
3   4      Ram   26
```

In [6]:
```
#Create small dataset of Semi-Structured type and display it in structured from.
import pandas as pd
data = {'Alice 30 Chennai','Bob 22 Bangalore','Charlie 26 Mumbai'
}
df = pd.DataFrame(data)
print(df)
```

```
                   0
0  Charlie 26 Mumbai
1   Alice 30 Chennai
2   Bob 22 Bangalore
```

In [7]:
```
#Basic way to encrypt and decrypt codes
from cryptography.fernet import Fernet
key=Fernet.generate_key()
f=Fernet(key)
token=f.encrypt(b"Rajalakshmi Engineering College")
token
b'...'
f.decrypt(token)
b'Rajalakshmi Engineering College'
key=Fernet.generate_key()
cipher_suite=Fernet(key)
plain_text=b"Rajalakshmi Engineeing College."
cipher_text=cipher_suite.encrypt(plain_text)
decrypted_text=cipher_suite.decrypt(cipher_text)
print("Original dat:",plain_text)
print("Encrypted Data:",cipher_text)
print("Decrypted Data:",decrypted_text)
```

```
Original dat: b'Rajalakshmi Engineeing College.'
Encrypted Data: b'gAAAAABmwr8Y5FD8zkzX14w3xsn2RvvvP0yrlO4crsUK32_fz26ZEvxaa44dSaOKv3TphCmyzvGFBYdDA0eDzz1XAlb2-aP0ObiDuDaXa
Zri8nuVkN8_a1g='
Decrypted Data: b'Rajalakshmi Engineeing College.'
```

In [ ]: