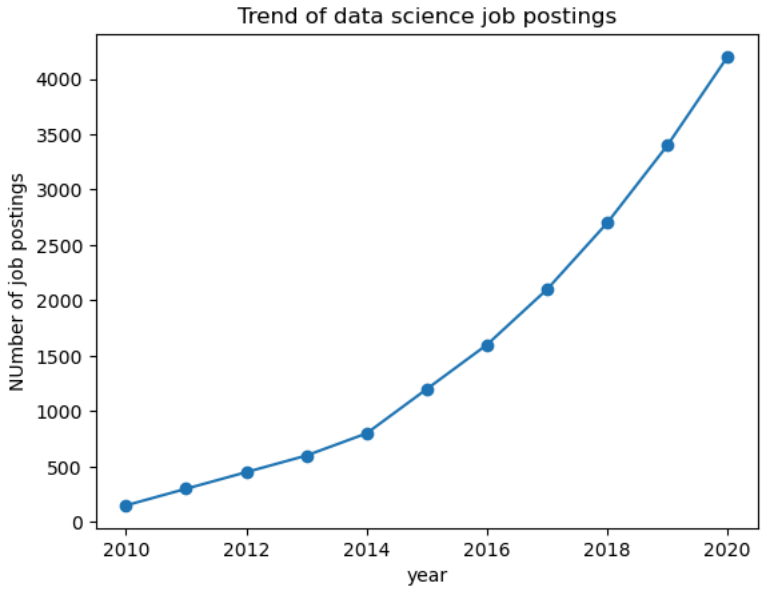
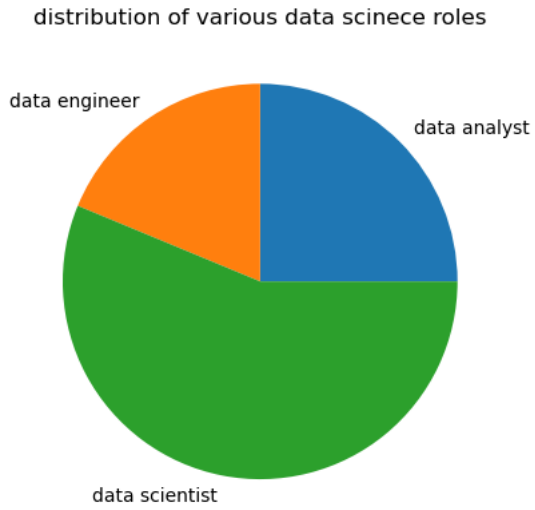
In [1]:
```
'''analyse the trend of data science job postings over the last decade'''
import pandas as pd
import matplotlib.pyplot as plt
data={'Year':list(range(2010,2021)),'Jobpostings':[150,300,450,600,800,1200,1600,2100,2700,3400,4200]}
df=pd.DataFrame(data)
plt.plot(df['Year'],df['Jobpostings'],marker='o')
plt.title('Trend of data science job postings')
plt.xlabel('year')
plt.ylabel('NUmber of job postings')
plt.show()
```



In [2]:
```
'''analyse and visualize the distribution of various data science roles(Data analyst,Data Engineer,Data Scientist)'''
import numpy as py
counts=[200,150,450]
roles=['data analyst','data engineer','data scientist']
plt.pie(counts,labels=roles)
plt.title('distribution of various data scinece roles')
plt.show()
```



In [3]:
```
'''conduct an experiment to differntiate structured unstructured and semistructured data based on the data sets given'''
import pandas as loki
data={
    'ID':[1,2,3],
    'name':['Lokesh','Lohit','Mithesh'],
    'age':[18,19,20]
}
df=loki.DataFrame(data)
print("College details\n",df)
us={"Lohit 23 230701165 chennai","Lokesh 230701166 chennai","Mithesh 51 230701184 chennai"}
ft=loki.DataFrame(us)
print(ft)

wrk={
    "workers     ":[
        {"name":"Lohit","lastname":"dope"},
        {"name":"Lokesh","lastname":"singh"},
        {"name":"Mithesh","lastname":"johnny"}
    ]
}
df=loki.DataFrame(wrk)
print(df)
```

```
College details
    ID     name  age
0   1   Lokesh   18
1   2    Lohit   19
2   3  Mithesh   20
                              0
0      Lokesh 230701166 chennai
1    Lohit 23 230701165 chennai
2  Mithesh 51 230701184 chennai
                                  workers
0      {'name': 'Lohit', 'lastname': 'dope'}
1    {'name': 'Lokesh', 'lastname': 'singh'}
2  {'name': 'Mithesh', 'lastname': 'johnny'}
```

In [4]:
```
'''using cryptograph library to import fernet and using it to generate fernet key which is used to encrypt and decrypt the gi
from cryptography.fernet import Fernet
key=Fernet.generate_key()
f=Fernet(key)
token=f.encrypt(b'This is computer science department')
token
b'...'
f.decrypt(token)
b'This is computer science department.'
key=Fernet.generate_key();
cipher_suite=Fernet(key)
plain_text=b'This is computer science department'
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)
```

```
original data: b'This is computer science department'
Encrypted data: b'gAAAAABmwsFwVW9n3nkdsbqrpfcZhdlY7npzVyAQFuLWBttoTCrJoJ49orKz3XHjf9rVTwraPh5apBfsg-r2jgexcsVAdKo9Y9dmsw0gz
ebiSjBvFESDkpAjRCSWts0McBSmes0kZcbd'
Decrypted data: b'This is computer science department'
```