

HomeTitanic Data Analysis

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Python 3 (ipykernel)

### Data Wrangling/Cleaning

```
[10]: titanic_data.isnull()
```

```
[10]:
```

|     | PassengerId | Survived | Pclass | Name  | Sex   | Age   | SibSp | Parch | Ticket | Fare  | Cabin | Embarked |
|-----|-------------|----------|--------|-------|-------|-------|-------|-------|--------|-------|-------|----------|
| 0   | False       | False    | False  | False | False | False | False | False | False  | False | True  | False    |
| 1   | False       | False    | False  | False | False | False | False | False | False  | False | False | False    |
| 2   | False       | False    | False  | False | False | False | False | False | False  | False | True  | False    |
| 3   | False       | False    | False  | False | False | False | False | False | False  | False | False | False    |
| 4   | False       | False    | False  | False | False | False | False | False | False  | False | True  | False    |
| ... | ...         | ...      | ...    | ...   | ...   | ...   | ...   | ...   | ...    | ...   | ...   | ...      |
| 886 | False       | False    | False  | False | False | False | False | False | False  | False | True  | False    |
| 887 | False       | False    | False  | False | False | False | False | False | False  | False | False | False    |
| 888 | False       | False    | False  | False | False | True  | False | False | False  | False | True  | False    |
| 889 | False       | False    | False  | False | False | False | False | False | False  | False | False | False    |
| 890 | False       | False    | False  | False | False | False | False | False | False  | False | True  | False    |

891 rows × 12 columns

```
[12]: null_data=titanic_data.isnull()
```

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890FalseFalseFalseFalseFalseFalseFalseFalseFalseFalseTrueFalse

891 rows x 12 columns

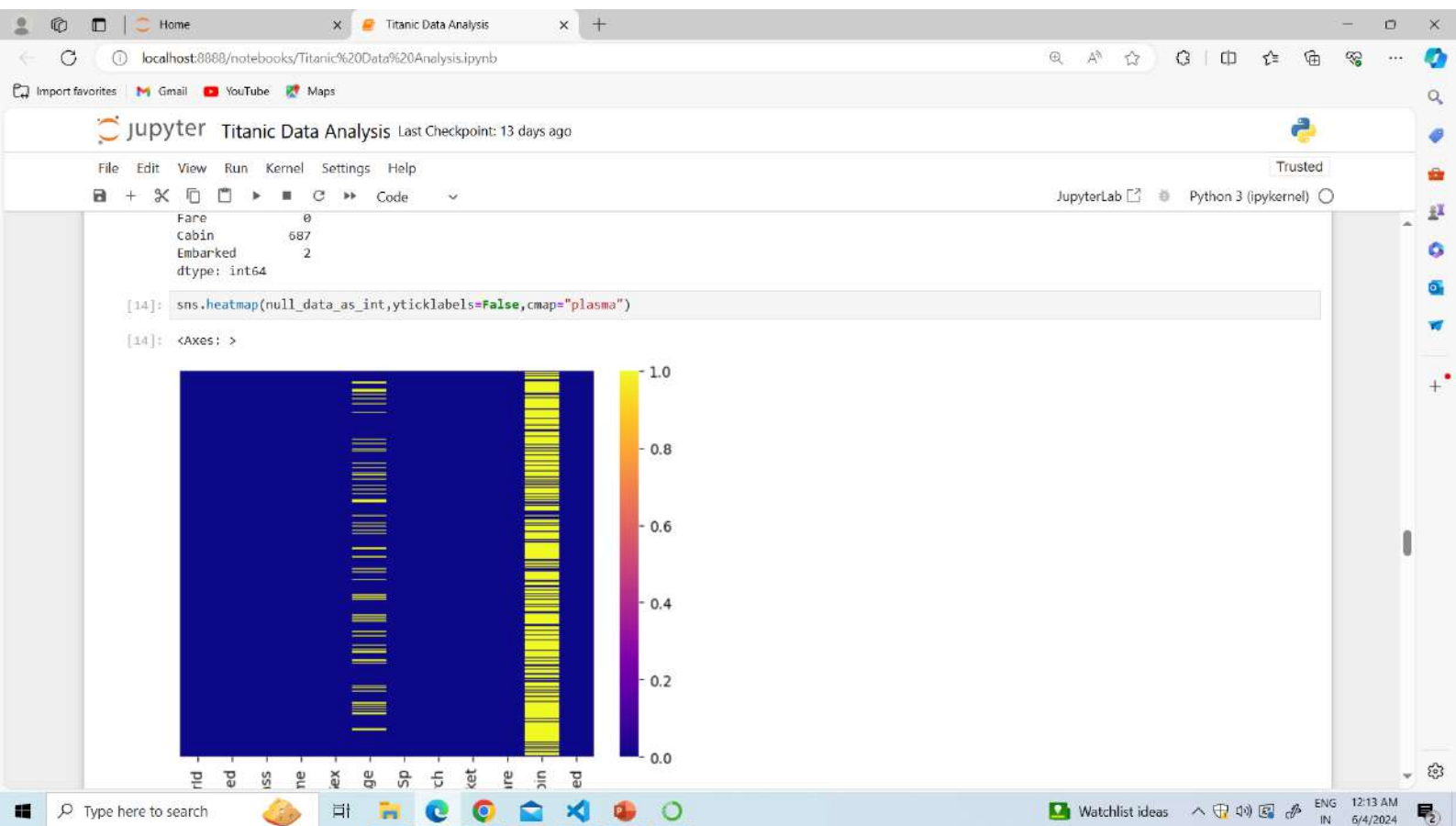
[12]:  
null\_data=titanic\_data.isnull()  
null\_data\_as\_int = null\_data.astype(int)  
  
print(null\_data\_as\_int)

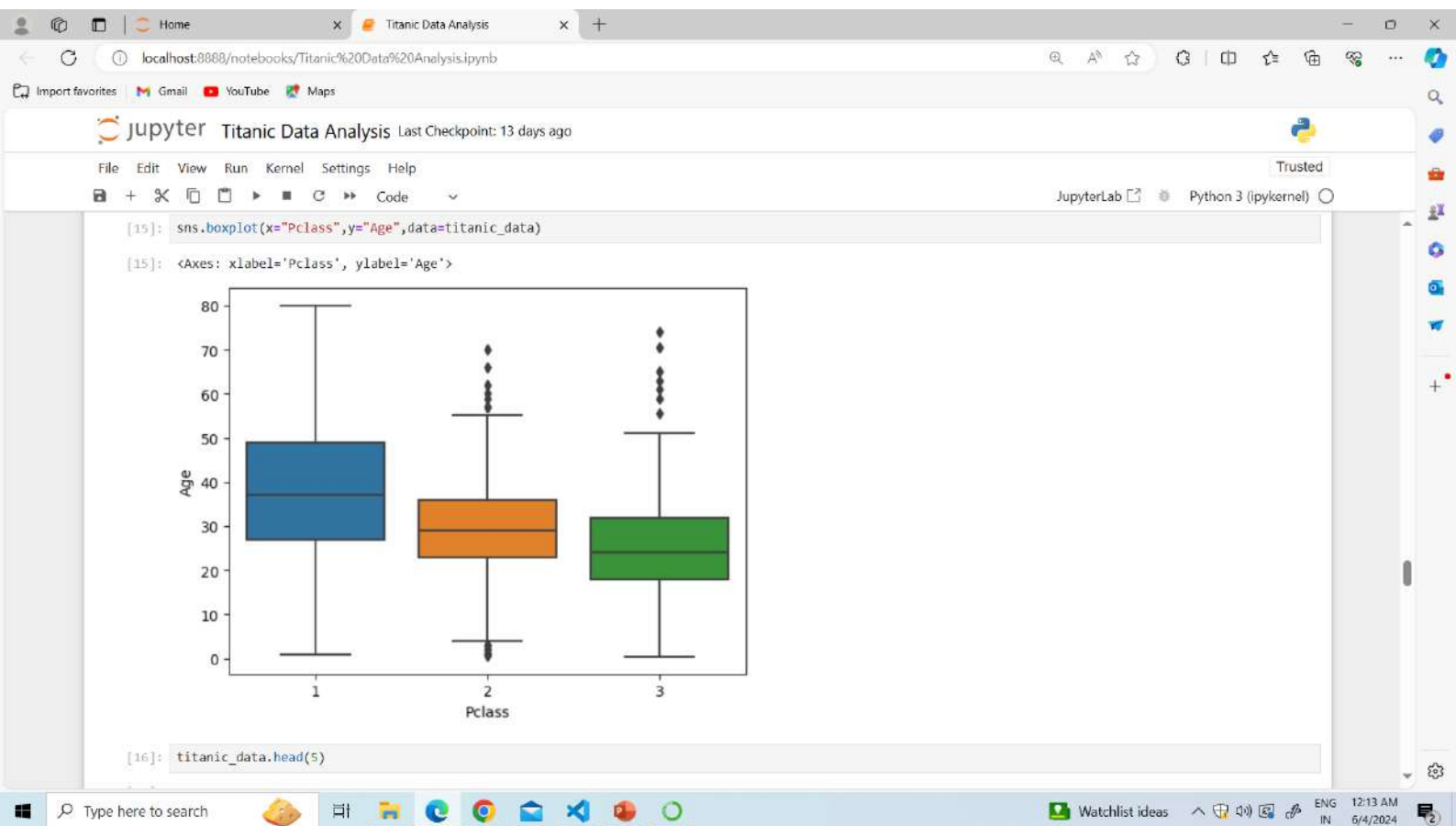
|     | PassengerId | Survived | Pclass | Name | Sex | Age | SibSp | Parch | Ticket | \   |
|-----|-------------|----------|--------|------|-----|-----|-------|-------|--------|-----|
| 0   | 0           | 0        | 0      | 0    | 0   | 0   | 0     | 0     | 0      | 0   |
| 1   | 0           | 0        | 0      | 0    | 0   | 0   | 0     | 0     | 0      | 0   |
| 2   | 0           | 0        | 0      | 0    | 0   | 0   | 0     | 0     | 0      | 0   |
| 3   | 0           | 0        | 0      | 0    | 0   | 0   | 0     | 0     | 0      | 0   |
| 4   | 0           | 0        | 0      | 0    | 0   | 0   | 0     | 0     | 0      | 0   |
| ..  | ...         | ...      | ...    | ...  | ... | ... | ...   | ...   | ...    | ... |
| 886 | 0           | 0        | 0      | 0    | 0   | 0   | 0     | 0     | 0      | 0   |
| 887 | 0           | 0        | 0      | 0    | 0   | 0   | 0     | 0     | 0      | 0   |
| 888 | 0           | 0        | 0      | 0    | 0   | 1   | 0     | 0     | 0      | 0   |
| 889 | 0           | 0        | 0      | 0    | 0   | 0   | 0     | 0     | 0      | 0   |
| 890 | 0           | 0        | 0      | 0    | 0   | 0   | 0     | 0     | 0      | 0   |

|     | Fare | Cabin | Embarked |
|-----|------|-------|----------|
| 0   | 0    | 1     | 0        |
| 1   | 0    | 0     | 0        |
| 2   | 0    | 1     | 0        |
| 3   | 0    | 0     | 0        |
| 4   | 0    | 1     | 0        |
| ..  | ...  | ...   | ...      |
| 886 | 0    | 1     | 0        |
| 887 | 0    | 0     | 0        |

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Python 3 (ipykernel)

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Pclass

[16]:

titanic\_data.head(5)

|   | 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        |

[17]:

titanic\_data.drop("cabin",axis=1,inplace=True)

[18]:

titanic\_data.head(5)

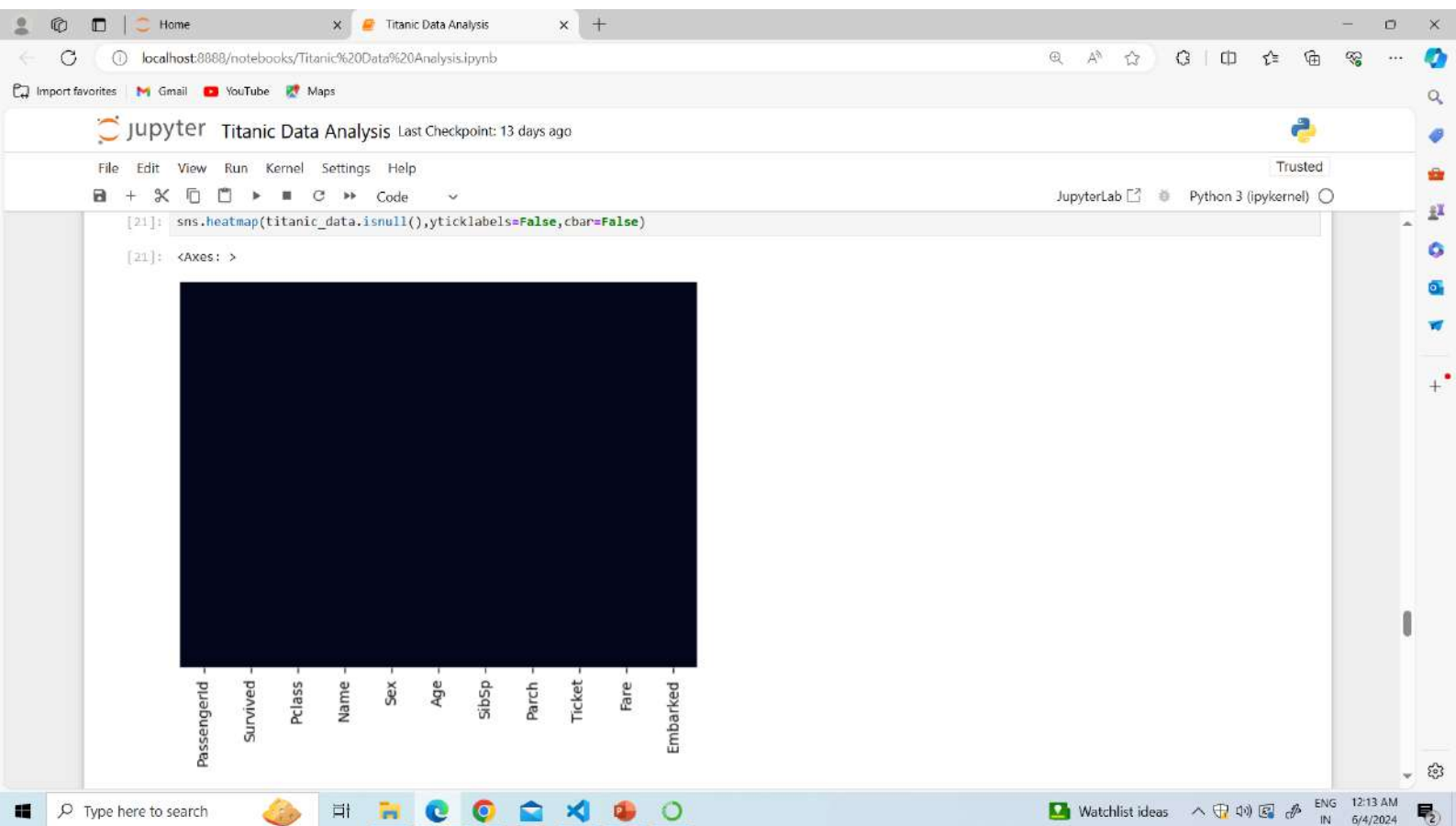
|   | PassengerId | Survived | Pclass | Name  | Sex    | Age  | SibSp | Parch | Ticket           | Fare    | Embarked |
|---|-------------|----------|--------|---|--------|------|-------|-------|------------------|---------|----------|
| 0 | 1           | 0        | 3      | Braund, Mr. Owen Harris                           | 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        |

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JupyterLabPython 3 (ipykernel)

Name0Sex0Age0SibSp0Parch0Ticket0Fare0Embarked0dtype: int64

[23]: titanic\_data.head(2)

[23]:

|   | 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        |

[25]:

sex=pd.get\_dummies(titanic\_data['Sex'],drop\_first=True) #dropping female as we need only one of male and female  
sex1=sex.astype(int)  
sex1.head(5)

[25]:

|   | male |
|---|------|
| 0 | 1    |
| 1 | 0    |
| 2 | 0    |
| 3 | 0    |
| 4 | 1    |

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Python 3 (ipykernel)

```
[27]: Pcl=pd.get_dummies(titanic_data["Pclass"],drop_first=True)
Pcl=Pcl.astype(int)
Pcl.head(5)
```

```
[27]:  2  3
0  0  1
1  0  0
2  0  1
3  0  0
4  0  1
```

```
[28]: #concatinating all rows
titanic_data=pd.concat([titanic_data,sex1,embark,Pcl],axis=1)
titanic_data.head(5)
```

| PassengerId | Survived | Pclass | Name | Sex   | Age    | SibSp | Parch | Ticket | Fare             | Embarked | male | Q | S | 2 | 3 |   |
|-------------|----------|--------|------|---|--------|-------|-------|--------|------------------|----------|------|---|---|---|---|---|
| 0           | 1        | 0      | 3    | Braund, Mr. Owen Harris                           | male   | 22.0  | 1     | 0      | A/5 21171        | 7.2500   | S    | 1 | 0 | 1 | 0 | 1 |
| 1           | 2        | 1      | 1    | Cumings, Mrs. John Bradley (Florence Briggs Th... | female | 38.0  | 1     | 0      | PC 17599         | 71.2833  | C    | 0 | 0 | 0 | 0 | 0 |
| 2           | 3        | 1      | 3    | Heikinen, Miss. Laina                             | female | 26.0  | 0     | 0      | STON/O2. 3101282 | 7.9250   | S    | 0 | 0 | 1 | 0 | 1 |
| 3           | 4        | 1      | 1    | Futrelle, Mrs. Jacques Heath (Lily May Peel)      | female | 35.0  | 1     | 0      | 113803           | 53.1000  | S    | 0 | 0 | 1 | 0 | 0 |
| 4           | 5        | 0      | 3    | Allen, Mr. William Henry                          | male   | 35.0  | 0     | 0      | 373450           | 8.0500   | S    | 1 | 0 | 1 | 0 | 1 |

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JupyterLab Python 3 (ipykernel)

### Train Data

```
[33]: x=titanic_data.drop("Survived",axis=1)
      y=titanic_data["Survived"]

[40]: print(X_train.isnull().sum())
      print(X_train.dtypes)
```

```
Age      0
SibSp    0
Parch    0
Fare     0
male     0
Q        0
S        0
2        0
3        0
dtype: int64
Age      float64
SibSp    int64
Parch    int64
Fare     float64
male     int32
Q        int32
S        int32
2        int32
3        int32
dtype: object
```

```
[43]: X_train = X_train.apply(pd.to_numeric, errors='coerce')
```

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JupyterLabPython 3 (ipykernel)

[1]:

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

titanic_data=pd.read_csv("Titanic.csv")
titanic_data.head(10)
```

[1]:

|   | 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        |
| 5 | 6           | 0        | 3      | Moran, Mr. James                                  | male   | NaN  | 0     | 0     | 330877           | 8.4583  | NaN   | Q        |
| 6 | 7           | 0        | 1      | McCarthy, Mr. Timothy J                           | male   | 54.0 | 0     | 0     | 17463            | 51.8625 | E46   | S        |
| 7 | 8           | 0        | 3      | Palsson, Master. Gosta Leonard                    | male   | 2.0  | 3     | 1     | 349909           | 21.0750 | NaN   | S        |
| 8 | 9           | 1        | 3      | Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg) | female | 27.0 | 0     | 2     | 347742           | 11.1333 | NaN   | S        |
| 9 | 10          | 1        | 2      | Nasser, Mrs. Nicholas (Adele Achem)               | female | 14.0 | 1     | 0     | 237736           | 30.0708 | NaN   | C        |

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