In [1]:

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

# DATA COLLECTION

In [2]:

```
a=pd.read_csv(r"C:\Users\user\Downloads\uber - uber.csv")
a
```

Out[2]:

| | Unnamed: 0 | key | fare_amount | pickup_datetime | pickup_longitude | pickup_latitude |
|---|---|---|---|---|---|---|
| **0** | 24238194 | 2015-05-07 19:52:06 | 7.5 | 2015-05-07 19:52:06 UTC | -73.999817 | 40.738354 |
| **1** | 27835199 | 2009-07-17 20:04:56 | 7.7 | 2009-07-17 20:04:56 UTC | -73.994355 | 40.728225 |
| **2** | 44984355 | 2009-08-24 21:45:00 | 12.9 | 2009-08-24 21:45:00 UTC | -74.005043 | 40.740770 |
| **3** | 25894730 | 2009-06-26 8:22:21 | 5.3 | 2009-06-26 08:22:21 UTC | -73.976124 | 40.790844 |
| **4** | 17610152 | 2014-08-28 17:47:00 | 16.0 | 2014-08-28 17:47:00 UTC | -73.925023 | 40.744085 |
| **...** | ... | ... | ... | ... | ... | ... |
| **199995** | 42598914 | 2012-10-28 10:49:00 | 3.0 | 2012-10-28 10:49:00 UTC | -73.987042 | 40.739367 |
| **199996** | 16382965 | 2014-03-14 1:09:00 | 7.5 | 2014-03-14 01:09:00 UTC | -73.984722 | 40.736837 |
| **199997** | 27804658 | 2009-06-29 0:42:00 | 30.9 | 2009-06-29 00:42:00 UTC | -73.986017 | 40.756487 |
| **199998** | 20259894 | 2015-05-20 14:56:25 | 14.5 | 2015-05-20 14:56:25 UTC | -73.997124 | 40.725452 |
| **199999** | 11951496 | 2010-05-15 4:08:00 | 14.1 | 2010-05-15 04:08:00 UTC | -73.984395 | 40.720077 |

200000 rows × 9 columns

In [3]:

```
b=a.head(100)
b
```

Out[3]:

| | Unnamed: 0 | key | fare_amount | pickup_datetime | pickup_longitude | pickup_latitude | dro |
|---|---|---|---|---|---|---|---|
| **0** | 24238194 | 2015-05-07 19:52:06 | 7.5 | 2015-05-07 19:52:06 UTC | -73.999817 | 40.738354 | |
| **1** | 27835199 | 2009-07-17 20:04:56 | 7.7 | 2009-07-17 20:04:56 UTC | -73.994355 | 40.728225 | |
| **2** | 44984355 | 2009-08-24 21:45:00 | 12.9 | 2009-08-24 21:45:00 UTC | -74.005043 | 40.740770 | |
| **3** | 25894730 | 2009-06-26 8:22:21 | 5.3 | 2009-06-26 08:22:21 UTC | -73.976124 | 40.790844 | |
| **4** | 17610152 | 2014-08-28 17:47:00 | 16.0 | 2014-08-28 17:47:00 UTC | -73.925023 | 40.744085 | |
| **...** | ... | ... | ... | ... | ... | ... | |
| **95** | 25431833 | 2015-04-11 8:47:47 | 9.5 | 2015-04-11 08:47:47 UTC | -73.978432 | 40.752399 | |
| **96** | 44792012 | 2011-10-03 20:29:00 | 4.5 | 2011-10-03 20:29:00 UTC | -73.990055 | 40.756413 | |
| **97** | 18571020 | 2010-04-26 3:12:44 | 3.3 | 2010-04-26 03:12:44 UTC | -73.982326 | 40.731314 | |
| **98** | 37942404 | 2011-11-18 9:51:00 | 30.9 | 2011-11-18 09:51:00 UTC | -73.995888 | 40.759078 | |
| **99** | 29024472 | 2009-08-30 14:03:55 | 26.9 | 2009-08-30 14:03:55 UTC | -73.990137 | 40.756007 | |

100 rows × 9 columns

# DATA CLEANING AND PRE-PROCESSING

In [4]:

```
b.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 100 entries, 0 to 99
Data columns (total 9 columns):
 #   Column             Non-Null Count  Dtype  
---  ------             --------------  -----  
 0   Unnamed: 0         100 non-null    int64  
 1   key                100 non-null    object 
 2   fare_amount        100 non-null    float64
 3   pickup_datetime    100 non-null    object 
 4   pickup_longitude   100 non-null    float64
 5   pickup_latitude    100 non-null    float64
 6   dropoff_longitude  100 non-null    float64
 7   dropoff_latitude   100 non-null    float64
 8   passenger_count    100 non-null    int64  
dtypes: float64(5), int64(2), object(2)
memory usage: 7.2+ KB
```

In [5]:

```
b.describe()
```

Out[5]:

| | Unnamed: 0 | fare_amount | pickup_longitude | pickup_latitude | dropoff_longitude | dropc |
|---|---|---|---|---|---|---|
| **count** | 1.000000e+02 | 100.000000 | 100.000000 | 100.000000 | 100.000000 | |
| **mean** | 2.810554e+07 | 11.065700 | -71.019759 | 39.123621 | -71.015479 | |
| **std** | 1.635033e+07 | 9.029756 | 14.569902 | 8.026358 | 14.569028 | |
| **min** | 2.268700e+05 | 2.500000 | -74.013173 | 0.000000 | -74.016152 | |
| **25%** | 1.422691e+07 | 5.475000 | -73.992601 | 40.733982 | -73.989142 | |
| **50%** | 2.710896e+07 | 8.100000 | -73.982002 | 40.752764 | -73.979396 | |
| **75%** | 4.480811e+07 | 12.600000 | -73.968615 | 40.765572 | -73.960980 | |
| **max** | 5.508597e+07 | 56.800000 | 0.000000 | 40.850558 | 0.000000 | |

In [6]:

```
b.columns
```

Out[6]:

```
Index(['Unnamed: 0', 'key', 'fare_amount', 'pickup_datetime',
       'pickup_longitude', 'pickup_latitude', 'dropoff_longitude',
       'dropoff_latitude', 'passenger_count'],
      dtype='object')
```

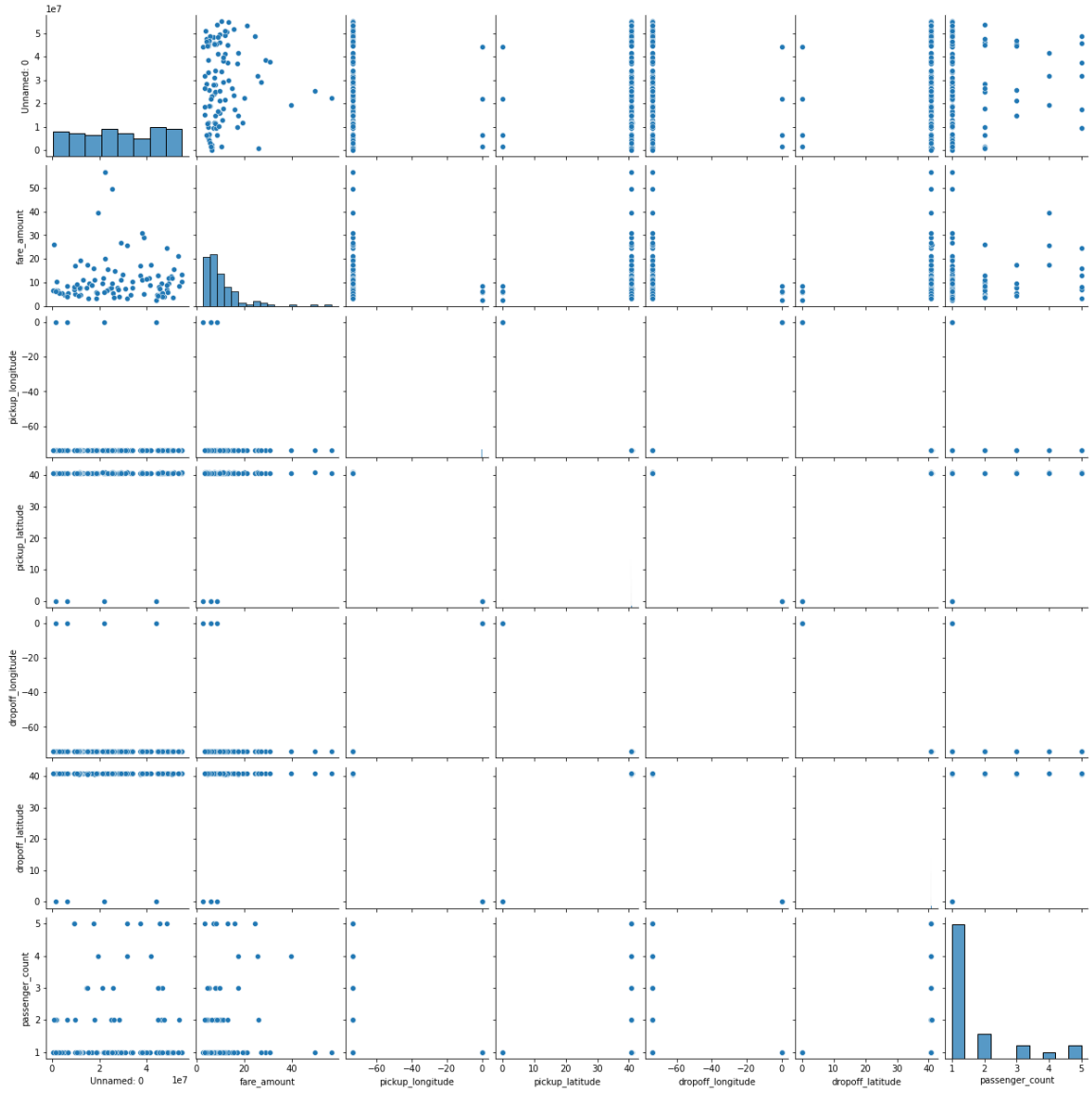
# EDA AND VISUALIZATION

In [7]:

```
sns.pairplot(b)
```

Out[7]:

```
<seaborn.axisgrid.PairGrid at 0x1d7010e5a00>
```



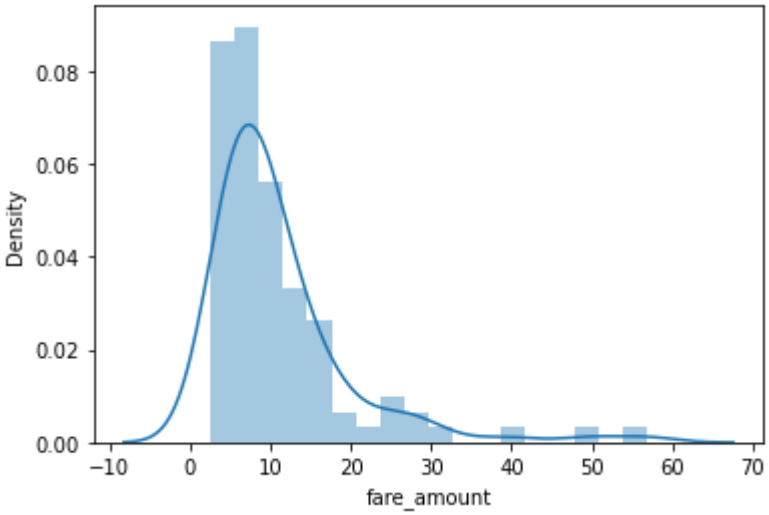
In [8]:

```
sns.distplot(b['fare_amount'])
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557:
FutureWarning: `distplot` is a deprecated function and will be removed in
a future version. Please adapt your code to use either `displot` (a figure
-level function with similar flexibility) or `histplot` (an axes-level fun
ction for histograms).
  warnings.warn(msg, FutureWarning)
```

Out[8]:

```
<AxesSubplot:xlabel='fare_amount', ylabel='Density'>
```




In [9]:

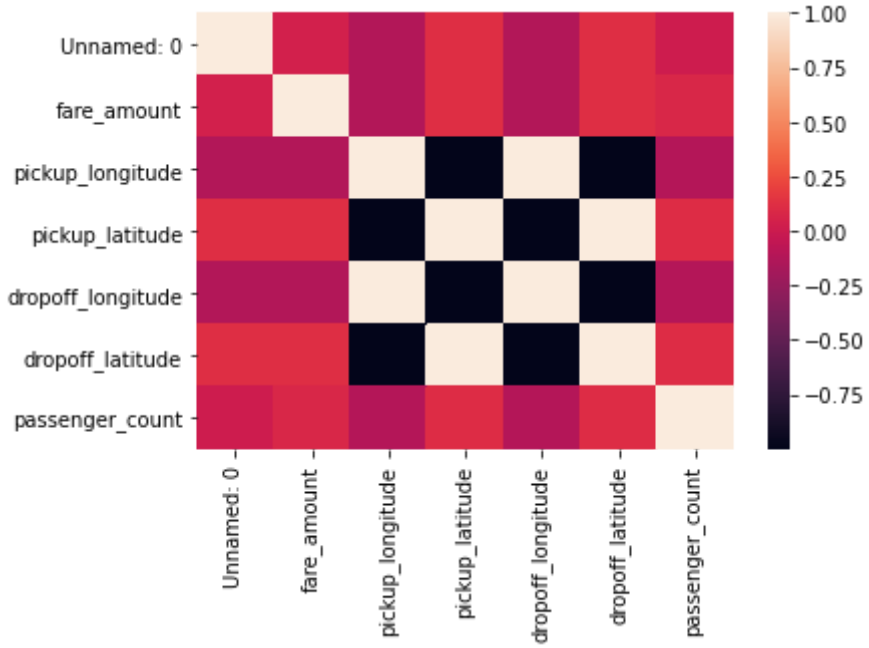
```
f=b[['Unnamed: 0', 'key', 'fare_amount',
       'pickup_longitude', 'pickup_latitude', 'dropoff_longitude',
       'dropoff_latitude', 'passenger_count']]
```

In [10]:

```
sns.heatmap(f.corr())
```

Out[10]:

<AxesSubplot:>




In [11]:

```
x=f[['Unnamed: 0',
       'pickup_longitude', 'pickup_latitude', 'dropoff_longitude',
       'dropoff_latitude', 'passenger_count']]
y=f['fare_amount']
```

In [12]:

```
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.5)
```

In [13]:

```
from sklearn.linear_model import LinearRegression

lr=LinearRegression()
lr.fit(x_train,y_train)
```

Out[13]:

```
LinearRegression()
```

In [14]:

```
print(lr.intercept_)
```

```
-3.156264092340656
```

In [15]:

```
r=pd.DataFrame(lr.coef_,x.columns,columns=['Co-efficient'])
r
```

Out[15]:

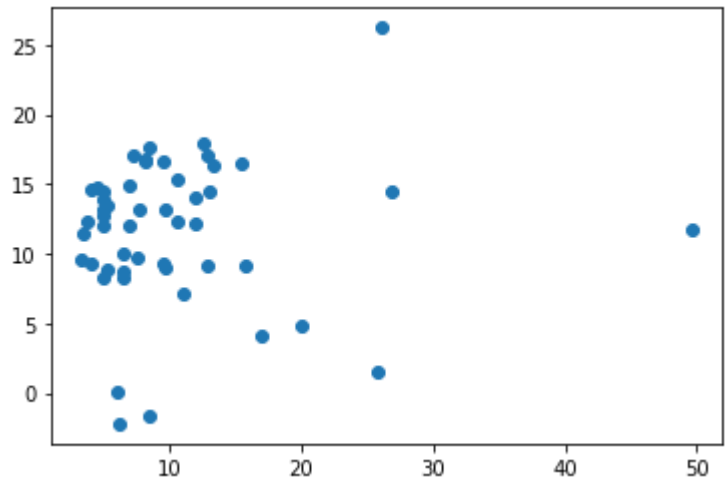
| | Co-efficient |
|---|---|
| **Unnamed: 0** | 1.109115e-07 |
| **pickup_longitude** | -3.248050e+00 |
| **pickup_latitude** | -1.035410e+02 |
| **dropoff_longitude** | 1.426916e+01 |
| **dropoff_latitude** | 1.238040e+02 |
| **passenger_count** | 7.896991e-01 |

In [16]:

```
u=lr.predict(x_test)
plt.scatter(y_test,u)
```

Out[16]:

```
<matplotlib.collections.PathCollection at 0x1d711bde880>
```




In [17]:

```
print(lr.score(x_test,y_test))
```

```
-0.37385110340681527
```

In [18]:

```
lr.score(x_train,y_train)
```

Out[18]:

```
0.20058316488087802
```

# RIDGE REGRESSION

In [19]:

```
from sklearn.linear_model import Ridge,Lasso
```

In [20]:

```
rr=Ridge(alpha=10)
rr.fit(x_train,y_train)
```

Out[20]:

```
Ridge(alpha=10)
```

In [21]:

```
rr.score(x_test,y_test)
```

Out[21]:

```
-0.26264658982771083
```

# LASSO REGRESSION

In [22]:

```
la=Lasso(alpha=10)
la.fit(x_train,y_train)
```

Out[22]:

```
Lasso(alpha=10)
```

In [23]:

```
la.score(x_test,y_test)
```

Out[23]:

```
-0.11868858176530694
```

In [ ]:

```

```