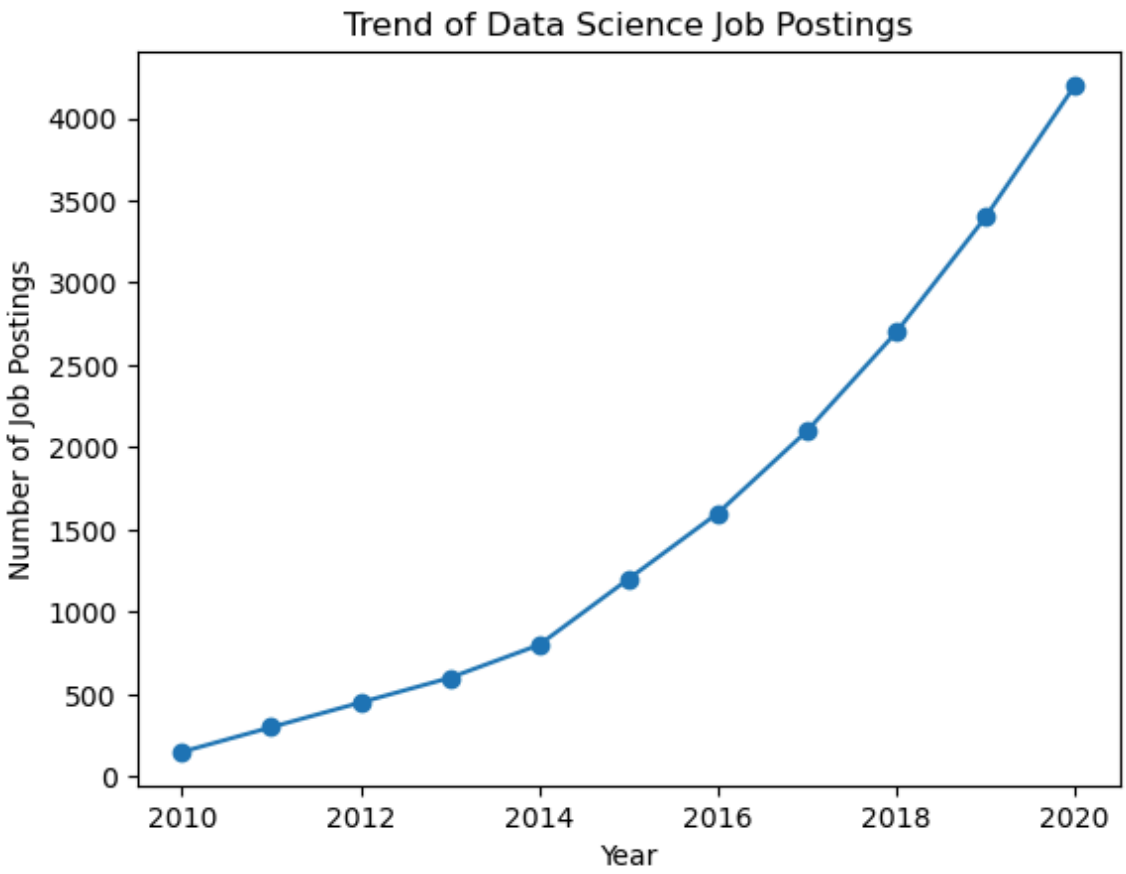
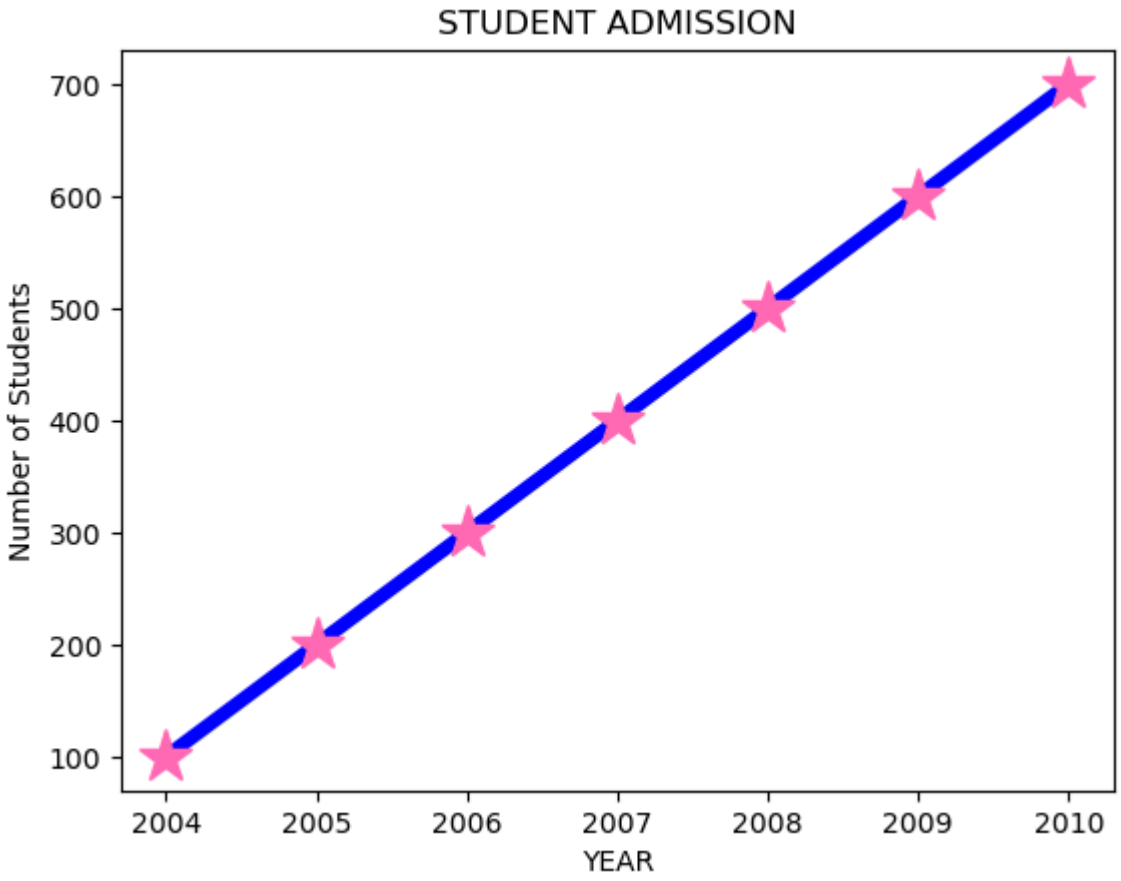
In [1]:
```
import pandas as pd
import matplotlib.pyplot as plt
data={'Year':list(range(2010,2021)),
      'Job Postings':[150,300,450,600,800,1200,1600,2100,2700,3400,4200]}
df=pd.DataFrame(data)
plt.plot(df['Year'],df['Job Postings'],marker='o')
plt.title('Trend of Data Science Job Postings')
plt.xlabel('Year')
plt.ylabel('Number of Job Postings')
plt.show()
```

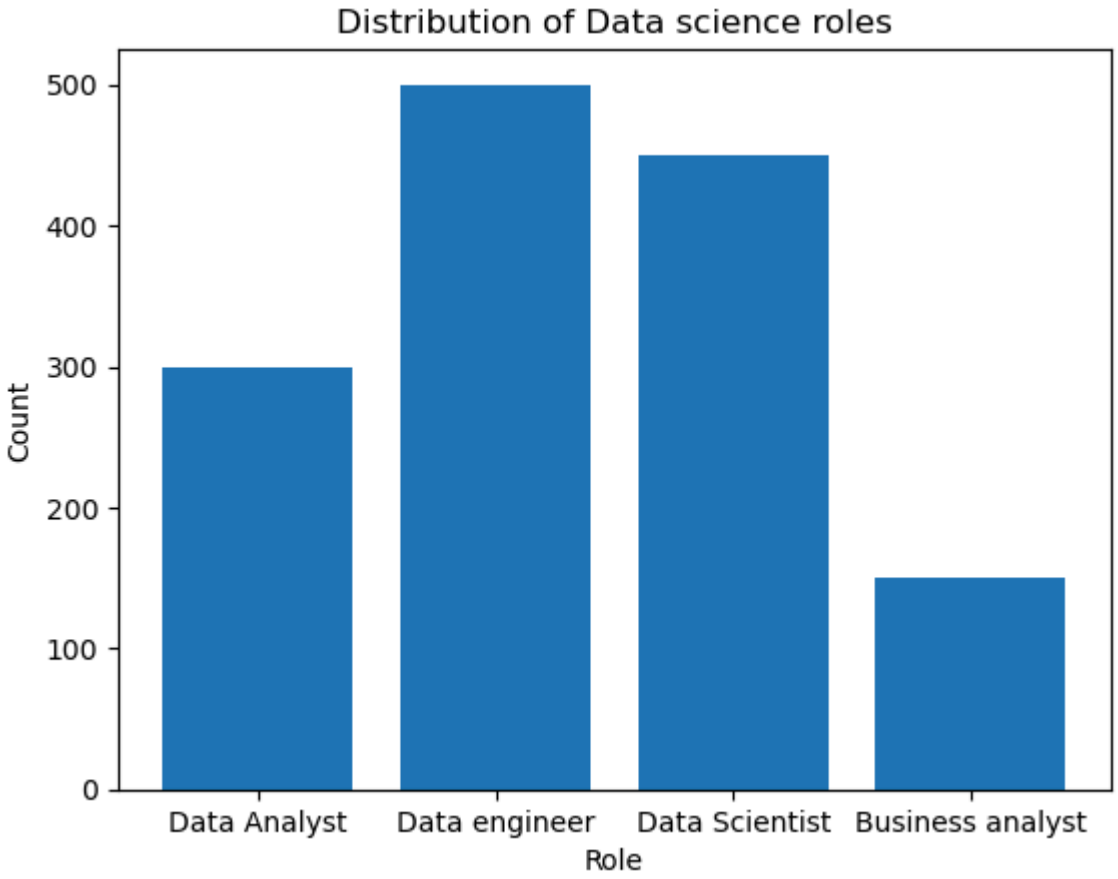


In [44]:
```
import pandas as pd
import matplotlib.pyplot as plt
data={'YEAR':list(range(2004,2011)),
      'STUDENTS':[100,200,300,400,500,600,700]}
df=pd.DataFrame(data)
plt.plot(df['YEAR'],df['STUDENTS'],marker='*',ms=20,mec='hotpink',mfc='hotp
plt.title('STUDENT ADMISSION')
plt.xlabel('YEAR')
plt.ylabel('Number of Students')
plt.show()
print(df.head())
```

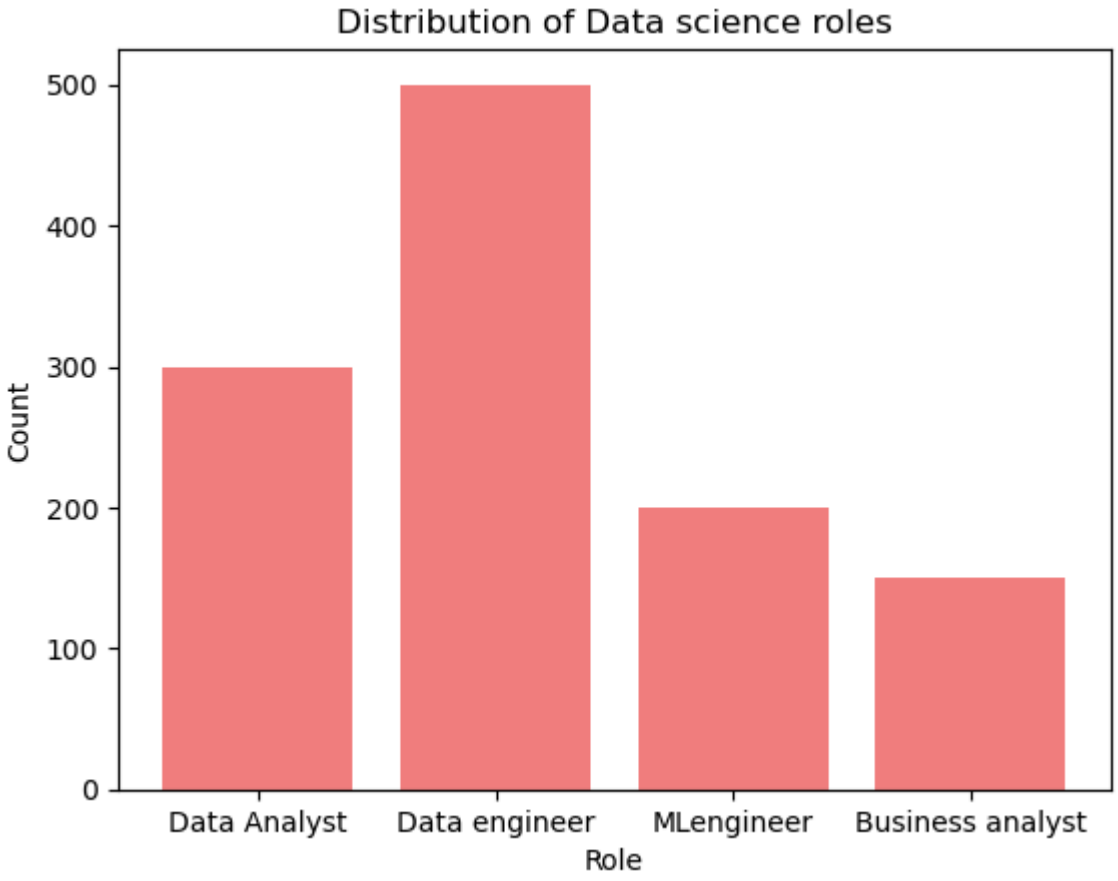



```
   YEAR  STUDENTS
0  2004       100
1  2005       200
2  2006       300
3  2007       400
4  2008       500
```

In [10]:
```
roles=['Data Analyst','Data engineer','Data Scientist','Business analyst']
counts=[300,500,450,150]
plt.bar(roles,counts)
plt.title('Distribution of Data science roles')
plt.xlabel('Role')
plt.ylabel('Count')
plt.show()
```

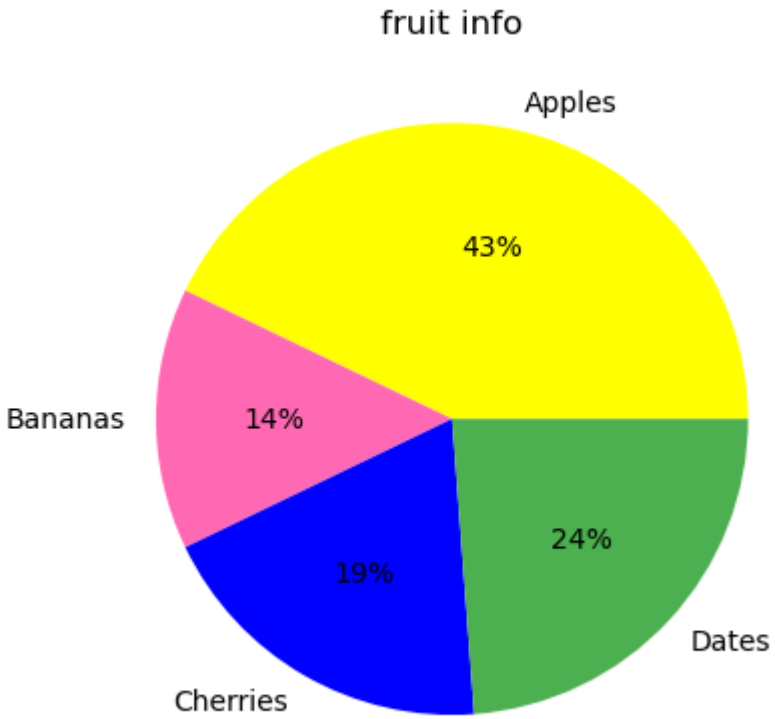


In [11]:
```
roles=['Data Analyst','Data engineer','MLengineer','Business analyst']
counts=[300,500,200,150]
plt.bar(roles,counts,color='#F08080')
plt.title('Distribution of Data science roles')
plt.xlabel('Role')
plt.ylabel('Count')
plt.show()
```



In [5]:
```
import matplotlib.pyplot as plt
import numpy as np
mylabels = ["Apples", "Bananas", "Cherries", "Dates"]
count=[90,30,40,50]
mycolors = ["yellow", "hotpink", "b", "#4CAF50"]
plt.pie(count,labels = mylabels,colors=mycolors,autopct='%1.f%%')
plt.title('fruit info')

plt.show()
```



In [8]:
```
import pandas as pd
structured_data = pd.DataFrame({
    'ID':[1,2,3],
    'NAME':['Alice','Bob','Charlie'],
    'AGE':[25,30,35]
})
```

In [9]:
```
print(structured_data)
```

```
   ID     NAME  AGE
0   1    Alice   25
1   2      Bob   30
2   3  Charlie   35
```

In [13]:
```
 unstructured_data="this is the example of unstructured data";
print(unstructured_data)
```

```
this is the example of unstructured data
```

In [14]:
```
import pandas as pd
semistructured_data=pd.DataFrame({
    'Id':'7',
    'Name':'alice',
    'Attributes':{'Height':165,'weight':83}
})
print(semistructured_data)
```

```
       Id   Name  Attributes
Height  7  alice         165
weight  7  alice          83
```

In [15]:
```
from cryptography.fernet import Fernet
key = Fernet.generate_key()
f = Fernet(key)
token = f.encrypt(b"fundamental of data science")
token
b'...'
f.decrypt(token)
b'fundamental of data science'
key= Fernet.generate_key()
cipher_suite=Fernet(key)
plain_text=b"fundamental of data science"
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'fundamental of data science'
Encrypted Data: b'gAAAAABmwrsuCo7XwW5YynA89pACzN5jNYG6im9ZZ0TkEzrLQ6rbXVry
IxzI50Zw8T4Hr4WTiFdtXHwhrbtEcybwGgHfClnd5WXp79xAiGWZWQkpa5UQKjI='
Decrypted Data; b'fundamental of data science'
```

In [ ]:
```

```