```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt

import warnings
warnings.filterwarnings('ignore')


train=pd.read_csv('train.csv')
train_df=pd.DataFrame(train)


test=pd.read_csv('test.csv')
test_df=pd.DataFrame(test)


train.head()
```

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	NaN	S
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C85	C
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	NaN	S
				Futrelle, Mrs. Jacques Heath (Lily May								

```
train.shape
```

```
(891, 12)
```

```
train.describe()
```

	PassengerId	Survived	Pclass	Age	SibSp	Parch	Fare
count	891.000000	891.000000	891.000000	714.000000	891.000000	891.000000	891.000000
mean	446.000000	0.383838	2.308642	29.699118	0.523008	0.381594	32.204208
std	257.353842	0.486592	0.836071	14.526497	1.102743	0.806057	49.693429
min	1.000000	0.000000	1.000000	0.420000	0.000000	0.000000	0.000000
25%	223.500000	0.000000	2.000000	20.125000	0.000000	0.000000	7.910400
50%	446.000000	0.000000	3.000000	28.000000	0.000000	0.000000	14.454200
75%	668.500000	1.000000	3.000000	38.000000	1.000000	0.000000	31.000000
max	891.000000	1.000000	3.000000	80.000000	8.000000	6.000000	512.329200

```
train.dtypes
```

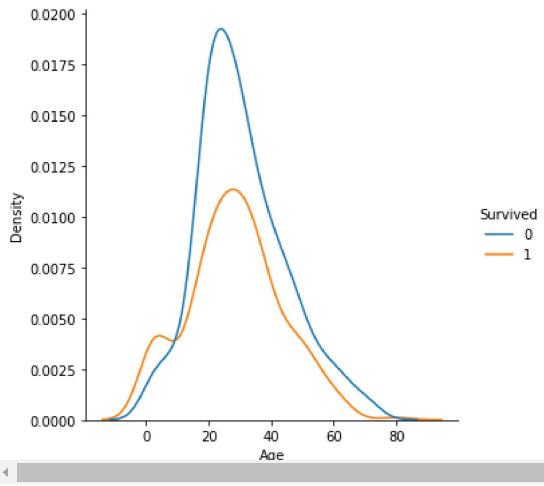
```
PassengerId      int64
Survived         int64
Pclass           int64
Name            object
Sex             object
Age            float64
SibSp            int64
Parch            int64
Ticket          object
Fare           float64
Cabin           object
Embarked        object
dtype: object
```

```
train.isnull().sum()
```

```
PassengerId      0
Survived         0
Pclass           0
Name             0
Sex              0
Age            177
```

```
SibSp            0
Parch            0
Ticket           0
Fare             0
Cabin          687
Embarked         2
dtype: int64
```

```
sns.displot(data=train,x='Age',hue='Survived',kind='kde')
plt.show()
```




```
#Treatment of missing values
```

```
missing_list=list(train.isnull().sum()[train.isnull().sum() > 0].index)
```

```
missing_list
```

```
['Age', 'Cabin', 'Embarked']
```

```
#let's replace age with median
median=train['Age'].median()
train['Age'].fillna(median, inplace=True)
test['Age'].fillna(median, inplace=True)
```

```
#let's replace embarked with mode
mode=train['Embarked'].mode()[0]
train['Embarked'].fillna(mode, inplace=True)
test['Embarked'].fillna(mode, inplace=True)

train_df.drop(['Cabin'],axis=1,inplace=True)
```

```
train_df.isnull().sum()
```

```
PassengerId    0
Survived       0
Pclass         0
Name           0
Sex            0
Age            0
SibSp          0
Parch          0
Ticket         0
Fare           0
Embarked       0
dtype: int64
```

```
train_df
```

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Embarked
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	S
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	S
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	S
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	S
...	...	...	...	...	...	...	...	...	...	...	...
886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	13.0000	S
887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	30.0000	S
888	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	28.0	1	2	W./C. 6607	23.4500	S
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.0000	C
890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.7500	Q

```
test_df.drop(['Cabin'],axis=1,inplace=True)
```

```
test_df
```

	PassengerId	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Embarked
0	892	3	Kelly, Mr. James	male	34.5	0	0	330911	7.8292	Q
1	893	3	Wilkes, Mrs. James (Ellen Needs)	female	47.0	1	0	363272	7.0000	S
2	894	2	Myles, Mr. Thomas Francis	male	62.0	0	0	240276	9.6875	Q
3	895	3	Wirz, Mr. Albert	male	27.0	0	0	315154	8.6625	S
4	896	3	Hirvonen, Mrs. Alexander (Helga E Lindqvist)	female	22.0	1	1	3101298	12.2875	S
...	...	...	...	...	...	...	...	...	...	...
413	1305	3	Spector, Mr. Woolf	male	28.0	0	0	A.5. 3236	8.0500	S
414	1306	1	Oliva y Ocana, Dona. Fermina	female	39.0	0	0	PC 17758	108.9000	C
415	1307	3	Saether, Mr. Simon Sivertsen	male	38.5	0	0	SOTON/O.Q. 3101262	7.2500	S
416	1308	3	Ware, Mr. Frederick	male	28.0	0	0	359309	8.0500	S
417	1309	3	Peter, Master. Michael J	male	28.0	1	1	2668	22.3583	C

418 rows × 10 columns

```
test_df.isnull().sum()
```

```
PassengerId    0
Pclass         0
Name           0
Sex            0
Age            0
SibSp          0
Parch          0
Ticket         0
Fare           1
Embarked       0
dtype: int64
```

```
test_df['Fare'].nunique()
```

```
169
```

```
test_df.dropna(inplace=True)
```

```
test_df.isnull().sum()
```

```
PassengerId    0
Pclass         0
Name           0
Sex            0
Age            0
SibSp          0
Parch          0
Ticket         0
Fare           0
Embarked       0
dtype: int64
```

```
#converting my object data types (sex,embarked) into int


mapping_dict_1={'male':0,'female':1}
mapping_dict_2={'C':2,'Q':3,'S':4}


train_df['Sex']=train_df['Sex'].map(mapping_dict_1)
train_df['Embarked']=train_df['Embarked'].map(mapping_dict_2)


train_df.value_counts()
```

```
PassengerId  Survived  Pclass  Name                                        Sex  Age   SibSp  Parch  Ticket      Fare    Embarked
1            0         3       Braund, Mr. Owen Harris                     0    22.0  1      0      A/5 21171   7.250   4           1
599          0         3       Boulos, Mr. Hanna                           0    28.0  0      0      2664        7.225   2           1
588          1         1       Frolicher-Stehli, Mr. Maxmillian            0    60.0  1      1      13567       79.200  2           1
589          0         3       Gilinski, Mr. Eliezer                       0    22.0  0      0      14973       8.050   4           1
590          0         3       Murdlin, Mr. Joseph                         0    28.0  0      0      A./5. 3235  8.050   4           1
                                                                                                                                    ..
301          1         3       Kelly, Miss. Anna Katherine "Annie Kate"    1    28.0  0      0      9234        7.750   3           1
302          1         3       McCoy, Mr. Bernard                          0    28.0  2      0      367226      23.250  3           1
303          0         3       Johnson, Mr. William Cahoone Jr             0    19.0  0      0      LINE        0.000   4           1
304          1         2       Keane, Miss. Nora A                         1    28.0  0      0      226593      12.350  3           1
891          0         3       Dooley, Mr. Patrick                         0    32.0  0      0      370376      7.750   3           1
Length: 891, dtype: int64
```

```
test_df['Sex']=test_df['Sex'].map(mapping_dict_1)
test_df['Embarked']=test_df['Embarked'].map(mapping_dict_2)


test_df.value_counts()
```

```
PassengerId  Pclass  Name                                Sex  Age   SibSp  Parch  Ticket              Fare     Embarked
892          3       Kelly, Mr. James                    0    34.5  0      0      330911              7.8292   3           1
1102         3       Andersen, Mr. Albert Karvin         0    32.0  0      0      C 4001              22.5250  4           1
1178         3       Franklin, Mr. Charles (Charles Fardon)  0    28.0  0      0      SOTON/O.Q. 3101314  7.2500   4           1
1177         3       Dennis, Mr. William                 0    36.0  0      0      A/5 21175           7.2500   4           1
1176         3       Rosblom, Miss. Salli Helena         1    2.0   1      1      370129              20.2125  4           1
                                                                                                                             ..
1028         3       Zakarian, Mr. Mapriededer           0    26.5  0      0      2656                7.2250   2           1
1027         3       Carlsson, Mr. Carl Robert           0    24.0  0      0      350409              7.8542   4           1
1026         3       Dintcheff, Mr. Valtcho              0    43.0  0      0      349226              7.8958   4           1
1025         3       Thomas, Mr. Charles P               0    28.0  1      0      2621                6.4375   2           1
1309         3       Peter, Master. Michael J            0    28.0  1      1      2668                22.3583  2           1
Length: 417, dtype: int64
```

```
x_train=train_df.drop(['Survived','Name','Ticket'],axis=1)
y_train=train_df['Survived']


x_train.shape, y_train.shape,train.shape
```

```
((891, 8), (891,), (891, 12))
```

```
x_test=test_df.drop(['Name','Ticket'],axis=1)
y_test=test_df['Name']


x_test.shape, y_test.shape,test.shape
```

```
((417, 8), (417,), (418, 11))
```

```
from sklearn.preprocessing import StandardScaler
from sklearn.linear_model import LogisticRegression
from sklearn.svm import SVC
```

```
from sklearn.svm import SVC
from sklearn.metrics import accuracy_score, confusion_matrix, precision_score, recall_score


#we need to perform standardization and encoding
ss=StandardScaler()
x_train_scaled=ss.fit_transform(x_train)
x_test_scaled=ss.transform(x_test)


#Modelling


log=LogisticRegression()
log.fit(x_train,y_train)

pred=log.predict(x_test)

accuracy=accuracy_score(y_test,pred)

print(accuracy)
```

```
0.0
```

```
svc=SVC()
svc.fit(x_train,y_train)
pred=svc.predict(x_test)
accuracy=accuracy_score(y_test,pred)

print(accuracy)
```

```
0.0
```

```
#crossvalidation on the data


from sklearn.model_selection import cross_validate

cv=cross_validate(log,x_train,y_train,scoring='accuracy',cv=5)
cv['test_score']
```

```
array([0.80446927, 0.80898876, 0.76966292, 0.76404494, 0.82022472])
```