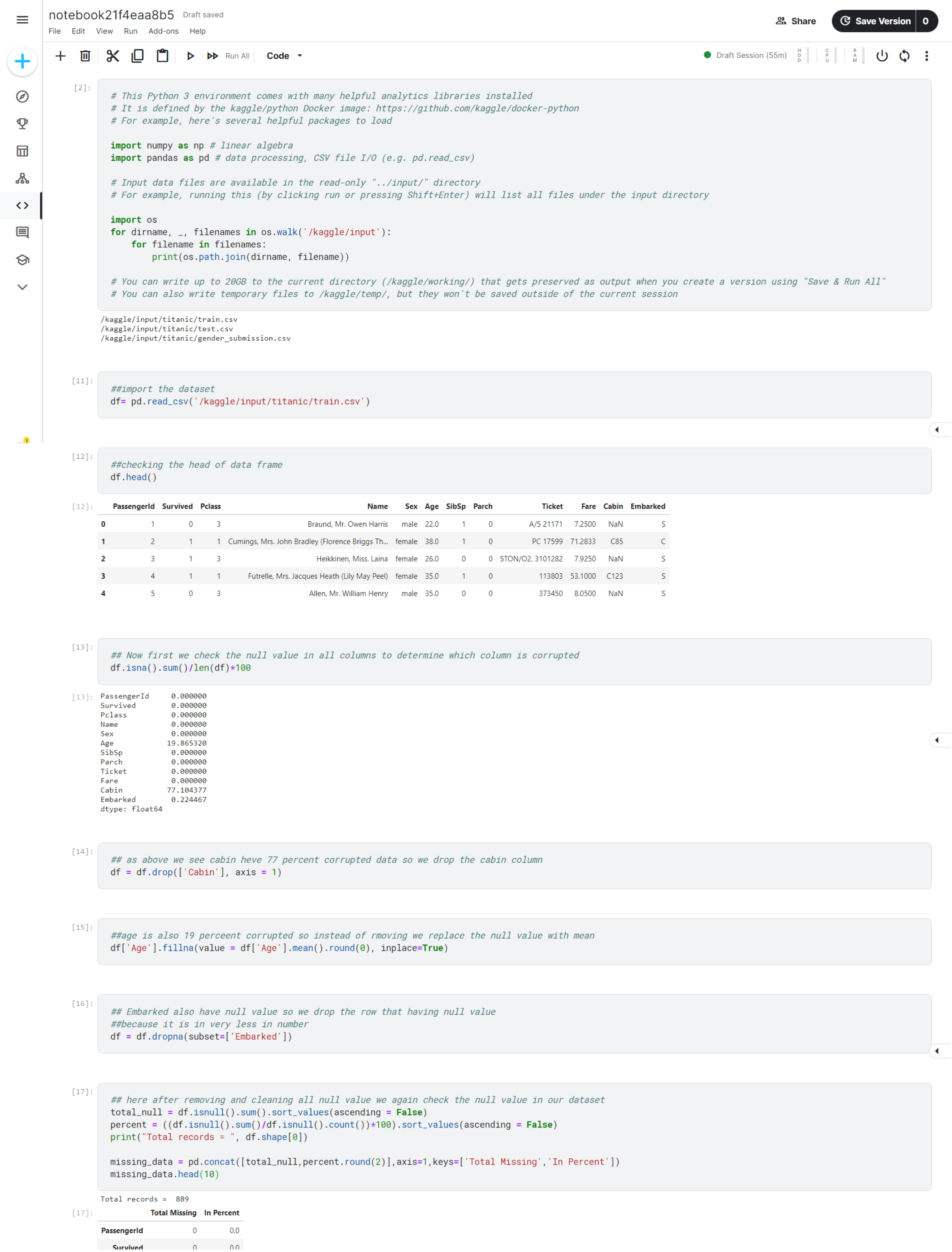

[2]:

```python
# 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 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 "Save & 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
```

[11]:

```python
##import the dataset
df= pd.read_csv('/kaggle/input/titanic/train.csv')
```

[12]:

```python
##checking the head of data frame
df.head()
```

[12]:

| | 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 |

[13]:

```python
## Now first we check the null value in all columns to determine which column is corrupted
df.isna().sum()/len(df)*100
```

[13]:

```
PassengerId     0.000000
Survived        0.000000
Pclass          0.000000
Name            0.000000
Sex             0.000000
Age            19.865320
SibSp           0.000000
Parch           0.000000
Ticket          0.000000
Fare            0.000000
Cabin          77.104377
Embarked        0.224467
dtype: float64
```

[14]:

```python
## as above we see cabin heve 77 percent corrupted data so we drop the cabin column
df = df.drop(['Cabin'], axis = 1)
```

[15]:

```python
##age is also 19 perceent corrupted so instead of rmoving we replace the null value with mean
df['Age'].fillna(value = df['Age'].mean().round(0), inplace=True)
```

[16]:

```python
## Embarked also have null value so we drop the row that having null value
##because it is in very less in number
df = df.dropna(subset=['Embarked'])
```

[17]:

```python
## here after removing and cleaning all null value we again check the null value in our dataset
total_null = df.isnull().sum().sort_values(ascending = False)
percent = ((df.isnull().sum()/df.isnull().count())*100).sort_values(ascending = False)
print("Total records = ", df.shape[0])

missing_data = pd.concat([total_null,percent.round(2)],axis=1,keys=['Total Missing','In Percent'])
missing_data.head(10)
```

```
Total records =  889
```

[17]:

| | Total Missing | In Percent |
|---|---|---|
| PassengerId | 0 | 0.0 |
| Survived | 0 | 0.0 |

| | | |
|---|---|---|
| **Survived** | 0 | 0.0 |
| **Pclass** | 0 | 0.0 |
| **Name** | 0 | 0.0 |
| **Sex** | 0 | 0.0 |
| **Age** | 0 | 0.0 |
| **SibSp** | 0 | 0.0 |
| **Parch** | 0 | 0.0 |
| **Ticket** | 0 | 0.0 |
| **Fare** | 0 | 0.0 |

[18]:

```
##check the unique value
df.nunique()
```

[18]:

```
PassengerId    889
Survived         2
Pclass           3
Name           889
Sex              2
Age             88
SibSp            7
Parch            7
Ticket         680
Fare           247
Embarked         3
dtype: int64
```

[19]:

```
## importing seaborn and matplot for graph ploting
import matplotlib.pyplot as plt
import seaborn as sns
```

[22]:

```
## here we are assigning the count of each age variable
content_age = df['Age'].value_counts()
content_age
```

[22]:

```
30.00    202
24.00     30
22.00     27
18.00     26
28.00     25
        ...
36.50      1
55.50      1
0.92       1
23.50      1
74.00      1
Name: Age, Length: 88, dtype: int64
```

```
## here we assigning the value to a age container
age = df['Age'].values
```

[27]:

```
## here we are transforming the age data in pattern
from sklearn import preprocessing
le = preprocessing.LabelEncoder()
df['Age'] = le.fit_transform(df['Age'].astype(float))
```

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[28]:

```
## creating the bin because age have 88 unique value so graph is complex so we defining the age into bins
age_hist = np.histogram(age, bins=[0,10,20,30,40,50,60,70,80,90,100])
```

[31]:

```
## checking the bin
age_hist
```

[31]:

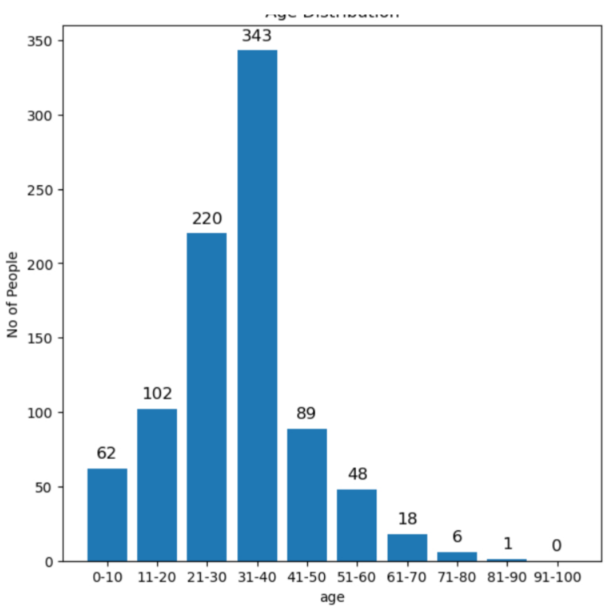
```
(array([ 62, 102, 220, 343,  89,  48,  18,   6,   1,   0]),
 array([  0,  10,  20,  30,  40,  50,  60,  70,  80,  90, 100]))
```

[32]:

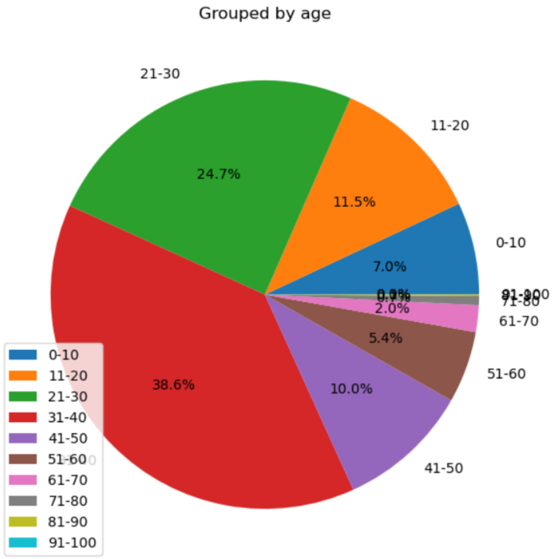
```
## assigning the label to each bin
age_hist_labels = ['0-10','11-20','21-30','31-40','41-50','51-60','61-70','71-80','81-90','91-100']
```

```
## ploating the graph with respect to bin defining above and count the individual in that bin
plt.figure(figsize=(7,7))
plt.title('Age Distribution')
plt.bar(age_hist_labels,age_hist[0])
plt.xlabel('age')
plt.ylabel('No of People')
for i,value in enumerate(age_hist[0]):
    plt.text(i, value+10, str(value), fontsize=12, color='black', horizontalalignment='center',verticalalignment='center')
plt.show()
```

Age Distribution



[35]:
```
## ploating the pie chart
plt.figure(figsize=(7,7))
plt.title('Grouped by age')
plt.pie(age_hist[0],labels=age_hist_labels,autopct="%1.1f%%")
plt.legend()
plt.show()
```



[36]:
```
## same as above work here we are using fare column
content_Fare = df['Fare'].value_counts()
content_Fare
```

[36]:
```
8.0500     43
13.0000    42
7.8958     38
7.7500     34
26.0000    31
           ..
35.0000     1
28.5000     1
6.2375      1
14.0000     1
10.5167     1
Name: Fare, Length: 247, dtype: int64
```

[37]:
```
Fare = df['Fare'].values
```

[38]:
```
from sklearn import preprocessing
le = preprocessing.LabelEncoder()
df['Fare'] = le.fit_transform(df['Fare'].astype(float))
```

[39]:

```
Fare_hist = np.histogram(Fare, bins=[0,100,200,300,400,500,600])
```

[42]:

```
Fare_hist
```

[42]:

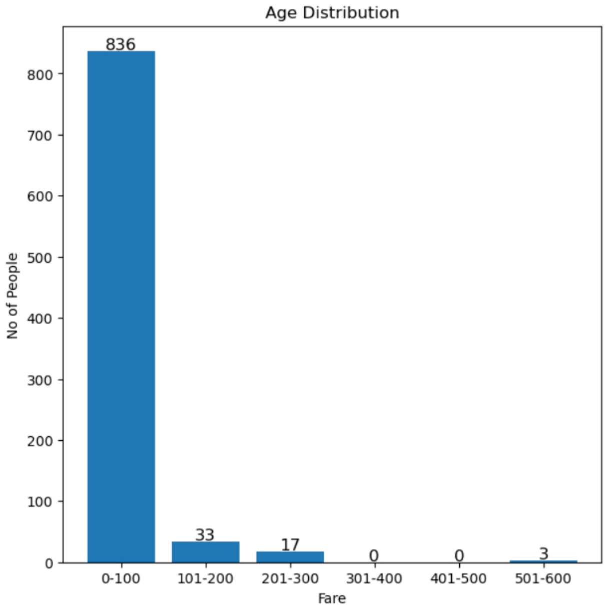
```
(array([836,  33,  17,   0,   0,   3]),
 array([  0, 100, 200, 300, 400, 500, 600]))
```

[44]:

```
Fare_hist_labels = ['0-100','101-200','201-300','301-400','401-500','501-600']
```

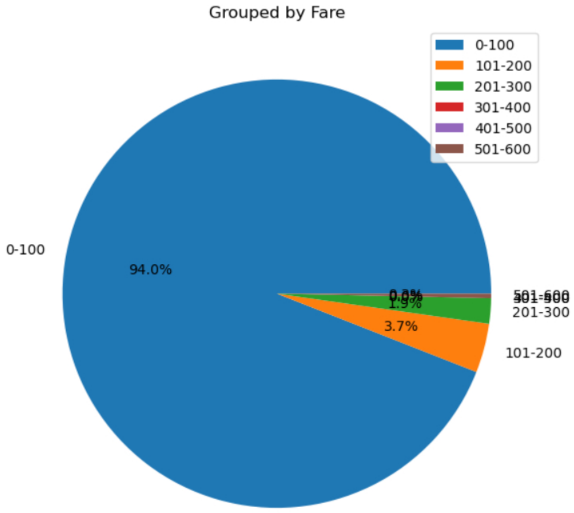
[45]:

```
plt.figure(figsize=(7,7))
plt.title('Age Distribution')
plt.bar(Fare_hist_labels,Fare_hist[0])
plt.xlabel('Fare')
plt.ylabel('No of People')
for i,value in enumerate(Fare_hist[0]):
    plt.text(i, value+10, str(value), fontsize=12, color='black', horizontalalignment='center',verticalalignment='center')
plt.show()
```



[34]:

```
plt.figure(figsize=(7,7))
plt.title('Grouped by Fare')
plt.pie(Fare_hist[0],labels=Fare_hist_labels,autopct="%1.1f%%")
plt.legend()
plt.show()
```



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