In [1]:

```
import pandas as pd
import numpy as np
```

In [2]:

```
titanic=pd.read_csv(r"D:\Data Science Classes\Daily Classes\DS (ML 12-)\13Dec - ML\
titanic
```

Out[2]:

	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 [3]:
```
titanic.shape
```

Out[3]:
```
(891, 12)
```

In [4]:
```
titanic.head()
```

Out[4]:

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

In [5]:
```
titanic.describe()
```

Out[5]:

	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 [6]:
```
del titanic['Name']
titanic.head()
```

Out[6]:

	PassengerId	Survived	Pclass	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Er
0	1	0	3	male	22.0	1	0	A/5 21171	7.2500	NaN	
1	2	1	1	female	38.0	1	0	PC 17599	71.2833	C85	
2	3	1	3	female	26.0	0	0	STON/O2. 3101282	7.9250	NaN	
3	4	1	1	female	35.0	1	0	113803	53.1000	C123	
4	5	0	3	male	35.0	0	0	373450	8.0500	NaN	

In [7]:
```
del titanic['Ticket']
titanic.head()
```

Out[7]:

	PassengerId	Survived	Pclass	Sex	Age	SibSp	Parch	Fare	Cabin	Embarked
0	1	0	3	male	22.0	1	0	7.2500	NaN	S
1	2	1	1	female	38.0	1	0	71.2833	C85	C
2	3	1	3	female	26.0	0	0	7.9250	NaN	S
3	4	1	1	female	35.0	1	0	53.1000	C123	S
4	5	0	3	male	35.0	0	0	8.0500	NaN	S

In [8]:
```
del titanic['Fare']
titanic.head()
```

Out[8]:

	PassengerId	Survived	Pclass	Sex	Age	SibSp	Parch	Cabin	Embarked
0	1	0	3	male	22.0	1	0	NaN	S
1	2	1	1	female	38.0	1	0	C85	C
2	3	1	3	female	26.0	0	0	NaN	S
3	4	1	1	female	35.0	1	0	C123	S
4	5	0	3	male	35.0	0	0	NaN	S

In [9]:
```
del titanic['Cabin']
titanic.head()
```

Out[9]:

	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

In [10]:

```
#change the value for male ,female values to mnumeric value male=1,female=2.
def getNumber(str):
    if str=='male':
        return 1
    else:
        return 2
titanic['Gender']=titanic['Sex'].apply(getNumber)
#we have created  a new column called 'Gender' and
#filling it with 1,2 based the values of sex column
titanic.head()
```

Out[10]:

	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	2
2	3	1	3	female	26.0	0	0	S	2
3	4	1	1	female	35.0	1	0	S	2
4	5	0	3	male	35.0	0	0	S	1

In [11]:

```
del titanic['Sex']
titanic.head()
```

Out[11]:

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

In [12]:

```
titanic.isna().sum()
```

Out[12]:

```
PassengerId      0
Survived         0
Pclass           0
Age            177
SibSp            0
Parch            0
Embarked         2
Gender           0
dtype: int64
```

In [13]:

```
meanS=titanic[titanic.Survived==1].Age.mean()
meanS
```

Out[13]:

```
np.float64(28.343689655172415)
```

In [14]:

```
titanic['age']=np.where(pd.isnull(titanic.Age) & titanic['Survived']==1,
                        meanS,titanic['Age'])
```

In [15]:

```
titanic.head()
```

Out[15]:

	PassengerId	Survived	Pclass	Age	SibSp	Parch	Embarked	Gender	age
0	1	0	3	22.0	1	0	S	1	22.0
1	2	1	1	38.0	1	0	C	2	38.0
2	3	1	3	26.0	0	0	S	2	26.0
3	4	1	1	35.0	1	0	S	2	35.0
4	5	0	3	35.0	0	0	S	1	35.0

In [16]:

```
titanic.isnull().sum()
```

Out[16]:

```
PassengerId      0
Survived         0
Pclass           0
Age            177
SibSp            0
Parch            0
Embarked         2
Gender           0
age            125
dtype: int64
```

In [17]:

```
meaNS=titanic[titanic.Survived==0].age.mean()
meaNS
```

Out[17]:

```
np.float64(30.62617924528302)
```

In [19]:

```
titanic['age'] = titanic['age'].fillna(meaNS)
titanic.head()
```

Out[19]:

	PassengerId	Survived	Pclass	Age	SibSp	Parch	Embarked	Gender	age
0	1	0	3	22.0	1	0	S	1	22.0
1	2	1	1	38.0	1	0	C	2	38.0
2	3	1	3	26.0	0	0	S	2	26.0
3	4	1	1	35.0	1	0	S	2	35.0
4	5	0	3	35.0	0	0	S	1	35.0

In [20]:

```
titanic.isnull().sum()
```

Out[20]:

```
PassengerId      0
Survived         0
Pclass           0
Age            177
SibSp            0
Parch            0
Embarked         2
Gender           0
age              0
dtype: int64
```

In [21]:

```
del titanic['Age']
titanic.head()
```

Out[21]:

	PassengerId	Survived	Pclass	SibSp	Parch	Embarked	Gender	age
0	1	0	3	1	0	S	1	22.0
1	2	1	1	1	0	C	2	38.0
2	3	1	3	0	0	S	2	26.0
3	4	1	1	1	0	S	2	35.0
4	5	0	3	0	0	S	1	35.0

In [22]:

```
# Finding the number of of people who have survived.
# given that they have embarked or boarded from particular port.

survivedQ=titanic[(titanic.Embarked=='Q') & (titanic.Survived==1)].shape[0]
survivedC=titanic[(titanic.Embarked=='C')&(titanic.Survived==1)].shape[0]
survivedS=titanic[(titanic.Embarked=='S')&(titanic.Survived==1)].shape[0]

print(survivedQ)
print(survivedC)
print(survivedS)
```

```
30
93
217
```

In [23]:

```
survivedQ=titanic[(titanic.Embarked=='Q') & (titanic.Survived==0)].shape[0]
survivedC=titanic[(titanic.Embarked=='C') & (titanic.Survived==0)].shape[0]
survivedS=titanic[(titanic.Embarked=='S') & (titanic.Survived==0)].shape[0]

print(survivedQ)
print(survivedC)
print(survivedS)
```

```
47
75
427
```

In [24]:

```
titanic.dropna(inplace=True)
titanic.head()
```

Out[24]:

	PassengerId	Survived	Pclass	SibSp	Parch	Embarked	Gender	age
0	1	0	3	1	0	S	1	22.0
1	2	1	1	1	0	C	2	38.0
2	3	1	3	0	0	S	2	26.0
3	4	1	1	1	0	S	2	35.0
4	5	0	3	0	0	S	1	35.0

In [25]:

```
titanic.isnull().sum()
```

Out[25]:

```
PassengerId    0
Survived       0
Pclass         0
SibSp          0
Parch          0
Embarked       0
Gender         0
age            0
dtype: int64
```

In [26]:

```
titanic.rename(columns={'age':'Age'},inplace=True)
titanic.head()
```

Out[26]:

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

In [27]:

```
titanic.rename(columns={'Gender':'Sex'},inplace=True)
titanic.head()
```

Out[27]:

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

In [28]:

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

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

Out[28]:

	PassengerId	Survived	Pclass	SibSp	Parch	Embarked	Sex	Age	Embark
0	1	0	3	1	0	S	1	22.0	1
1	2	1	1	1	0	C	2	38.0	3
2	3	1	3	0	0	S	2	26.0	1
3	4	1	1	1	0	S	2	35.0	1
4	5	0	3	0	0	S	1	35.0	1

In [29]:

```
del titanic['Embarked']
titanic.rename(columns={'Embark':'Embarked'},inplace=True)
titanic.head()
```

Out[29]:

	PassengerId	Survived	Pclass	SibSp	Parch	Sex	Age	Embarked
0	1	0	3	1	0	1	22.0	1
1	2	1	1	1	0	2	38.0	3
2	3	1	3	0	0	2	26.0	1
3	4	1	1	1	0	2	35.0	1
4	5	0	3	0	0	1	35.0	1

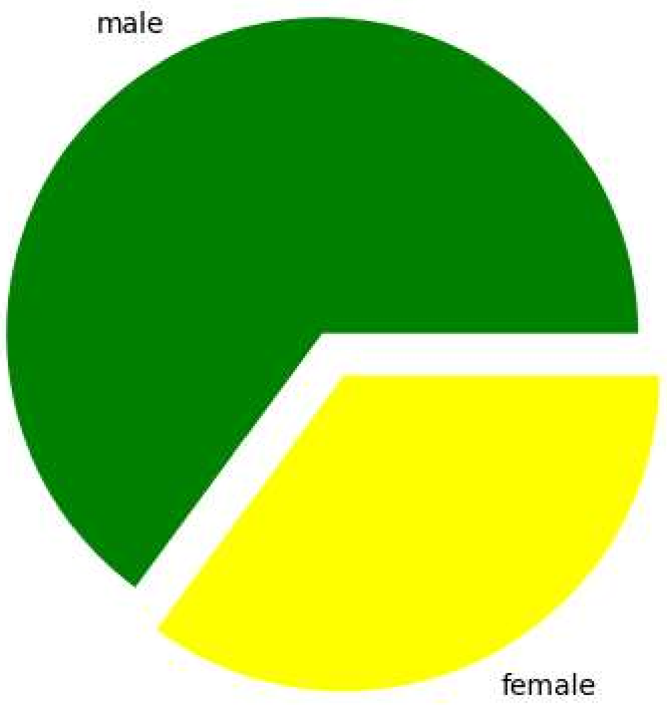
In [30]:

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

In [31]:

```
males=(titanic['Sex']==1).sum()
#Summing up all the values of column gender with a
#condition for male and similary for females
females=(titanic['Sex']==2).sum()
print(males)
print(females)
p=[males,females]
plt.pie(p,#giving array
       labels=['male','female'],
       colors=['green','yellow'], # how much gap between the pies
       explode=(0.15,0),
       startangle=0)
plt.axis('equal')
plt.show()
```

```
577
312
```



In [32]:

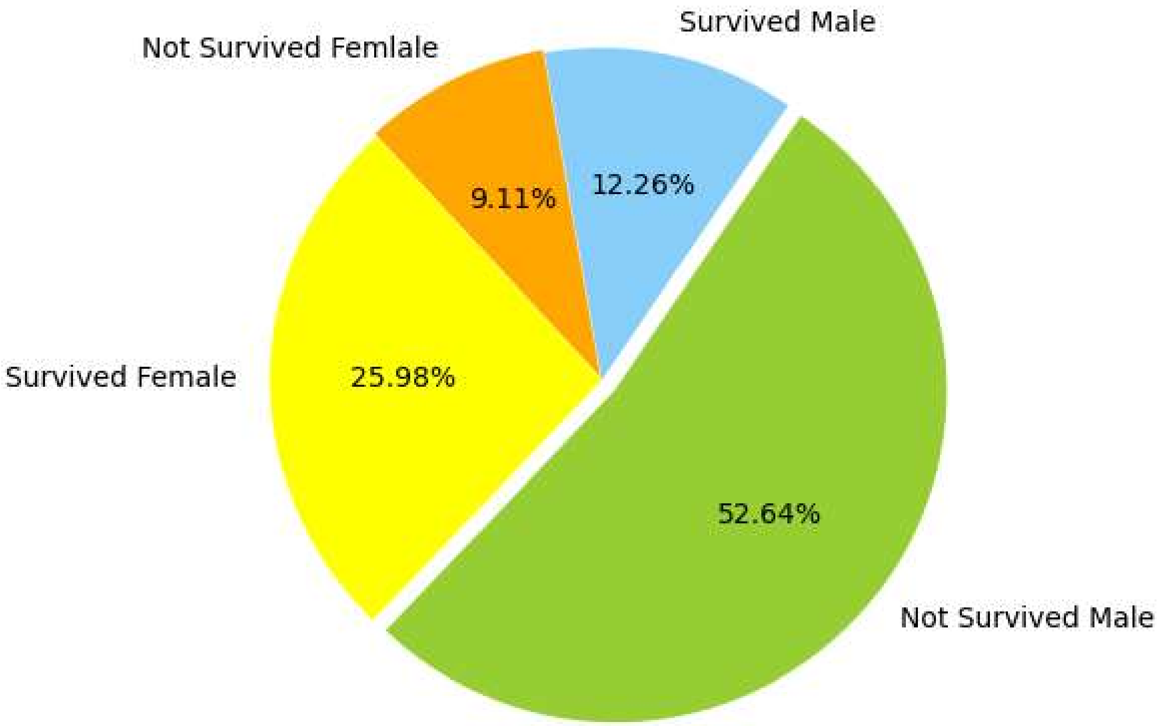
```
maleS=titanic[(titanic.Sex==1) & (titanic.Survived==1)].shape[0]
maleN=titanic[(titanic.Sex==1 )& (titanic.Survived==0)].shape[0]
FemaleS=titanic[(titanic.Sex==2) & (titanic.Survived==1)].shape[0]
FemaleN=titanic[(titanic.Sex==2) & (titanic.Survived==0)].shape[0]

print(maleS)
print(maleN)
print(FemaleS)
print(FemaleN)
```

```
109
468
231
81
```

In [34]:

```
chart=[maleS,maleN,FemaleS,FemaleN]
colors=['lightskyblue','yellowgreen','Yellow','Orange']
labels=['Survived Male','Not Survived Male','Survived Female','Not Survived Femlale
explode=[0,0.05,0,0.01]
plt.pie(chart,labels=labels,colors=colors,explode=explode,
        startangle=100,counterclock=False,autopct='%.2f%%')
plt.axis('equal')
plt.show()
```



In [ ]: