In [ ]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from matplotlib import style
style.use('fivethirtyeight')
```

In [ ]:
```
import pandas as pd
date_fields = [['Date', 'Time']]
comcast_file = r"C:\Users\hii\Desktop\data science\Comcast_telecom_complaints_data
comcast_df = pd.read_csv(comcast_file, parse_dates = date_fields, dayfirst = True,
```

In [ ]:
```
comcast_df
```

In [ ]:
```
comcast_df.info()
```

In [ ]:
```
comcast_df.Date_month_year = pd.to_datetime(comcast_df.Date_month_year)
print(comcast_df.Date_month_year)
```

In [ ]:
```
comcast_df.Time = pd.to_datetime(comcast_df.Time,format='%I:%M:%S %p')
print(comcast_df.Time)
```

In [ ]:
```
year = pd.Series([val.year for val in comcast_df.Date_month_year])
year.value_counts()
```

In [ ]:
```
comcast_df['Month'] = comcast_df.Date_month_year.dt.month
comcast_df['Month']
```

In [ ]:
```
comcast_df.groupby('Month').count()['Ticket #'].plot(kind='bar')
```

In [ ]:
```
comcast_df['Customer Complaint'].groupby(comcast_df.Date).count().plot(kind='bar',
```

In [ ]:
```
comcast_df['Customer Complaint'].value_counts()
```

In [ ]:
```
comcast_df["OC_Status"] = comcast_df["Status"].apply(lambda x: "Open" if(x == "Ope
```

In [ ]:
```
print(comcast_df["OC_Status"])
```

In [ ]:
```
comcast_df["OC_Status"].unique()
```

In [ ]:
```
import matplotlib.pyplot as plt
import seaborn as sns
sns.displot(comcast_df, x='State', hue='Status', multiple='stack',height=14, aspec
plt.xticks(rotation=90)
plt.show()
```

In [ ]:
```
OpenCloseStatus = comcast_df.groupby(['State',"OC_Status"])["OC_Status"].count().u
OpenClose_df=pd.DataFrame(OpenCloseStatus)
print(OpenClose_df)
```

In [ ]:
```
OpenClose_df["Open Percantage"] = (OpenClose_df.Open/(OpenClose_df.Open + OpenClos
OpenClose_df["Open Percantage"]
```

In [ ]:
```
OpenClose_df["Closed Percantage"] = (OpenClose_df.Closed/(OpenClose_df.Open + Open
OpenClose_df["Closed Percantage"]
```

In [ ]:
```
OpenClose_df.drop(["Closed"], axis=1, inplace=True)
OpenClose_df.drop(["Open"], axis=1, inplace=True)
fig, ax = plt.subplots(figsize=(15,4))
plt.xticks(rotation=90)
ax.bar(OpenClose_df.index, OpenClose_df["Open Percantage"], color="C0")
```

In [ ]:
```
Received_df = pd.crosstab(comcast_df["Received Via"],comcast_df["OC_Status"]).apply
Received_df
```

In [ ]:
```
Received_df.plot.bar(stacked=True,figsize=(10,4))
plt.legend(title='Call Status')
plt.xticks(rotation=0)
plt.show()
```

In [ ]:
```
corelation=comcast_df.corr()
```

In [ ]:
```
comcast_df[['Customer Complaint','Received Via']].corr()
```

In [ ]:
```
comcast_df.isnull().sum()
```

In [ ]:
```

```