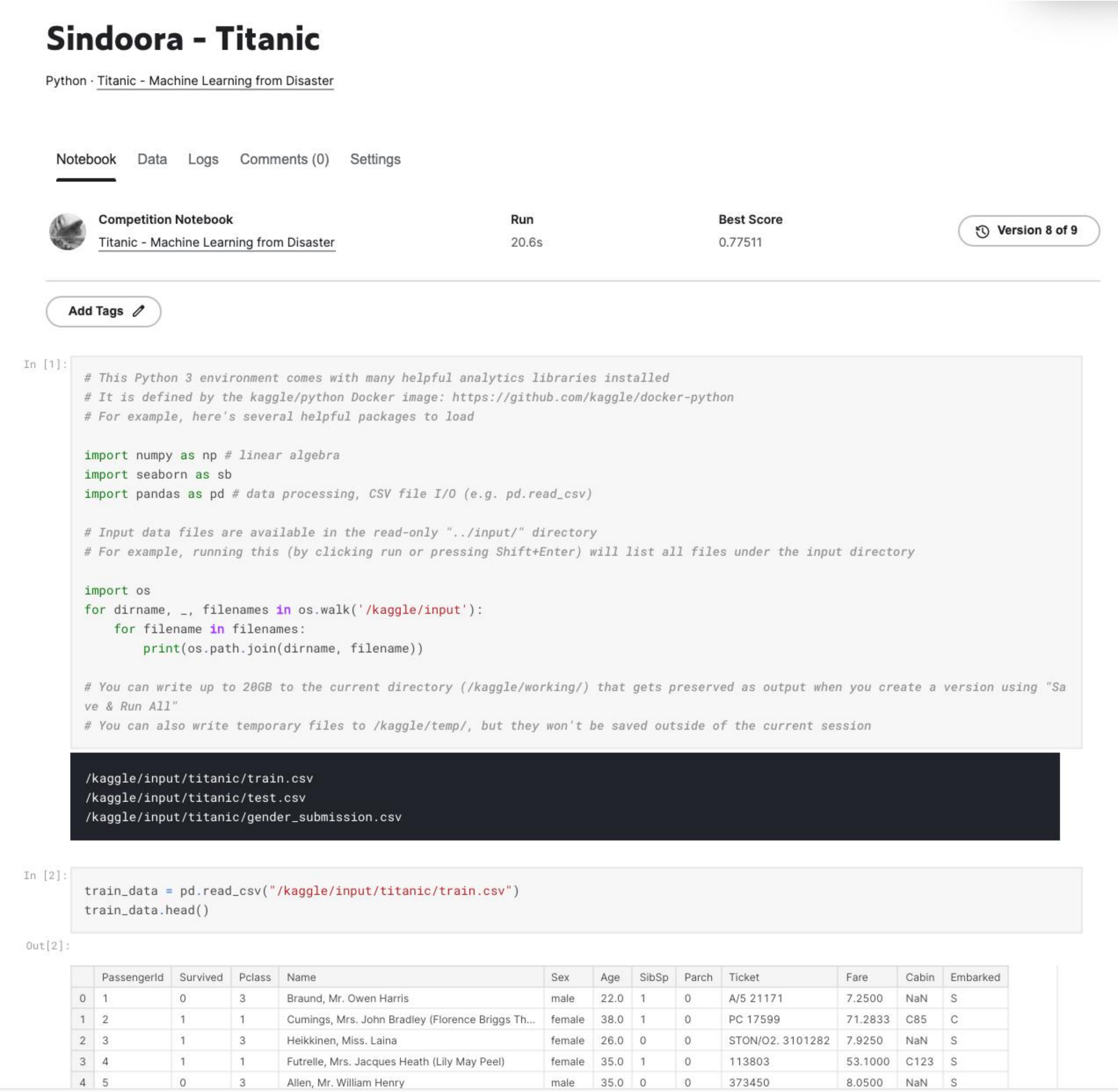


Sindoora - Titanic

Python · Titanic - Machine Learning from Disaster

Competition Notebook
Titanic - Machine Learning from Disaster

Run
20.6s

Best Score
0.77511

In [1]:

```
# This Python 3 environment comes with many helpful analytics libraries installed
# It is defined by the kaggle/python Docker image: https://github.com/kaggle/docker-python
# For example, here's several helpful packages to load

import numpy as np # linear algebra
import seaborn as sb
import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)

# Input data files are available in the read-only "../input/" directory
# For example, running this (by clicking run or pressing Shift+Enter) will list all files under the input directory

import os
for dirname, _, filenames in os.walk('/kaggle/input'):
    for filename in filenames:
        print(os.path.join(dirname, filename))

# You can write up to 20GB to the current directory (/kaggle/working/) that gets preserved as output when you create a version using "Sa
ve & Run All"
# You can also write temporary files to /kaggle/temp/, but they won't be saved outside of the current session
```

```
/kaggle/input/titanic/train.csv
/kaggle/input/titanic/test.csv
/kaggle/input/titanic/gender_submission.csv
```

In [2]:

```
train_data = pd.read_csv("/kaggle/input/titanic/train.csv")
train_data.head()
```

Out[2]:

	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
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C123	S
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	NaN	S

In [3]:

```
test_data = pd.read_csv("/kaggle/input/titanic/test.csv")
test_data.head()
```

Out[3]:

	PassengerId	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	892	3	Kelly, Mr. James	male	34.5	0	0	330911	7.8292	NaN	Q
1	893	3	Wilkes, Mrs. James (Ellen Needs)	female	47.0	1	0	363272	7.0000	NaN	S
2	894	2	Myles, Mr. Thomas Francis	male	62.0	0	0	240276	9.6875	NaN	Q
3	895	3	Wirz, Mr. Albert	male	27.0	0	0	315154	8.6625	NaN	S
4	896	3	Hirvonen, Mrs. Alexander (Helga E Lindqvist)	female	22.0	1	1	3101298	12.2875	NaN	S

In [4]:

```
train_data.describe()
```

Out[4]:

	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

In [5]:

```
women = train_data.loc[train_data.Sex == 'female']["Survived"]
rate_women = sum(women)/len(women)

print("% of women who survived:", rate_women)
```

```
% of women who survived: 0.7420382165605095
```

In [6]:

```
men = train_data.loc[train_data.Sex == 'male']["Survived"]
rate_men = sum(men)/len(men)

print("% of men who survived:", rate_men)
```

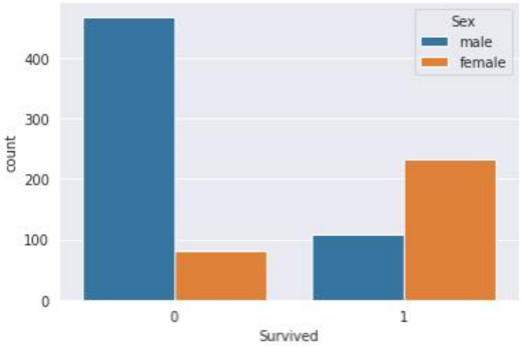
```
% of men who survived: 0.18890814558058924
```

In [7]:

```
sb.set_style('darkgrid')
sb.countplot(x='Survived', hue='Sex', data=train_data)
```

Out[7]:

```
<AxesSubplot:xlabel='Survived', ylabel='count'>
```



In [8]:

```
from sklearn.ensemble import RandomForestClassifier

y = train_data["Survived"]

features = ["Pclass", "Sex", "SibSp", "Parch"]
X = pd.get_dummies(train_data[features])
X_test = pd.get_dummies(test_data[features])

model = RandomForestClassifier(n_estimators=100, max_depth=5, random_state=1)
model.fit(X, y)
predictions = model.predict(X_test)

print("Random forest Accuracy with 4 features of Training data: ", round(model.score(X, y)*100, 2))

output = pd.DataFrame({'PassengerId': test_data.PassengerId, 'Survived': predictions})
output.to_csv('submission.csv', index=False)
print(output)
```

```
Random forest Accuracy with 4 features of Training data:  81.59
     PassengerId  Survived
0            892         0
1            893         1
2            894         0
3            895         0
4            896         1
```

MY CONTRIBUTION: selecting different features and estimators to increase performance.

In [9]:

```
from sklearn.ensemble import RandomForestClassifier
from sklearn import metrics
from sklearn.metrics import accuracy_score
from sklearn.metrics import classification_report
from sklearn.tree import DecisionTreeClassifier

features = ["Pclass","Sex", "Parch", "Embarked","Fare"]

X = pd.get_dummies(train_data[features])
y = train_data["Survived"]

model = RandomForestClassifier(n_estimators=120, max_depth=10, random_state=1)
model.fit(X, y)

test_data['Fare'].fillna(value=test_data.Fare.mean(), inplace=True)

X_test = pd.get_dummies(test_data[features])
rf_predictions = model.predict(X_test)
print("Random forest Accuracy with 5 features of Train Data: ", round(model.score(X, y)*100, 2))

output = pd.DataFrame({'PassengerId': test_data.PassengerId, 'Survived': rf_predictions})
output.to_csv('my_submission.csv', index=False)

print(output)
```

```
Random forest Accuracy with 5 features of Train Data:  91.02
     PassengerId  Survived
0            892         0
1            893         1
2            894         0
3            895         0
4            896         1
..           ...       ...
413         1305         0
414         1306         1
415         1307         0
416         1308         0
417         1309         1

[418 rows x 2 columns]
```