```
# In[1]:
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

# In[2]:
complaints =
pd.read_csv("C:/Users/Nabee/Downloads/1568699544_comcast_telecom_complain
ts_data/Comcast_telecom_complaints_data.csv")

# In[3]:
complaints.head()

# In[4]:
complaints.isnull().sum()

# In[5]:
complaints.shape

# In[6]:
complaints['Date_month_year']=complaints['Date_month_year'].apply(pd.to_d
atetime)
complaints=complaints.set_index('Date_month_year')

# In[7]:
months= complaints.groupby(pd.Grouper(freq="M")).size().plot()
plt.xlabel("MONTHS")
plt.ylabel("FREQUENCY")
plt.title("MONTHLY TREND CHART")

# In[8]:
complaints['Date'].value_counts(dropna=False)[:10]

# In[9]:
complaints= complaints.sort_values(by='Date')
plt.figure(figsize=(6,6))
complaints['Date'].value_counts().plot()
plt.xlabel("Date")
plt.ylabel("FREQUENCY")
plt.title("DAILY TREND CHART")

# In[10]:
complaints['Customer Complaint'].value_counts(dropna=False)[:10]

# In[11]:
complaints['Customer
Complaint'].value_counts(dropna=False)[:10].plot.bar()

# In[12]:
complaints_type = complaints['Customer
Complaint'].str.upper().value_counts()

# In[53]:
complaints_type.head(10)

# In[14]:
complaints.Status.unique()
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# In[15]:
complaints['New Status']=['Open' if Status=='Open' or Status=='Pending'
else 'Closed' for Status in complaints['Status']]

# In[16]:
complaints= complaints.drop(['Status'], axis=1)

# In[17]:
Complaints

# In[18]:
complaints.groupby(["State"]).size().sort_values(ascending=False)[:10]

# In[24]:
complaint_status= complaints.groupby(["State","New
Status"]).size().unstack()
print(complaint_status)

# In[32]:
complaint_status.plot.bar(figsize=(10,10), stacked=True)

# In[54]:
complaints['State'].value_counts()[:10]

# In[35]:
complaints['New Status'].value_counts()

# In[36]:
unresolved_com=complaints.groupby(['State','New
Status']).size().unstack().fillna(0).sort_values(by='Open',ascending=Fals
e)
unresolved_com['Unresolved_prct'] =
unresolved_com['Open']/unresolved_com['Open'].sum()*100
unresolved_com

# In[39]:
unresolved_com.plot()

# In[43]:
complaints['Received Via'].unique()

# In[45]:
total_resovled=complaints.groupby(['Received Via', 'New
Status']).size().unstack().fillna(0)
total_resovled['Resolved'] =
total_resovled['Closed']/total_resovled['Closed'].sum()*100
total_resovled

# In[52]:
total_resovled.plot(kind='bar', figsize=(8,8))
# In[ ]:
```