In [2]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
data=pd.read_csv("headbrain.csv")
data.head()
```

Out[2]:

	Gender	Age Range	Head Size(cm^3)	Brain Weight(grams)
0	1	1	4512	1530
1	1	1	3738	1297
2	1	1	4261	1335
3	1	1	3777	1282
4	1	1	4177	1590

In [6]:

```
X=data['Head Size(cm^3)'].values
Y=data['Brain Weight(grams)'].values
```

In [7]:

```
mean_x=np.mean(X)
mean_y=np.mean(Y)
print("mean x:",mean_x)
print("mean y:",mean_y)
```

```
mean x: 3633.9915611814345
mean y: 1282.873417721519
```

In [9]:

```
num=0
den=0
for i in range(len(X)):
    num+=(X[i]-mean_x)*(Y[i]-mean_y)
    den+=(X[i]-mean_x)**2
b1=num/den
b0=mean_y-(b1*mean_x)
print("B1=",b1,"B0=",b0)
```

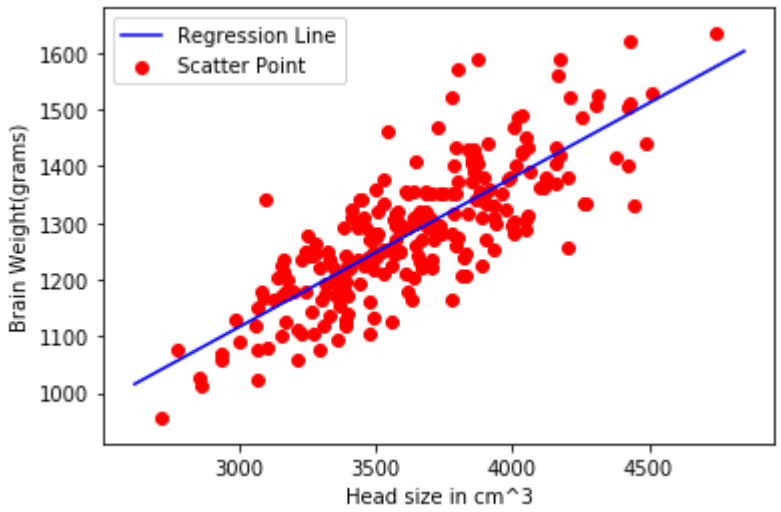
```
B1= 0.26342933948939945 B0= 325.57342104944223
```

In [10]:

```
max_x=np.max(X)+100
min_x=np.min(X)-100

x=np.linspace(min_x,max_x,1000)
y=b0+b1*x

plt.plot(x,y,color="blue",label="Regression Line")
plt.scatter(X,Y,color="red",label="Scatter Point")
plt.xlabel("Head size in cm^3")
plt.ylabel("Brain Weight(grams)")
plt.legend()
plt.show()
```



In [11]:

```
#calculating error
rsme=0
for i in range(len(X)):
    y_pred=b0+b1*X[i]
    rsme+=(Y[i]-y_pred)**2
rsme=np.sqrt(rsme/len(X))
print("RSME =",rsme)
```

```
RSME = 72.1206213783709
```

In [12]:

```
#predicting y
px=124
py=b0+b1*px
print("Value of y",py)
```

```
Value of y 358.23865914612776
```

In [ ]:

```

```