

```
In [36]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import mean_squared_error
from sklearn.metrics import confusion_matrix
from sklearn.preprocessing import StandardScaler
from sklearn.neighbors import KNeighborsClassifier
```

```
In [8]: df=pd.read_csv('Downloads/Classified Data',index_col=0)
```

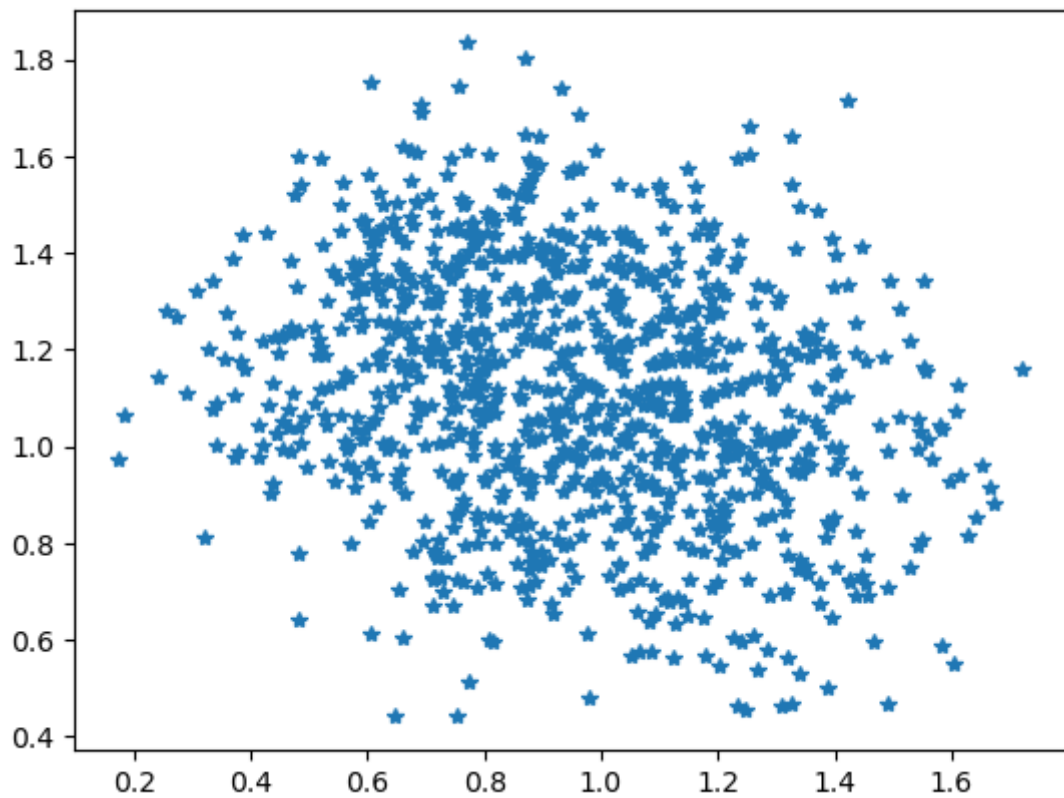
```
In [9]: df
```

```
Out[9]:
```

	WTT	PTI	EQW	SBI	LQE	QWG	FDJ	PJF	HQE	
0	0.913917	1.162073	0.567946	0.755464	0.780862	0.352608	0.759697	0.643798	0.879422	1.23
1	0.635632	1.003722	0.535342	0.825645	0.924109	0.648450	0.675334	1.013546	0.621552	1.49
2	0.721360	1.201493	0.921990	0.855595	1.526629	0.720781	1.626351	1.154483	0.957877	1.28
3	1.234204	1.386726	0.653046	0.825624	1.142504	0.875128	1.409708	1.380003	1.522692	1.11
4	1.279491	0.949750	0.627280	0.668976	1.232537	0.703727	1.115596	0.646691	1.463812	1.47
...	...	...	...	...	...	...	...	...	...	...
995	1.010953	1.034006	0.853116	0.622460	1.036610	0.586240	0.746811	0.319752	1.117340	1.34
996	0.575529	0.955786	0.941835	0.792882	1.414277	1.269540	1.055928	0.713193	0.958684	1.60
997	1.135470	0.982462	0.781905	0.916738	0.901031	0.884738	0.386802	0.389584	0.919191	1.38
998	1.084894	0.861769	0.407158	0.665696	1.608612	0.943859	0.855806	1.061338	1.277456	1.18
999	0.837460	0.961184	0.417006	0.799784	0.934399	0.424762	0.778234	0.907962	1.257190	1.30

1000 rows × 11 columns

```
In [120]: plt.plot(df['WTT'],df['PTI'],'*')
plt.show()
```



```
In [22]: scaler = StandardScaler()
```

```
In [23]: scaler.fit(df.drop('TARGET CLASS',axis=1))
```

```
Out[23]: ▾ StandardScaler  
StandardScaler()
```

```
In [27]: scaled_feat=scaler.fit_transform(df.drop('TARGET CLASS',axis=1))
```

```
In [29]: df_feat = pd.DataFrame(scaled_feat,columns= df.columns[:-1])
```

```
In [30]: df_feat
```

Out[30]:

	WTT	PTI	EQW	SBI	LQE	QWG	FDJ	PJF	HQ
0	-0.123542	0.185907	-0.913431	0.319629	-1.033637	-2.308375	-0.798951	-1.482368	-0.9497
1	-1.084836	-0.430348	-1.025313	0.625388	-0.444847	-1.152706	-1.129797	-0.202240	-1.8280
2	-0.788702	0.339318	0.301511	0.755873	2.031693	-0.870156	2.599818	0.285707	-0.6824
3	0.982841	1.060193	-0.621399	0.625299	0.452820	-0.267220	1.750208	1.066491	1.2413
4	1.139275	-0.640392	-0.709819	-0.057175	0.822886	-0.936773	0.596782	-1.472352	1.0407
...	...	...	...	...	...	...	...	...	...
995	0.211653	-0.312490	0.065163	-0.259834	0.017567	-1.395721	-0.849486	-2.604264	-0.1393
996	-1.292453	-0.616901	0.369613	0.482648	1.569891	1.273495	0.362784	-1.242110	-0.6797
997	0.641777	-0.513083	-0.179205	1.022255	-0.539703	-0.229680	-2.261339	-2.362494	-0.8142
998	0.467072	-0.982786	-1.465194	-0.071465	2.368666	0.001269	-0.422041	-0.036777	0.4060
999	-0.387654	-0.595894	-1.431398	0.512722	-0.402552	-2.026512	-0.726253	-0.567789	0.3369

1000 rows × 10 columns

In [31]: `df.columns[:-2]`

Out[31]: Index(['WTT', 'PTI', 'EQW', 'SBI', 'LQE', 'QWG', 'FDJ', 'PJF', 'HQE'], dtype='object')

In [47]: `x=df[['WTT','PTI','EQW','SBI','LQE','QWG','FDJ','PJF','HQE','NXJ']]`  
`y=df['TARGET CLASS']`

In [48]: `x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3)`

In [ ]:

In [123... `for i in range(1,41):`

```

    knn=KNeighborsClassifier(n_neighbors=i)
    knn.fit(x_train,y_train)
    pred=knn.predict(x_test)
    pred
    mt=confusion_matrix(y_test,pred)
    x=mt[0][0]+mt[1][1]
    y=mt[0][0]+mt[1][0]+mt[0][1]+mt[1][1]
    xy=x*100/y
    print(x*100/y)
    print(plt.scatter(i,xy,color='#008922'))

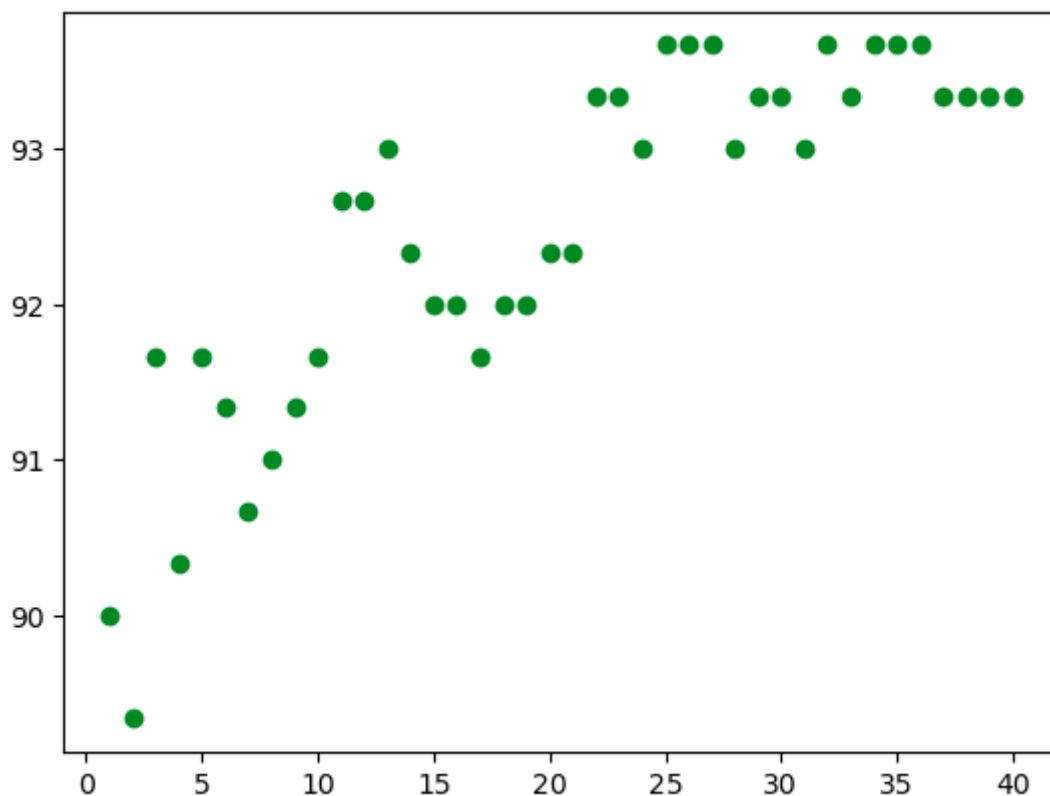
```

```
90.0
<matplotlib.collections.PathCollection object at 0x000002398D943D00>
89.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7724D0>
91.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D772A70>
90.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D772CE0>
91.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7731F0>
91.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D773A90>
90.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D773D00>
91.0
<matplotlib.collections.PathCollection object at 0x000002398D7AC310>
91.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D773FA0>
91.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D772F80>
92.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7ACEE0>
92.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7AD1E0>
93.0
<matplotlib.collections.PathCollection object at 0x000002398D7AD600>
92.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D772440>
92.0
<matplotlib.collections.PathCollection object at 0x000002398D7ADC30>
92.0
<matplotlib.collections.PathCollection object at 0x000002398D7AC580>
91.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7AE320>
92.0
<matplotlib.collections.PathCollection object at 0x000002398D7AE920>
92.0
<matplotlib.collections.PathCollection object at 0x000002398D773700>
92.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398EB83E20>
92.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7AD840>
93.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7AF5E0>
93.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7AFBE0>
93.0
<matplotlib.collections.PathCollection object at 0x000002398D7E84C0>
93.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7AF820>
93.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7E8160>
93.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7E8940>
93.0
<matplotlib.collections.PathCollection object at 0x000002398D7E8FD0>
93.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7E9480>
93.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7AD300>
93.0
<matplotlib.collections.PathCollection object at 0x000002398D7E8B80>
93.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7E9C90>
```

```

93.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7EA230>
93.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7EA7D0>
93.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7AF640>
93.66666666666667
<matplotlib.collections.PathCollection object at 0x000002398D7E9D20>
93.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7EAFE0>
93.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7EB580>
93.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7EBB20>
93.33333333333333
<matplotlib.collections.PathCollection object at 0x000002398D7EB6D0>

```



In [ ]:

In [88]:

In [ ]:

In [ ]:

In [76]:  $(280 \times 100) / 300$

Out[76]: 93.33333333333333

In [ ]: