

```
from google.colab import files
```

```
uploaded = files.upload()
```

train.csv

- **train.csv**(application/vnd.ms-excel) - 61194 bytes, last modified: 6/24/2021 - 100% done
Saving train.csv to train.csv

```
for fn in uploaded.keys():
    print('User uploaded file "{name}" with length {length} bytes'.format(
        name=fn, length=len(uploaded[fn])))
```

User uploaded file "train.csv" with length 61194 bytes

```
import pandas as pd
train=pd.read_csv("train.csv")
print(train)
```

	PassengerId	Survived	Pclass	...	Fare	Cabin	Embarked
0	1	0	3	...	7.2500	NaN	S
1	2	1	1	...	71.2833	C85	C
2	3	1	3	...	7.9250	NaN	S
3	4	1	1	...	53.1000	C123	S
4	5	0	3	...	8.0500	NaN	S
..
886	887	0	2	...	13.0000	NaN	S
887	888	1	1	...	30.0000	B42	S
888	889	0	3	...	23.4500	NaN	S
889	890	1	1	...	30.0000	C148	C
890	891	0	3	...	7.7500	NaN	Q

[891 rows x 12 columns]

```
df=pd.DataFrame(pd.read_csv("train.csv"))
print(df)
```

	PassengerId	Survived	Pclass	...	Fare	Cabin	Embarked
0	1	0	3	...	7.2500	NaN	S
1	2	1	1	...	71.2833	C85	C
2	3	1	3	...	7.9250	NaN	S
3	4	1	1	...	53.1000	C123	S
4	5	0	3	...	8.0500	NaN	S
..
886	887	0	2	...	13.0000	NaN	S
887	888	1	1	...	30.0000	B42	S
888	889	0	3	...	23.4500	NaN	S
889	890	1	1	...	30.0000	C148	C
890	891	0	3	...	7.7500	NaN	Q

[891 rows x 12 columns]

```
df.head()
```

df.head()

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599
2	3	1	3	Heikkinen, Miss	female	26.0	0	0	STON/O2.

df.index

RangeIndex(start=0, stop=891, step=1)

df.columns

```
Index(['PassengerId', 'Survived', 'Pclass', 'Name', 'Sex', 'Age', 'SibSp',
      'Parch', 'Ticket', 'Fare', 'Cabin', 'Embarked'],
      dtype='object')
```

df.iloc[[0,1,2,3]]

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599

df.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
```

```
drop=df.isnull().sum()[df.isnull().sum()>(35/100*df.shape[0])]
drop
```

```
Cabin      687
dtype: int64
```

```
x=df.isnull().sum()
drop=x[x>(35/100*df.shape[0])]
drop
```

```
Cabin      687
dtype: int64
```

```
drop.index
```

```
Index(['Cabin'], dtype='object')
```

```
df.drop(drop.index,axis=1,inplace=True)
df.isnull().sum()
```

```
PassengerId    0
Survived        0
Pclass         0
Name           0
Sex            0
Age           177
SibSp          0
Parch          0
Ticket         0
Fare           0
Embarked        2
dtype: int64
```

```
df['Embarked'].describe()
```

```
count      889
unique       3
top         S
freq       644
Name: Embarked, dtype: object
```

```
df['Embarked'].fillna('S',inplace=True)
df.isnull().sum()
```

```

PassengerId    0
Survived       0
Pclass         0
Name           0
Sex            0
Age           177
SibSp          0
Parch         0
Ticket         0
Fare           0
Embarked       0
dtype: int64

```

```
df.corr()
```

	PassengerId	Survived	Pclass	Age	SibSp	Parch	
PassengerId	1.000000	-0.005007	-0.035144	0.036847	-0.057527	-0.001652	0.012658
Survived	-0.005007	1.000000	-0.338481	-0.077221	-0.035322	0.081629	0.257307
Pclass	-0.035144	-0.338481	1.000000	-0.369226	0.083081	0.018443	-0.549500
Age	0.036847	-0.077221	-0.369226	1.000000	-0.308247	-0.189119	0.096067
SibSp	-0.057527	-0.035322	0.083081	-0.308247	1.000000	0.414838	0.159651
Parch	-0.001652	0.081629	0.018443	-0.189119	0.414838	1.000000	0.217138
Fare	0.012658	0.257307	-0.549500	0.096067	0.159651	0.216225	1.000000

```

df['FamilySize']=df['SibSp']+df['Parch']
df.drop(['SibSp','Parch'],axis=1,inplace=True)
df.corr()

```

	PassengerId	Survived	Pclass	Age	Fare	FamilySize
PassengerId	1.000000	-0.005007	-0.035144	0.036847	0.012658	-0.040143
Survived	-0.005007	1.000000	-0.338481	-0.077221	0.257307	0.016639
Pclass	-0.035144	-0.338481	1.000000	-0.369226	-0.549500	0.065997
Age	0.036847	-0.077221	-0.369226	1.000000	0.096067	-0.301914
Fare	0.012658	0.257307	-0.549500	0.096067	1.000000	0.217138
FamilySize	-0.040143	0.016639	0.065997	-0.301914	0.217138	1.000000

```

df['Alone']=[0 if df['FamilySize'][i]>0 else 1 for i in df.index]
df.head()

```

	PassengerId	Survived	Pclass	Name	Sex	Age	Ticket	Fare	Embar
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	A/5 21171	7.2500	
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	PC 17599	71.2833	

```
df.groupby(['Alone'])['Survived'].mean()
```

```
Alone
0    0.505650
1    0.303538
Name: Survived, dtype: float64
```

```
df[['Alone', 'Fare']].corr()
```

	Alone	Fare
Alone	1.000000	-0.271832
Fare	-0.271832	1.000000

```
df['Sex']=[0 if df['Sex'][i]=='male' else 1 for i in df.index]
df.groupby(['Sex'])['Survived'].mean()
```

```
Sex
0    0.188908
1    0.742038
Name: Survived, dtype: float64
```

```
df.groupby(['Sex'])['Survived'].mean()
```

```
Sex
0    0.188908
1    0.742038
Name: Survived, dtype: float64
```

```
df.groupby(['Embarked'])['Survived'].mean()
```

```
Embarked
C    0.553571
Q    0.389610
S    0.339009
Name: Survived, dtype: float64
```

CONCLUSION

- Female passengers were prioritized over men.
- People with high class or rich people have higher survival rate than others. The hierarchy might save the passengers.
- Passengers travelling with their family have higher survival rate.
- Passengers who boarded the ship at Cherbourg, survived more in proportion than the others

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