```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.metrics import confusion_matrix
```

```
df = pd.read_csv('lung_cancer.csv')
```

```
df.head()
```

	Name	Surname	Age	Smokes	AreaQ	Alkhol	Result
0	John	Wick	35	3	5	4	1
1	John	Constantine	27	20	2	5	1
2	Camela	Anderson	30	0	5	2	0
3	Alex	Telles	28	0	8	1	0
4	Diego	Maradona	68	4	5	6	1

```
df.drop(['Name', 'Surname'], axis = 1, inplace = True)
```

```
df.head()
```

	Age	Smokes	AreaQ	Alkhol	Result
0	35	3	5	4	1
1	27	20	2	5	1
2	30	0	5	2	0
3	28	0	8	1	0
4	68	4	5	6	1

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 59 entries, 0 to 58
Data columns (total 5 columns):
 #   Column  Non-Null Count  Dtype
---  ------  --------------  -----
 0   Age     59 non-null     int64
 1   Smokes  59 non-null     int64
 2   AreaQ   59 non-null     int64
 3   Alkhol  59 non-null     int64
 4   Result  59 non-null     int64
dtypes: int64(5)
memory usage: 2.4 KB
```

```
df.describe()
```

	Age	Smokes	AreaQ	Alkhol	Result
count	59.000000	59.000000	59.000000	59.000000	59.000000
mean	42.627119	15.067797	5.203390	3.237288	0.474576
std	16.235230	7.984607	2.461984	2.380517	0.503640
min	18.000000	0.000000	1.000000	0.000000	0.000000
25%	29.000000	10.000000	3.000000	1.000000	0.000000
50%	39.000000	15.000000	5.000000	3.000000	0.000000
75%	55.000000	20.000000	7.500000	5.000000	1.000000
max	77.000000	34.000000	10.000000	8.000000	1.000000

```
df.isnull().sum()
```

```
Age       0
Smokes    0
AreaQ     0
Alkhol    0
Result    0
dtype: int64
```

```
ct = df['Result'].astype(bool).sum(axis = 0)
```

```
ct
```

```
28
```

```
cf = df['Result'].count()-df['Result'].astype(bool).sum(axis=0)
```

```
cf
```

```
31
```

X = df.iloc[:,0:4].values

```
type(X)
```

```
numpy.ndarray
```

```
y = df['Result'].values
```

```
type(y)
```

```
numpy.ndarray
```

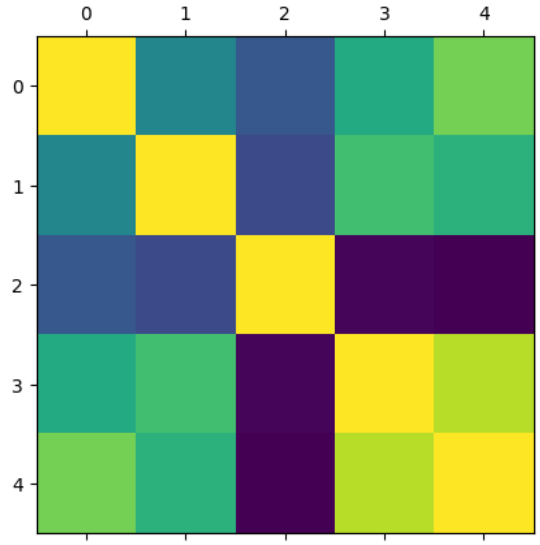
```
from sklearn.preprocessing import StandardScaler
obj = StandardScaler()
```

```
X_ = obj.fit_transform(X)
```

```
from sklearn.model_selection import train_test_split
X_train, X_test, ytrain, ytest = train_test_split(X_,y, test_size = 0.2, random_state=42)
```

```
plt.matshow(df.corr())
```

```
<matplotlib.image.AxesImage at 0x782d80acafb0>
```




```
from sklearn.svm import LinearSVC
obj1 = LinearSVC()
obj1.fit(X_train,ytrain)
```

```
▾ LinearSVC
LinearSVC()
```

```
obj1.score(X_test, ytest)
```

```
0.9166666666666666
```

```
ypred = obj1.predict(X_test)
```

```
print(ypred)
```

```
[0 0 0 1 0 0 1 0 0 0 1 0]
```

```
confusion_matrix(ytest,ypred)
```

```
array([[8, 0],
       [1, 3]])
```

```
confusion_matrix(ytrain, obj1.predict(X_train))
```

```
array([[23,  0],
       [ 0, 24]])
```

```
print(obj1.predict(obj.transform([[21,12,4,5]])))
```

```
[0]
```

```
from sklearn.metrics import accuracy_score
accuracy_score(ytest,ypred)
```

```
0.9166666666666666
```