

Import libraries

```
In [2]: import pandas as pd  
import numpy as np
```

```
In [4]: titanic_data = pd.read_csv(r"E:\Nareshit\3.November Data Science\11 nov- intro to m
```

```
In [5]: titanic_data
```

Out[5]:

| | PassengerId | Survived | Pclass | Name | Sex | Age | SibSp | Parch | Ticket | F |
|------------|-------------|----------|--------|---|--------|------|-------|-------|---------------------|-------|
| 0 | 1 | 0 | 3 | Braund, Mr. Owen Harris | male | 22.0 | 1 | 0 | A/5 21171 | 7.2! |
| 1 | 2 | 1 | 1 | Cumings, Mrs. John Bradley (Florence Briggs Th...) | female | 38.0 | 1 | 0 | PC 17599 | 71.2! |
| 2 | 3 | 1 | 3 | Heikkinen, Miss. Laina | female | 26.0 | 0 | 0 | STON/O2. 3101282 | 7.9! |
| 3 | 4 | 1 | 1 | Futrelle, Mrs. Jacques Heath (Lily May Peel) | female | 35.0 | 1 | 0 | 113803 | 53.1! |
| 4 | 5 | 0 | 3 | Allen, Mr. William Henry | male | 35.0 | 0 | 0 | 373450 | 8.0! |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 886 | 887 | 0 | 2 | Montvila, Rev. Juozas | male | 27.0 | 0 | 0 | 211536 | 13.0! |
| 887 | 888 | 1 | 1 | Graham, Miss. Margaret Edith | female | 19.0 | 0 | 0 | 112053 | 30.0! |
| 888 | 889 | 0 | 3 | Johnston, Miss. Catherine Helen "Carrie" | female | NaN | 1 | 2 | W./C. 6607 | 23.4! |
| 889 | 890 | 1 | 1 | Behr, Mr. Karl Howell | male | 26.0 | 0 | 0 | 111369 | 30.0! |
| 890 | 891 | 0 | 3 | Dooley, Mr. Patrick | male | 32.0 | 0 | 0 | 370376 | 7.7! |

891 rows × 12 columns



In [6]: `titanic_data.tail()`

| | PassengerId | Survived | Pclass | Name | Sex | Age | SibSp | Parch | Ticket | Fare |
|-----|-------------|----------|--------|--|--------|------|-------|-------|---------------|-------|
| 886 | 887 | 0 | 2 | Montvila, Rev. Juozas | male | 27.0 | 0 | 0 | 211536 | 13.00 |
| 887 | 888 | 1 | 1 | Graham, Miss. Margaret Edith | female | 19.0 | 0 | 0 | 112053 | 30.00 |
| 888 | 889 | 0 | 3 | Johnston, Miss. Catherine Helen "Carrie" | female | NaN | 1 | 2 | W./C. 6607 | 23.45 |
| 889 | 890 | 1 | 1 | Behr, Mr. Karl Howell | male | 26.0 | 0 | 0 | 111369 | 30.00 |
| 890 | 891 | 0 | 3 | Dooley, Mr. Patrick | male | 32.0 | 0 | 0 | 370376 | 7.75 |

◀ ▶

In []:

Data Cleaning & Analysis

In []:

Understand meaning of each column

Survived - Survived (1) or died (0)
 Pclass - Passenger's class (1 = 1st, 2 = 2nd, 3 = 3rd)
 Name - Passenger's name
 Sex - Passenger's sex, Age - Passenger's age
 SibSp - Number of siblings/spouses aboard
 Parch - Number of parents/children aboard
 (Some children travelled only with a nanny, therefore parch=0 for them.)
 Ticket - Ticket number, Fare - Fare, Cabin-Cabin, Embarked - Port of embarkation (C = Cherbourg, Q = Queenstown, S = Southampton)

In [9]: `titanic_data`

Out[9]:

| | PassengerId | Survived | Pclass | Name | Sex | Age | SibSp | Parch | Ticket | F |
|------------|-------------|----------|--------|---|--------|------|-------|-------|---------------------|-------|
| 0 | 1 | 0 | 3 | Braund, Mr. Owen Harris | male | 22.0 | 1 | 0 | A/5 21171 | 7.2! |
| 1 | 2 | 1 | 1 | Cumings, Mrs. John Bradley (Florence Briggs Th...) | female | 38.0 | 1 | 0 | PC 17599 | 71.2! |
| 2 | 3 | 1 | 3 | Heikkinen, Miss. Laina | female | 26.0 | 0 | 0 | STON/O2. 3101282 | 7.9! |
| 3 | 4 | 1 | 1 | Futrelle, Mrs. Jacques Heath (Lily May Peel) | female | 35.0 | 1 | 0 | 113803 | 53.1! |
| 4 | 5 | 0 | 3 | Allen, Mr. William Henry | male | 35.0 | 0 | 0 | 373450 | 8.0! |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 886 | 887 | 0 | 2 | Montvila, Rev. Juozas | male | 27.0 | 0 | 0 | 211536 | 13.0! |
| 887 | 888 | 1 | 1 | Graham, Miss. Margaret Edith | female | 19.0 | 0 | 0 | 112053 | 30.0! |
| 888 | 889 | 0 | 3 | Johnston, Miss. Catherine Helen "Carrie" | female | NaN | 1 | 2 | W./C. 6607 | 23.4! |
| 889 | 890 | 1 | 1 | Behr, Mr. Karl Howell | male | 26.0 | 0 | 0 | 111369 | 30.0! |
| 890 | 891 | 0 | 3 | Dooley, Mr. Patrick | male | 32.0 | 0 | 0 | 370376 | 7.7! |

891 rows × 12 columns



In [7]: `titanic_data.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 12 columns):
 #   Column      Non-Null Count  Dtype  
--- 
 0   PassengerId 891 non-null    int64  
 1   Survived     891 non-null    int64  
 2   Pclass       891 non-null    int64  
 3   Name         891 non-null    object  
 4   Sex          891 non-null    object  
 5   Age          714 non-null    float64 
 6   SibSp        891 non-null    int64  
 7   Parch        891 non-null    int64  
 8   Ticket       891 non-null    object  
 9   Fare          891 non-null    float64 
 10  Cabin        204 non-null    object  
 11  Embarked     889 non-null    object  
dtypes: float64(2), int64(5), object(5)
memory usage: 83.7+ KB
```

In [10]: `titanic_data.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 |

In []:

Analyse and delete the unwanted columns

In [13]: `titanic_data.columns`

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

```
In [15]: del titanic_data["Name"]
```

```
In [16]: titanic_data.columns
```

```
Out[16]: Index(['PassengerId', 'Survived', 'Pclass', 'Sex', 'Age', 'SibSp', 'Parch',
       'Ticket', 'Fare', 'Cabin', 'Embarked'],
       dtype='object')
```

```
In [17]: del titanic_data['Ticket']
```

```
In [18]: del titanic_data['Fare']
```

```
In [19]: del titanic_data['Cabin']
```

```
In [ ]:
```

```
In [21]: #deleted unwanted columns like name, ticket, fare, cabin from datasetm
```

```
In [20]: titanic_data
```

```
Out[20]:
```

| | PassengerId | Survived | Pclass | Sex | Age | SibSp | Parch | Embarked |
|------------|--------------------|-----------------|---------------|------------|------------|--------------|--------------|-----------------|
| 0 | 1 | 0 | 3 | male | 22.0 | 1 | 0 | S |
| 1 | 2 | 1 | 1 | female | 38.0 | 1 | 0 | C |
| 2 | 3 | 1 | 3 | female | 26.0 | 0 | 0 | S |
| 3 | 4 | 1 | 1 | female | 35.0 | 1 | 0 | S |
| 4 | 5 | 0 | 3 | male | 35.0 | 0 | 0 | S |
| ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 886 | 887 | 0 | 2 | male | 27.0 | 0 | 0 | S |
| 887 | 888 | 1 | 1 | female | 19.0 | 0 | 0 | S |
| 888 | 889 | 0 | 3 | female | NaN | 1 | 2 | S |
| 889 | 890 | 1 | 1 | male | 26.0 | 0 | 0 | C |
| 890 | 891 | 0 | 3 | male | 32.0 | 0 | 0 | Q |

891 rows × 8 columns

Changing Value for "Male, Female" string values to numeric values , male=1 and female=0

```
In [23]: def getNumber(str):
    if str == 'male':
        return 1
    else:
        return 0

titanic_data['Gender']=titanic_data['Sex'].apply(getNumber)

titanic_data.head()
```

Out[23]:

| | PassengerId | Survived | Pclass | Sex | Age | SibSp | Parch | Embarked | Gender |
|----------|-------------|----------|--------|--------|------|-------|-------|----------|--------|
| 0 | 1 | 0 | 3 | male | 22.0 | 1 | 0 | S | 1 |
| 1 | 2 | 1 | 1 | female | 38.0 | 1 | 0 | C | 0 |
| 2 | 3 | 1 | 3 | female | 26.0 | 0 | 0 | S | 0 |
| 3 | 4 | 1 | 1 | female | 35.0 | 1 | 0 | S | 0 |
| 4 | 5 | 0 | 3 | male | 35.0 | 0 | 0 | S | 1 |

**delete column 'Sex', it has no use now,
cause we created column 'Gender' same as
'Sex' with numeric data**

```
In [65]: del titanic_data['Sex']
titanic_data.head()
```

Out[65]:

| | PassengerId | Survived | Pclass | Age | SibSp | Parch | Embarked | Gender |
|----------|-------------|----------|--------|-----|-------|-------|----------|--------|
| 0 | 1 | 0 | 3 | 22 | 1 | 0 | S | 1 |
| 1 | 2 | 1 | 1 | 38 | 1 | 0 | C | 0 |
| 2 | 3 | 1 | 3 | 26 | 0 | 0 | S | 0 |
| 3 | 4 | 1 | 1 | 35 | 1 | 0 | S | 0 |
| 4 | 5 | 0 | 3 | 35 | 0 | 0 | S | 1 |

```
In [24]: titanic_data.isnull()
```

Out[24]:

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

891 rows × 9 columns

In [25]: `titanic_data.isna().sum()`

Out[25]:

| | |
|-------------|-------|
| PassengerId | 0 |
| Survived | 0 |
| Pclass | 0 |
| Sex | 0 |
| Age | 177 |
| SibSp | 0 |
| Parch | 0 |
| Embarked | 2 |
| Gender | 0 |
| dtype: | int64 |

In [28]: `titanic_data[: : 5]`

Out[28]:

| | PassengerId | Survived | Pclass | Sex | Age | SibSp | Parch | Embarked | Gender |
|-----|-------------|----------|--------|--------|------|-------|-------|----------|--------|
| 0 | 1 | 0 | 3 | male | 22.0 | 1 | 0 | S | 1 |
| 5 | 6 | 0 | 3 | male | NaN | 0 | 0 | Q | 1 |
| 10 | 11 | 1 | 3 | female | 4.0 | 1 | 1 | S | 0 |
| 15 | 16 | 1 | 2 | female | 55.0 | 0 | 0 | S | 0 |
| 20 | 21 | 0 | 2 | male | 35.0 | 0 | 0 | S | 1 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 870 | 871 | 0 | 3 | male | 26.0 | 0 | 0 | S | 1 |
| 875 | 876 | 1 | 3 | female | 15.0 | 0 | 0 | C | 0 |
| 880 | 881 | 1 | 2 | female | 25.0 | 0 | 1 | S | 0 |
| 885 | 886 | 0 | 3 | female | 39.0 | 0 | 5 | Q | 0 |
| 890 | 891 | 0 | 3 | male | 32.0 | 0 | 0 | Q | 1 |

179 rows × 9 columns

In []:

As we know that our dataset's column 'Age' has many null values, so we'll fill those null values using Mean

In [55]: `titanic_data['Age'].fillna(titanic_data['Age'].mean(), inplace=True)`**NameError**

Traceback (most recent call last)

Cell In[55], line 1

`----> 1 titanic_data['Age'].fillna, astype(int)(titanic_data['Age'].mean(), inplace=True)`**NameError: name 'astype' is not defined**In [53]: `titanic_data`

Out[53]:

| | PassengerId | Survived | Pclass | Sex | Age | SibSp | Parch | Embarked | Gender |
|-----|-------------|----------|--------|--------|-----------|-------|-------|----------|--------|
| 0 | 1 | 0 | 3 | male | 22.000000 | 1 | 0 | S | 1 |
| 1 | 2 | 1 | 1 | female | 38.000000 | 1 | 0 | C | 0 |
| 2 | 3 | 1 | 3 | female | 26.000000 | 0 | 0 | S | 0 |
| 3 | 4 | 1 | 1 | female | 35.000000 | 1 | 0 | S | 0 |
| 4 | 5 | 0 | 3 | male | 35.000000 | 0 | 0 | S | 1 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 886 | 887 | 0 | 2 | male | 27.000000 | 0 | 0 | S | 1 |
| 887 | 888 | 1 | 1 | female | 19.000000 | 0 | 0 | S | 0 |
| 888 | 889 | 0 | 3 | female | 29.699118 | 1 | 2 | S | 0 |
| 889 | 890 | 1 | 1 | male | 26.000000 | 0 | 0 | C | 1 |
| 890 | 891 | 0 | 3 | male | 32.000000 | 0 | 0 | Q | 1 |

891 rows × 9 columns

In [57]:

```
titanic_data['Age'] = titanic_data['Age'].astype(int)
titanic_data.head()
```

Out[57]:

| | PassengerId | Survived | Pclass | Sex | Age | SibSp | Parch | Embarked | Gender |
|---|-------------|----------|--------|--------|-----|-------|-------|----------|--------|
| 0 | 1 | 0 | 3 | male | 22 | 1 | 0 | S | 1 |
| 1 | 2 | 1 | 1 | female | 38 | 1 | 0 | C | 0 |
| 2 | 3 | 1 | 3 | female | 26 | 0 | 0 | S | 0 |
| 3 | 4 | 1 | 1 | female | 35 | 1 | 0 | S | 0 |
| 4 | 5 | 0 | 3 | male | 35 | 0 | 0 | S | 1 |

In [58]:

```
titanic_data.isna().sum()
```

Out[58]:

```
PassengerId      0
Survived         0
Pclass           0
Sex              0
Age              0
SibSp            0
Parch            0
Embarked         2
Gender           0
dtype: int64
```

In []:

We have to check if "Embarked" is important or not

```
In [60]: survivedQ = titanic_data[titanic_data.Embarked == 'Q'][titanic_data.Survived == 1].
survivedC = titanic_data[titanic_data.Embarked == 'C'][titanic_data.Survived == 1].
survivedS = titanic_data[titanic_data.Embarked == 'S'][titanic_data.Survived == 1].
print(survivedQ)
print(survivedC)
print(survivedS)
```

30

93

217

C:\Users\hp\AppData\Local\Temp\ipykernel_4960\2516071556.py:1: UserWarning: Boolean Series key will be reindexed to match DataFrame index.

```
    survivedQ = titanic_data[titanic_data.Embarked == 'Q'][titanic_data.Survived ==
1].shape[0]
```

C:\Users\hp\AppData\Local\Temp\ipykernel_4960\2516071556.py:2: UserWarning: Boolean Series key will be reindexed to match DataFrame index.

```
    survivedC = titanic_data[titanic_data.Embarked == 'C'][titanic_data.Survived ==
1].shape[0]
```

C:\Users\hp\AppData\Local\Temp\ipykernel_4960\2516071556.py:3: UserWarning: Boolean Series key will be reindexed to match DataFrame index.

```
    survivedS = titanic_data[titanic_data.Embarked == 'S'][titanic_data.Survived ==
1].shape[0]
```

```
In [62]: survivedQ = titanic_data[titanic_data.Embarked == 'Q'][titanic_data.Survived == 0].
survivedC = titanic_data[titanic_data.Embarked == 'C'][titanic_data.Survived == 0].
survivedS = titanic_data[titanic_data.Embarked == 'S'][titanic_data.Survived == 0].
print(survivedQ)
print(survivedC)
print(survivedS)
```

47

75

427

C:\Users\hp\AppData\Local\Temp\ipykernel_4960\2051630139.py:1: UserWarning: Boolean Series key will be reindexed to match DataFrame index.

```
    survivedQ = titanic_data[titanic_data.Embarked == 'Q'][titanic_data.Survived ==
0].shape[0]
```

C:\Users\hp\AppData\Local\Temp\ipykernel_4960\2051630139.py:2: UserWarning: Boolean Series key will be reindexed to match DataFrame index.

```
    survivedC = titanic_data[titanic_data.Embarked == 'C'][titanic_data.Survived ==
0].shape[0]
```

C:\Users\hp\AppData\Local\Temp\ipykernel_4960\2051630139.py:3: UserWarning: Boolean Series key will be reindexed to match DataFrame index.

```
    survivedS = titanic_data[titanic_data.Embarked == 'S'][titanic_data.Survived ==
0].shape[0]
```

In []:

As there are significant changes in the survival rate based on which port the passengers aboard the ship. We cannot delete the whole embarked column (It is useful). Now the Embarked column has some null values in it and hence we can safely say that deleting some rows from total rows will not affect the result. So rather than trying to fill those null values with some values. We can simply remove them.

```
In [63]: titanic_data.dropna(inplace = True)
titanic_data.head()
```

| | PassengerId | Survived | Pclass | Sex | Age | SibSp | Parch | Embarked | Gender |
|----------|-------------|----------|--------|--------|-----|-------|-------|----------|--------|
| 0 | 1 | 0 | 3 | male | 22 | 1 | 0 | S | 1 |
| 1 | 2 | 1 | 1 | female | 38 | 1 | 0 | C | 0 |
| 2 | 3 | 1 | 3 | female | 26 | 0 | 0 | S | 0 |
| 3 | 4 | 1 | 1 | female | 35 | 1 | 0 | S | 0 |
| 4 | 5 | 0 | 3 | male | 35 | 0 | 0 | S | 1 |

```
In [64]: titanic_data.isnull().sum()
```

```
Out[64]: PassengerId      0
Survived        0
Pclass          0
Sex             0
Age            0
SibSp          0
Parch          0
Embarked       0
Gender          0
dtype: int64
```

```
In [ ]:
```

```
In [71]: titanic_data.rename(columns={'Gender': 'Sex'}, inplace=True)
```

```
In [72]: titanic_data
```

Out[72]:

| | PassengerId | Survived | Pclass | Age | SibSp | Parch | Embarked | Sex |
|-----|-------------|----------|--------|-----|-------|-------|----------|-----|
| 0 | 1 | 0 | 3 | 22 | 1 | 0 | S | 1 |
| 1 | 2 | 1 | 1 | 38 | 1 | 0 | C | 0 |
| 2 | 3 | 1 | 3 | 26 | 0 | 0 | S | 0 |
| 3 | 4 | 1 | 1 | 35 | 1 | 0 | S | 0 |
| 4 | 5 | 0 | 3 | 35 | 0 | 0 | S | 1 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 886 | 887 | 0 | 2 | 27 | 0 | 0 | S | 1 |
| 887 | 888 | 1 | 1 | 19 | 0 | 0 | S | 0 |
| 888 | 889 | 0 | 3 | 29 | 1 | 2 | S | 0 |
| 889 | 890 | 1 | 1 | 26 | 0 | 0 | C | 1 |
| 890 | 891 | 0 | 3 | 32 | 0 | 0 | Q | 1 |

889 rows × 8 columns

In [76]:

```
def getEmb (str):
    if str == 'S':
        return 1
    elif str == 'Q':
        return 2
    else:
        return 3

titanic_data['Embarked'] = titanic_data['Embarked'].apply(getEmb)
titanic_data.head()
```

Out[76]:

| | PassengerId | Survived | Pclass | Age | SibSp | Parch | Embarked | Sex |
|---|-------------|----------|--------|-----|-------|-------|----------|-----|
| 0 | 1 | 0 | 3 | 22 | 1 | 0 | 1 | 1 |
| 1 | 2 | 1 | 1 | 38 | 1 | 0 | 3 | 0 |
| 2 | 3 | 1 | 3 | 26 | 0 | 0 | 1 | 0 |
| 3 | 4 | 1 | 1 | 35 | 1 | 0 | 1 | 0 |
| 4 | 5 | 0 | 3 | 35 | 0 | 0 | 1 | 1 |

In []:

In [77]: #Drawing a pie chart for number of males and females aboard

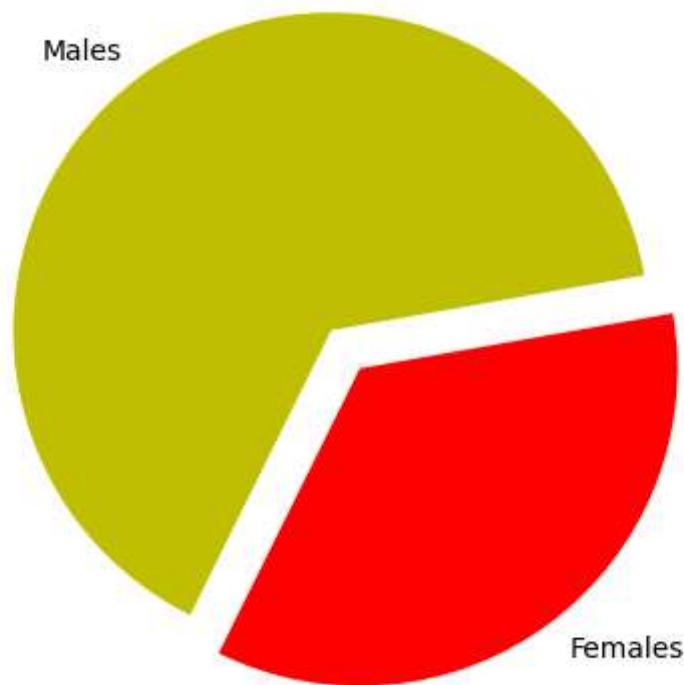
```
import matplotlib.pyplot as plt
from matplotlib import style
```

```
In [80]: males = (titanic_data['Sex'] == 1).sum()  
  
females = (titanic_data['Sex']==0).sum()  
  
print('Total no. of males:', males)  
print('Total no. of females:', females)
```

Total no. of males: 577
Total no. of females: 312

```
In [ ]:
```

```
In [97]: #create a pie chart for male and females ratio  
  
p = [males , females]  
plt.pie(p, #giving array  
        labels = ['Males', 'Females'],  
        colors = ['y', 'r'],  
        explode = (0.15, 0),      #How much the gap should me there between the pies  
        startangle = 10 )       #what start angle should be given  
  
plt.axis('equal')  
plt.show()
```



```
In [ ]:
```

```
In [100...]: # More pricise pie chart  
  
maleS = titanic_data[titanic_data.Sex==1][titanic_data.Survived==1].shape[0]  
  
maleN = titanic_data[titanic_data.Sex==1][titanic_data.Survived==0].shape[0]
```

```
femaleS = titanic_data[titanic_data.Sex==0][titanic_data.Survived==1].shape[0]

femaleN = titanic_data[titanic_data.Sex==0][titanic_data.Survived==0].shape[0]

print(maleS)
print(maleN)
print(femaleS)
print(femaleN)
```

109
468
231
81

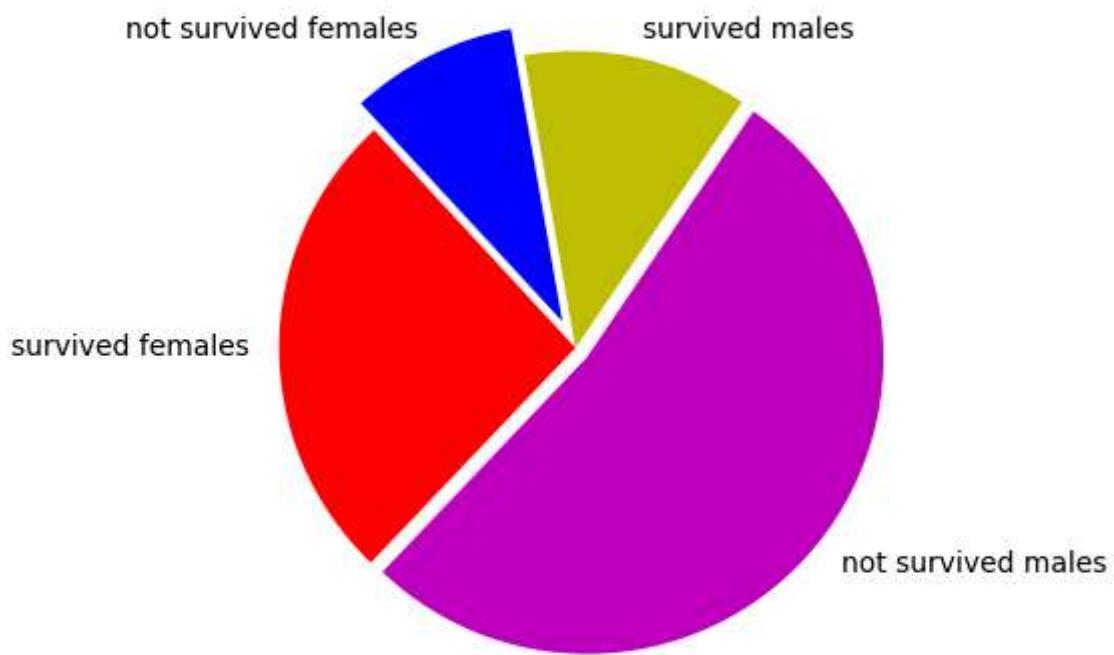
```
C:\Users\hp\AppData\Local\Temp\ipykernel_4960\2327786018.py:3: UserWarning: Boolean
Series key will be reindexed to match DataFrame index.
    maleS = titanic_data[titanic_data.Sex==1][titanic_data.Survived==1].shape[0]
C:\Users\hp\AppData\Local\Temp\ipykernel_4960\2327786018.py:5: UserWarning: Boolean
Series key will be reindexed to match DataFrame index.
    maleN = titanic_data[titanic_data.Sex==1][titanic_data.Survived==0].shape[0]
C:\Users\hp\AppData\Local\Temp\ipykernel_4960\2327786018.py:7: UserWarning: Boolean
Series key will be reindexed to match DataFrame index.
    femaleS = titanic_data[titanic_data.Sex==0][titanic_data.Survived==1].shape[0]
C:\Users\hp\AppData\Local\Temp\ipykernel_4960\2327786018.py:9: UserWarning: Boolean
Series key will be reindexed to match DataFrame index.
    femaleN = titanic_data[titanic_data.Sex==0][titanic_data.Survived==0].shape[0]
```

In []:

In [111...]: #plot a pie chart for above data

```
chart = [maleS, maleN, femaleS, femaleN]
colors = ['y', 'm', 'r', 'b']
labels = ['survived males', 'not survived males', 'survived females', 'not survived
explode = [0,0.05, 0 , 0.1]

plt.pie(chart, labels = labels, colors = colors, explode= explode, startangle=100,
plt.axis()
plt.show()
```



In []: