# TELECOME CHURN CASE STUDY
# DSC 56 Batch

BY
MD ABUBAKAR
DEVANSHI GUPTA

# PROBLEM STATEMENT

- To predict the churn in the last (i.e. the ninth) month using the data (features) from the first three months.

- Highlighting the main variables/factors influencing Customer churn.

- Use various ML algorithms to build prediction models, evaluate the accuracy and performance of these models.

- Finding out the best model for business case and providing executive summary.

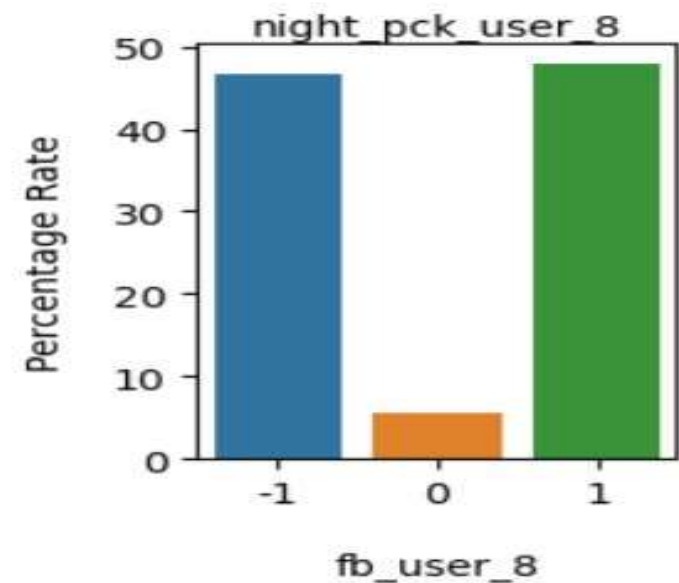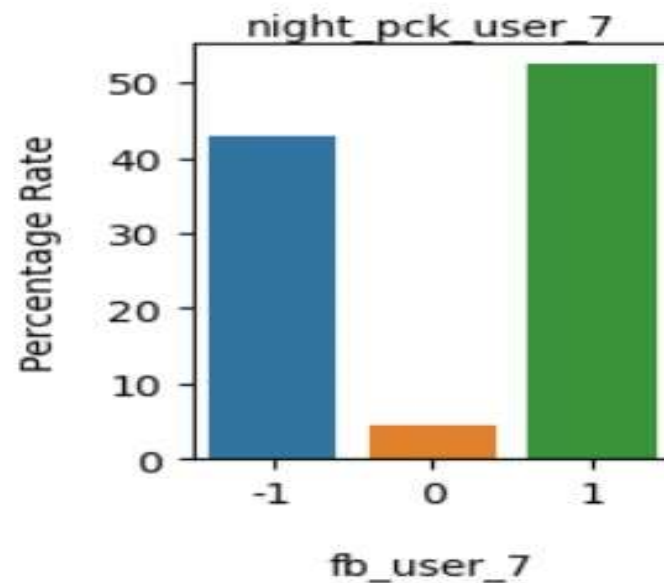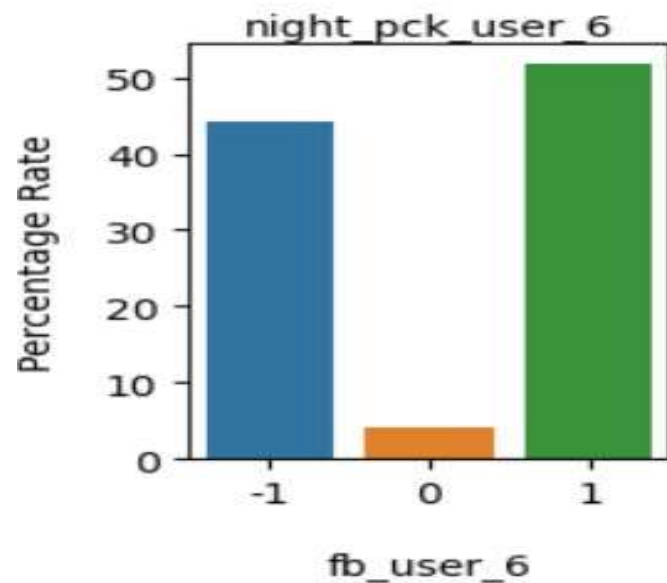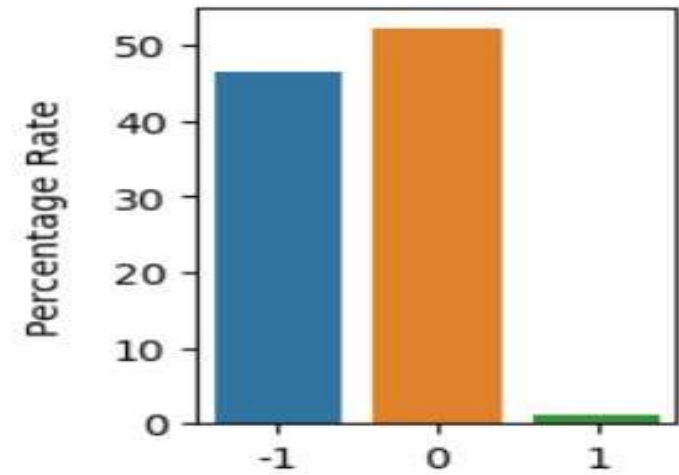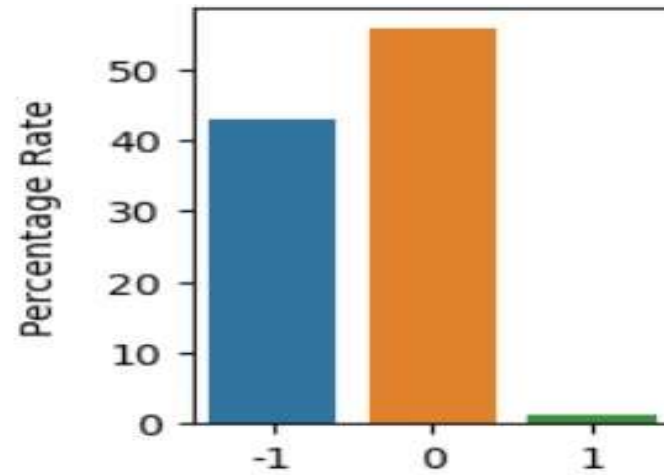# CLASS IMBALANCE

```
Positive examples = 2364
Negative examples = 27460
Proportion of positive to negative examples = 8.61%
```
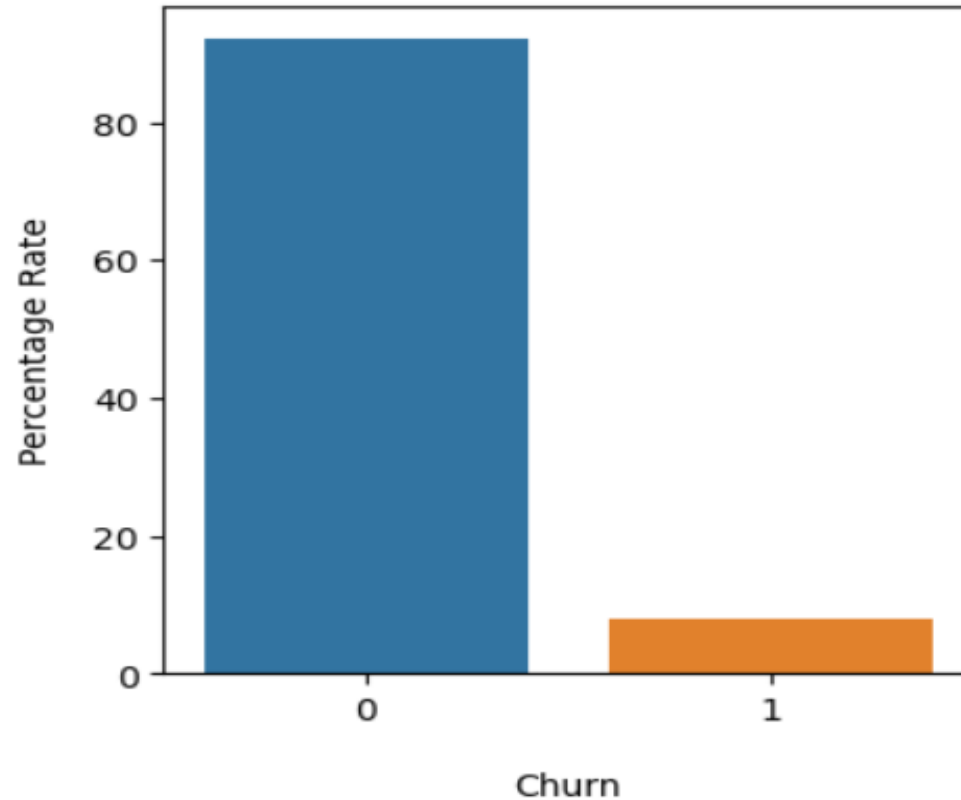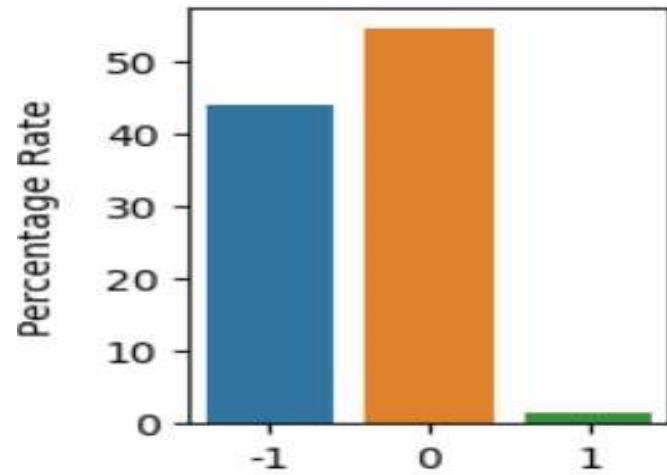


We can see that its a class imbalance in the above chart

# Ordered categorical variables vs Percentage Rate Bar Plot

```
onnet_mou_8           3.913203
offnet_mou_8          3.913203
roam_ic_mou_8         3.913203
roam_og_mou_8         3.913203
loc_og_t2t_mou_8      3.913203
loc_og_t2m_mou_8      3.913203
loc_og_t2f_mou_8      3.913203
loc_og_t2c_mou_8      3.913203
loc_og_mou_8          3.913203
std_og_t2t_mou_8      3.913203
std_og_t2m_mou_8      3.913203
std_og_t2f_mou_8      3.913203
std_og_mou_8          3.913203
isd_og_mou_8          3.913203
spl_og_mou_8          3.913203
og_others_8           3.913203
loc_ic_t2t_mou_8      3.913203
loc_ic_t2m_mou_8      3.913203
loc_ic_t2f_mou_8      3.913203
loc_ic_mou_8          3.913203
std_ic_t2t_mou_8      3.913203
std_ic_t2m_mou_8      3.913203
std_ic_t2f_mou_8      3.913203
std_ic_mou_8          3.913203
spl_ic_mou_8          3.913203
isd_ic_mou_8          3.913203
ic_others_8           3.913203
```

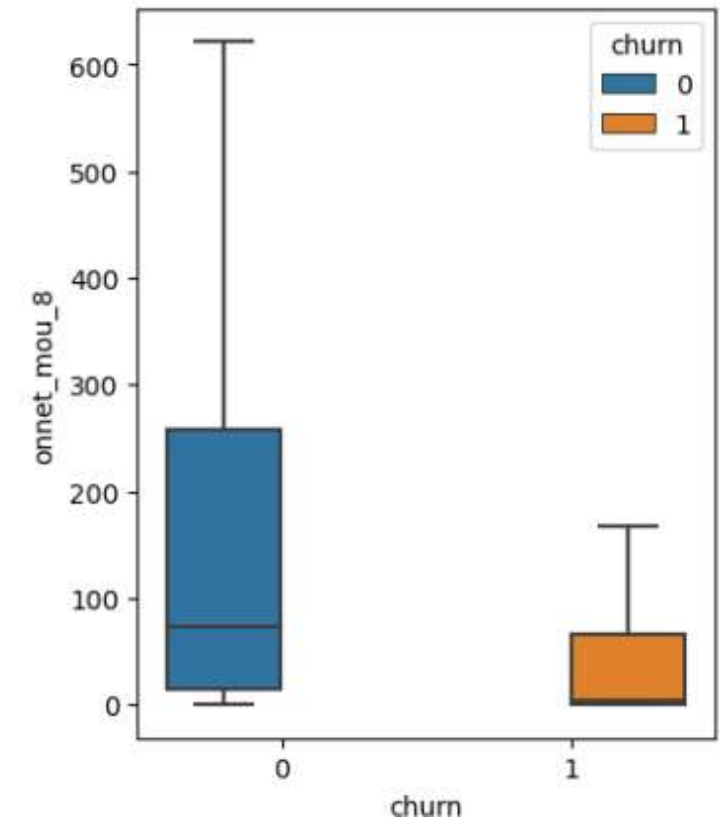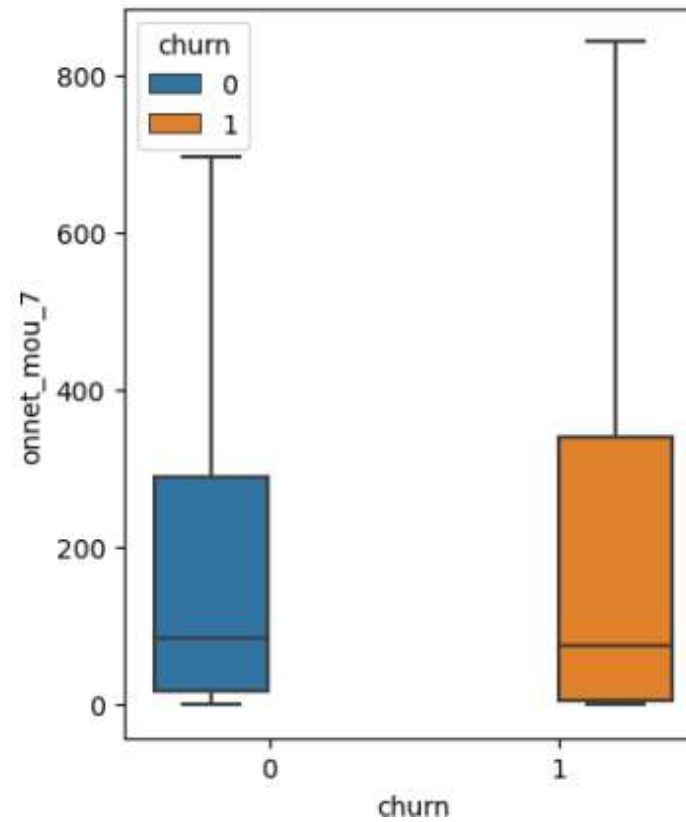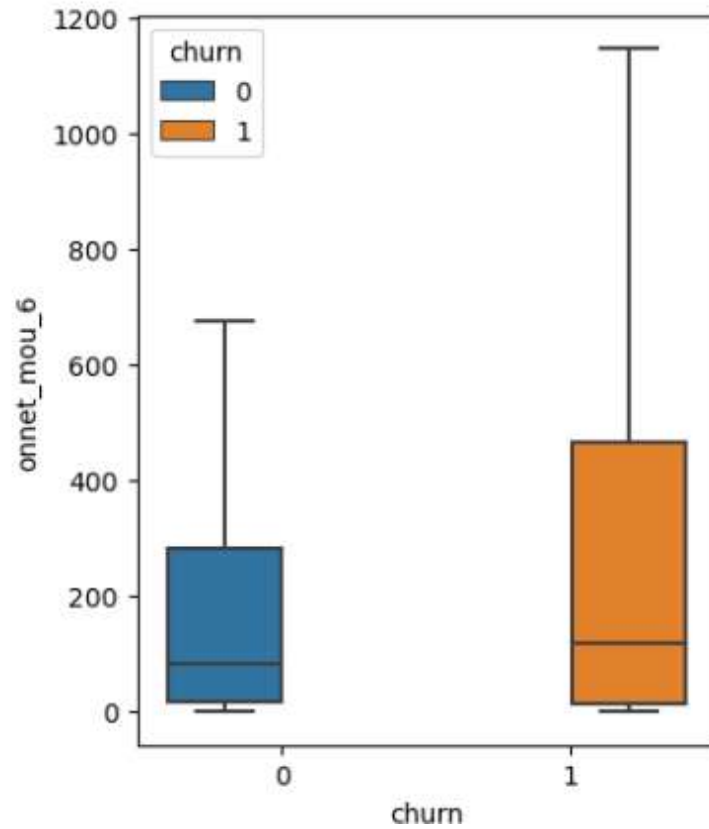we see that at 8th month null % was high means churn chance was high

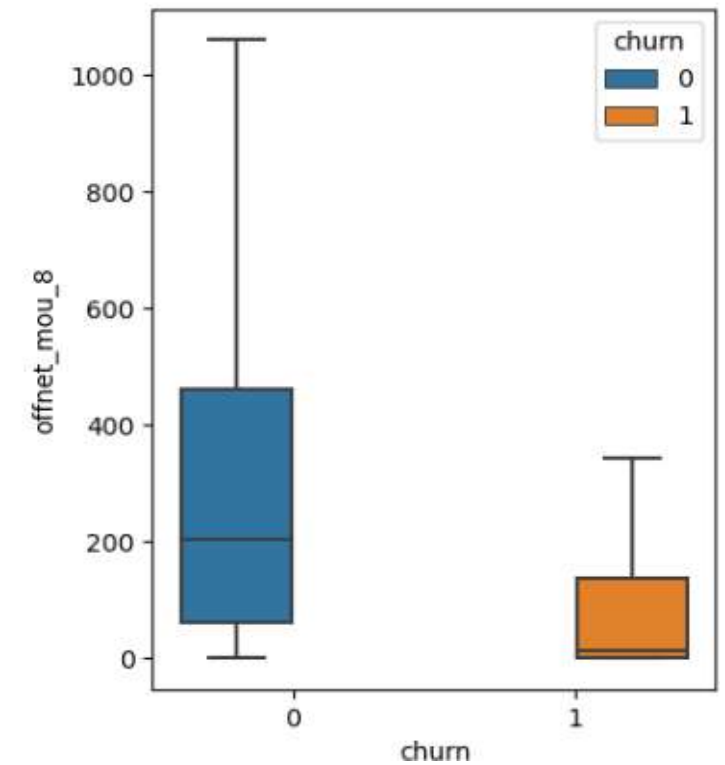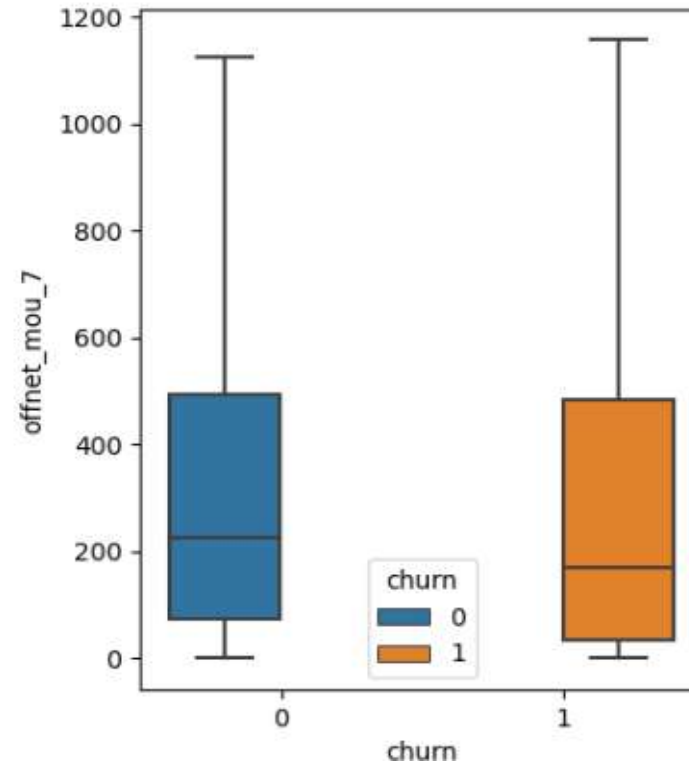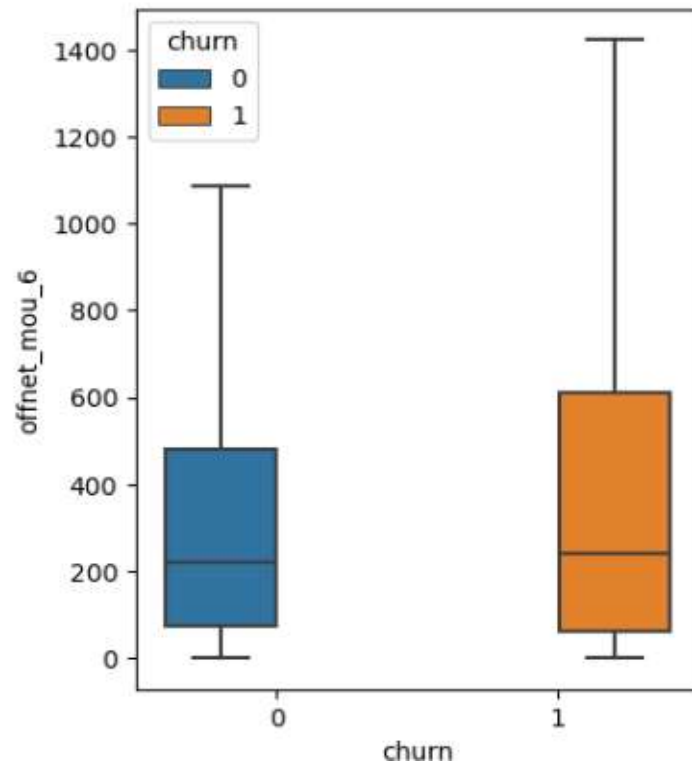# Box Plot : Churn vs Average revenue per user
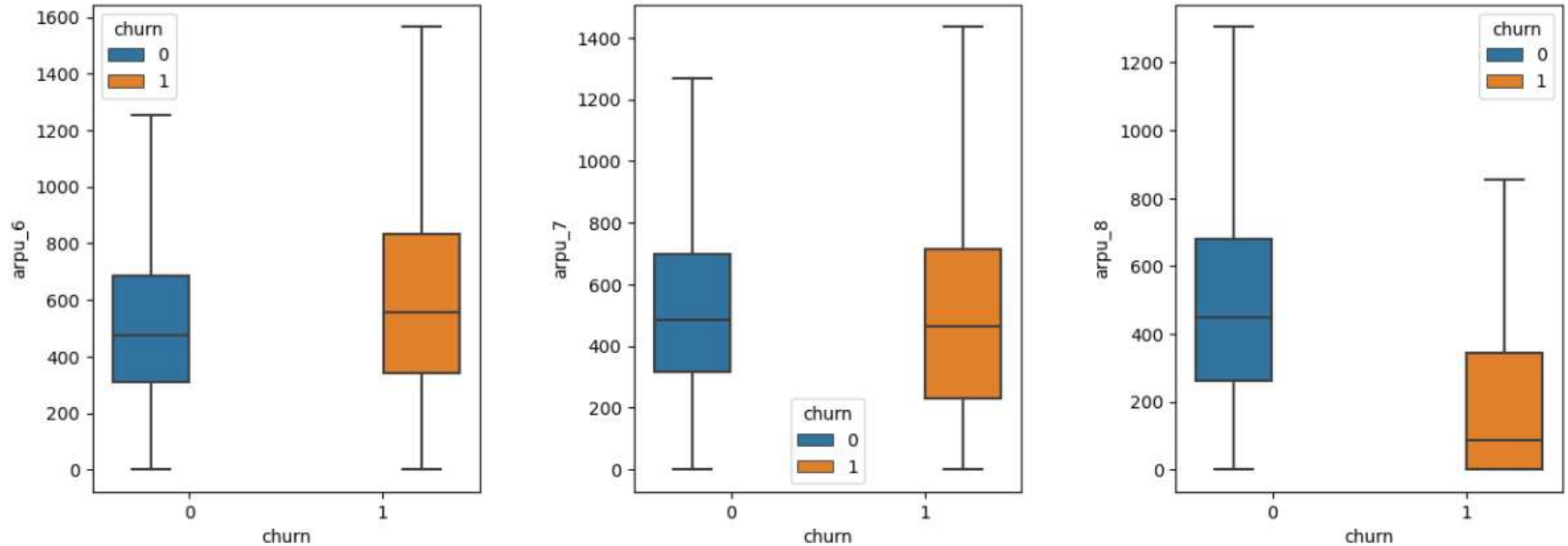
# Box Plot: Churn vs All kind of calls within the same operator network



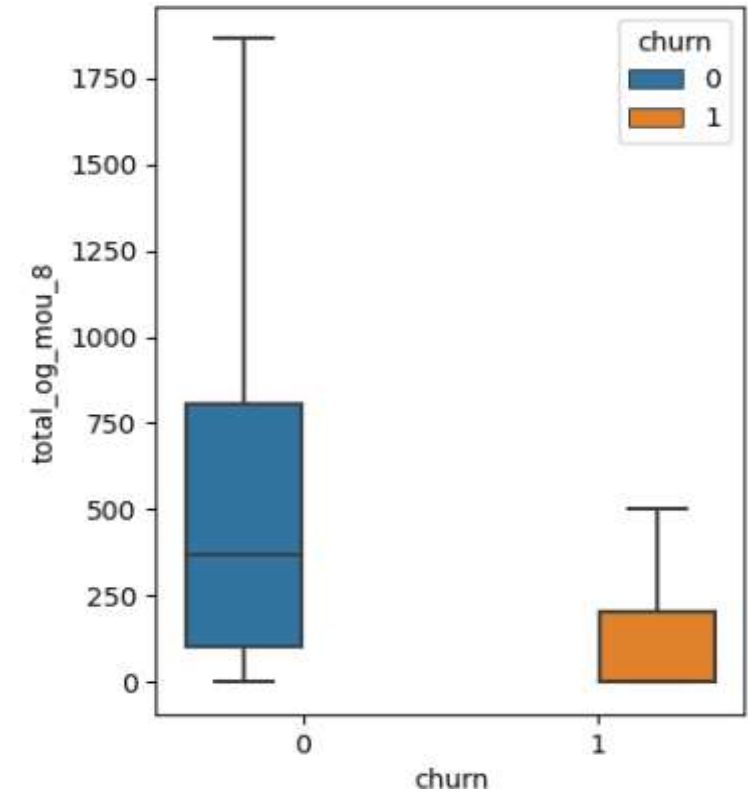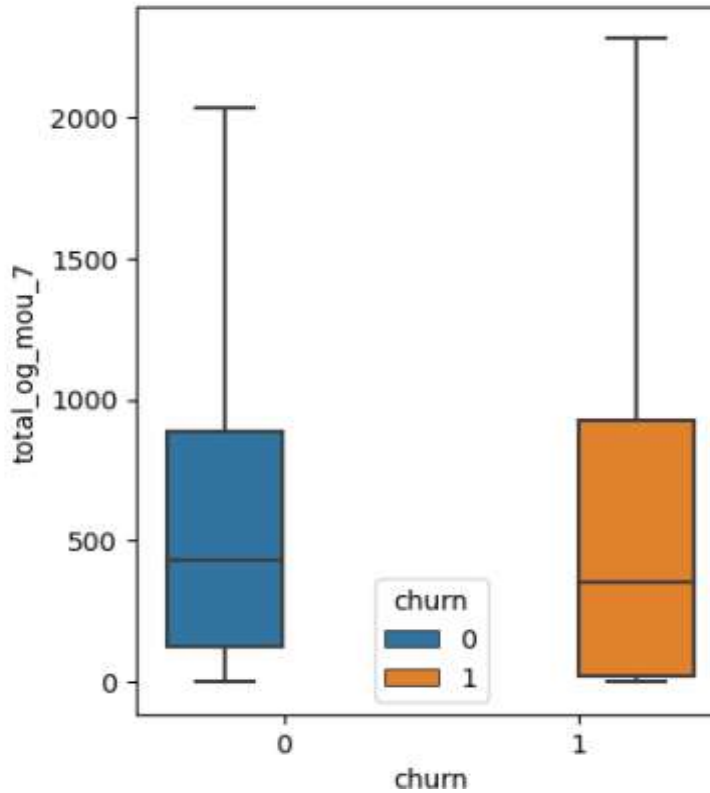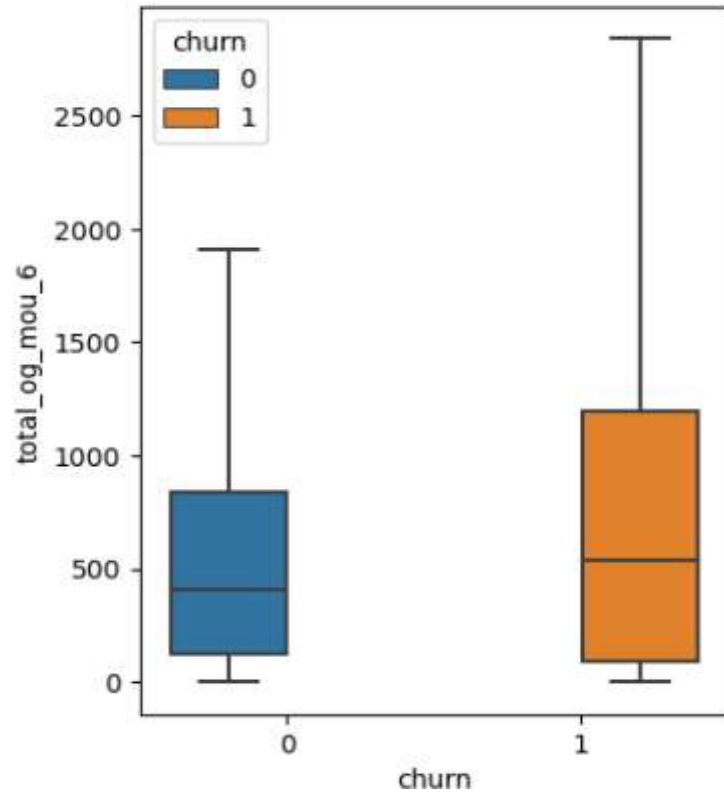Data Visualization of churn vs onnet_mou

# Box Plot : Churn vs All kind of calls outside the operator T network


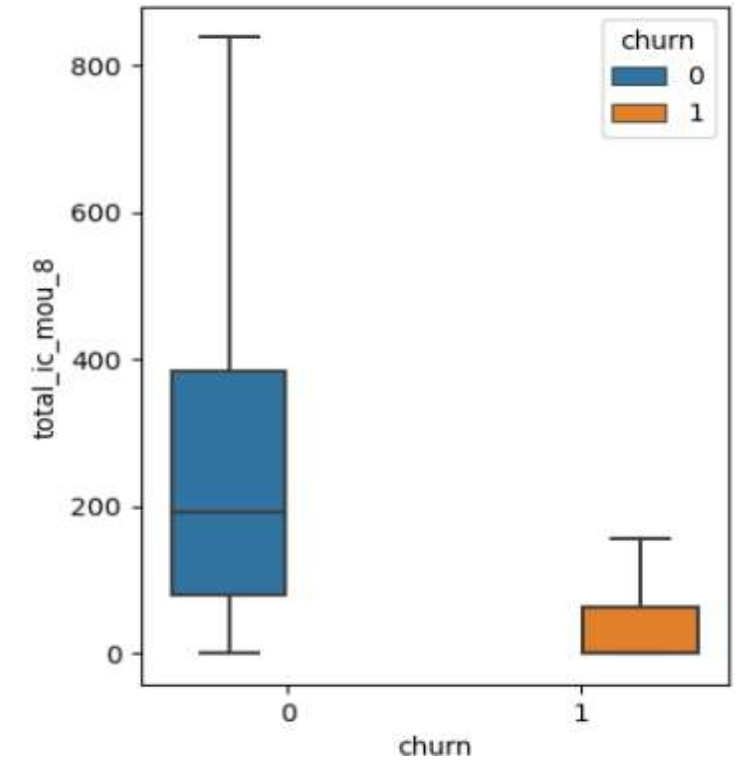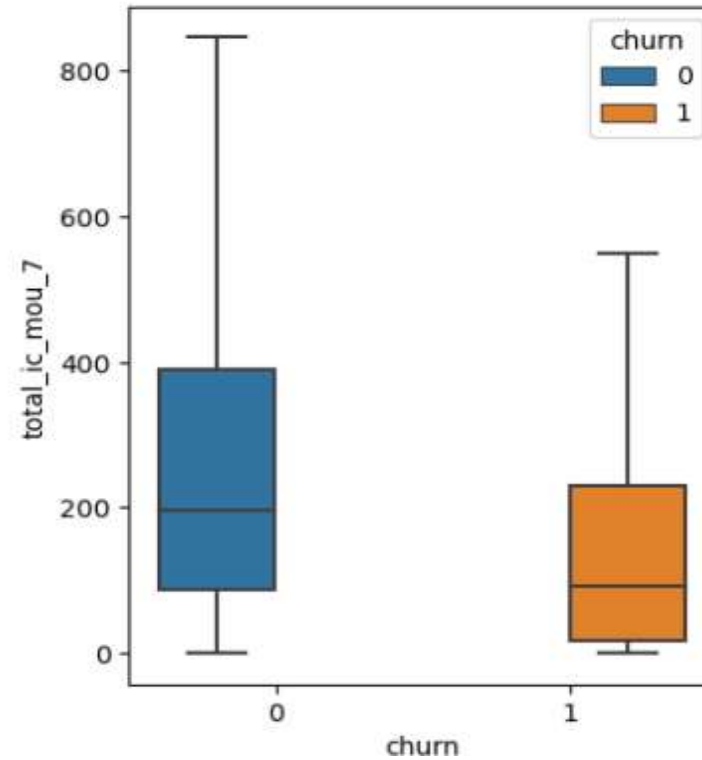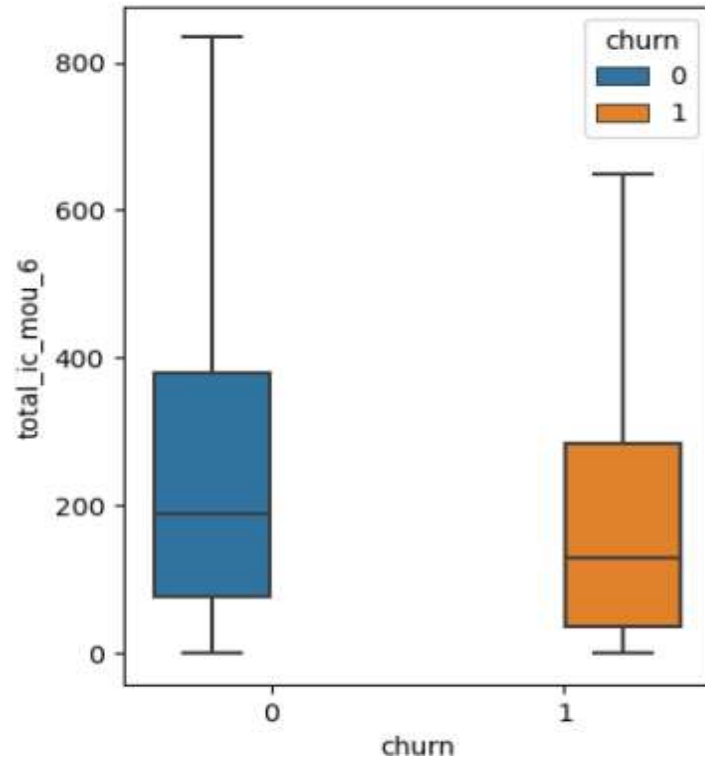Data Visualization of churn vs offnet_mou

# Box Plot :Churn Vs Total Outgoing Calls (by minutes of usage)
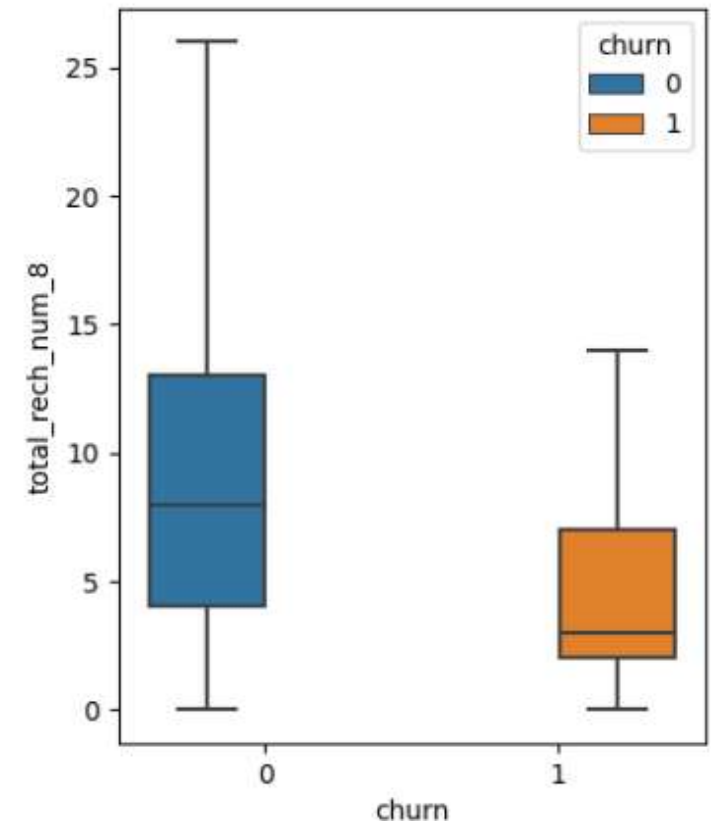


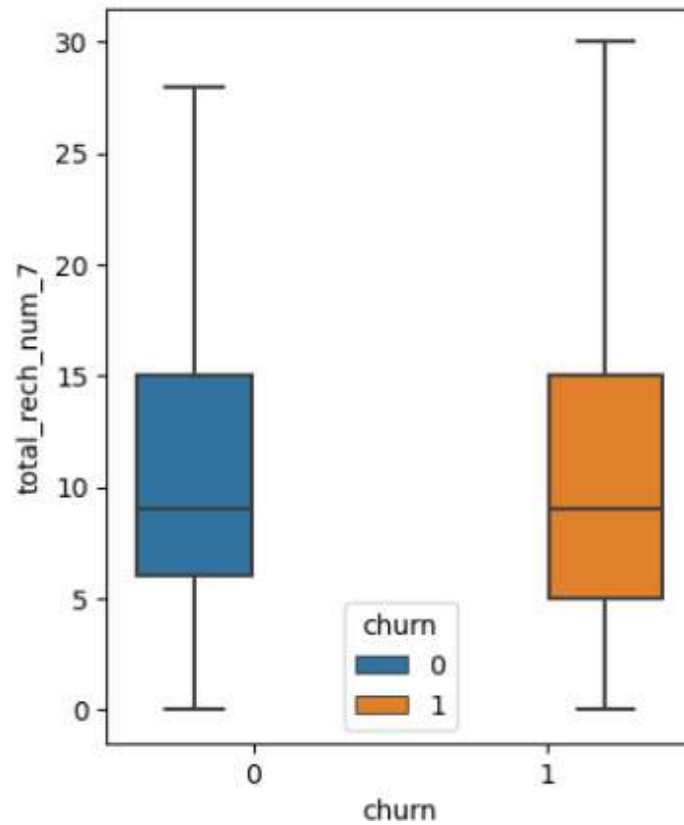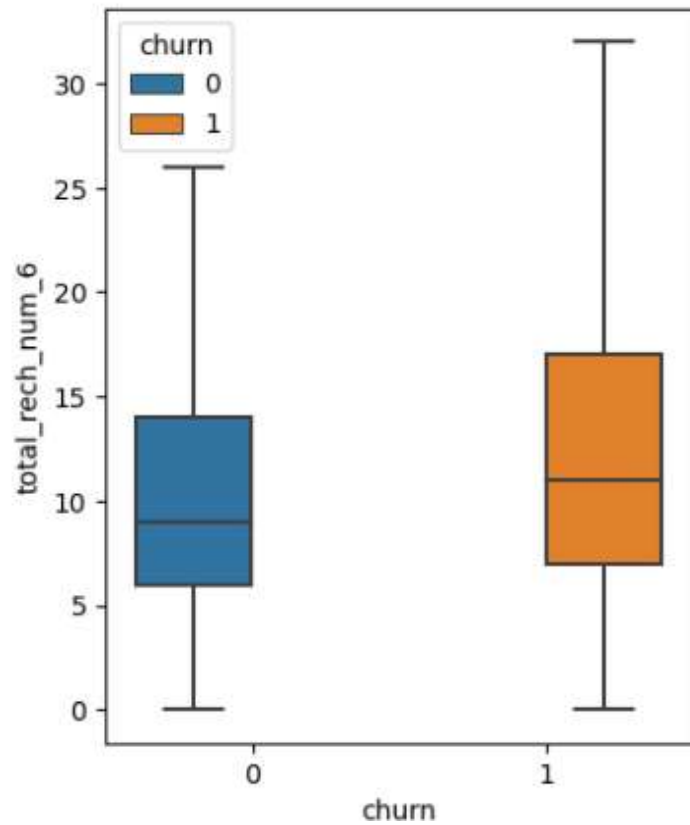Data Visualization of churn vs total_og_mou

# Box Plot: Churn Vs Total Incoming Calls (by minutes of usage)


Data Visualization of churn vs total_ic_mou

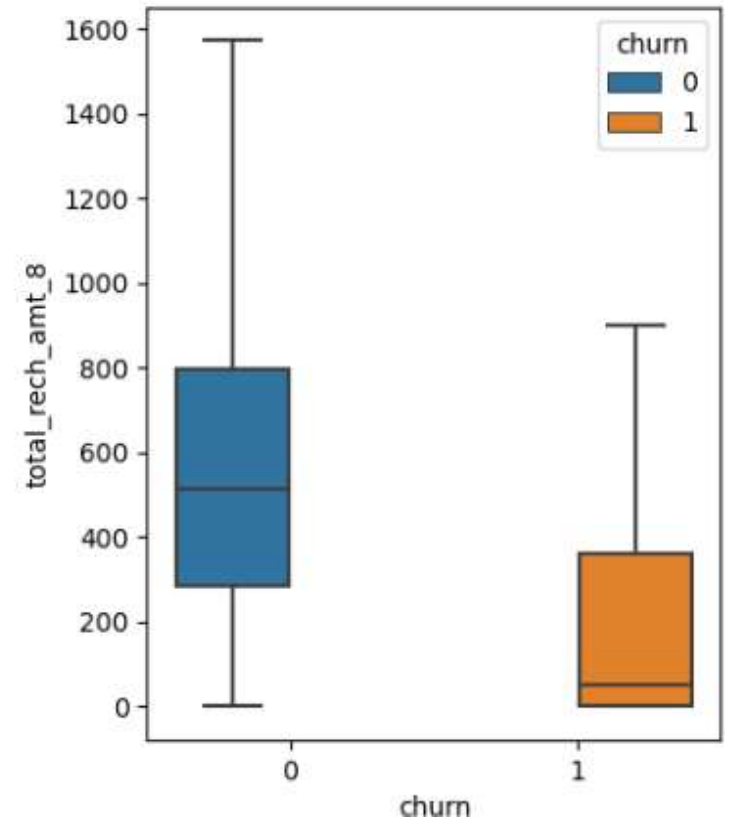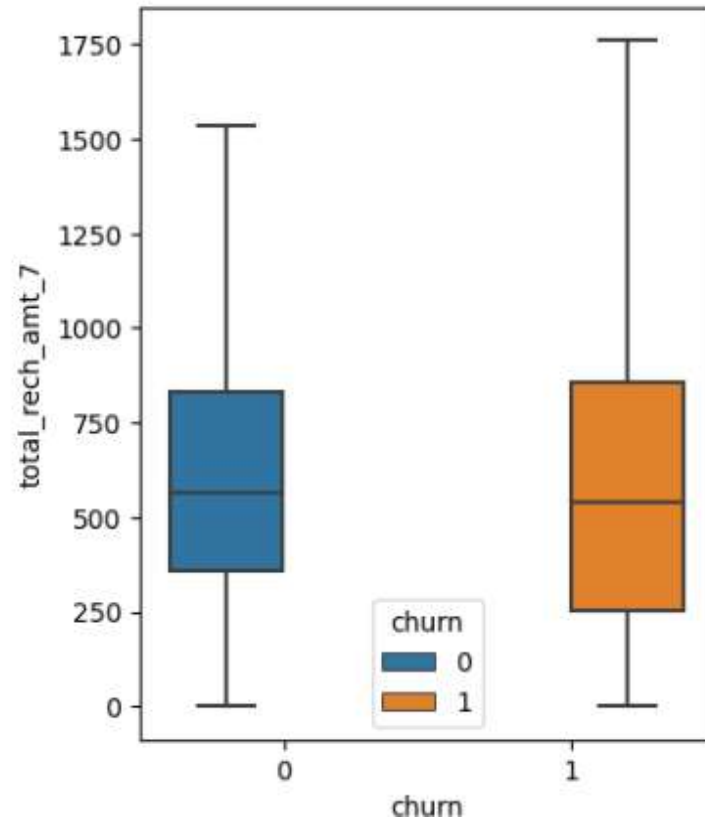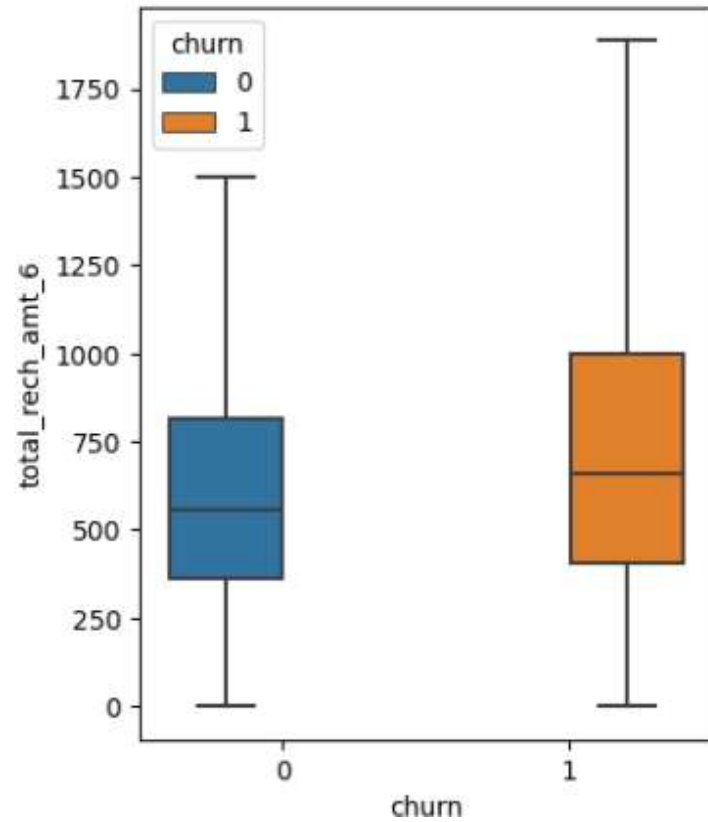# Box Plot: Churn Vs Total Number of Recharge
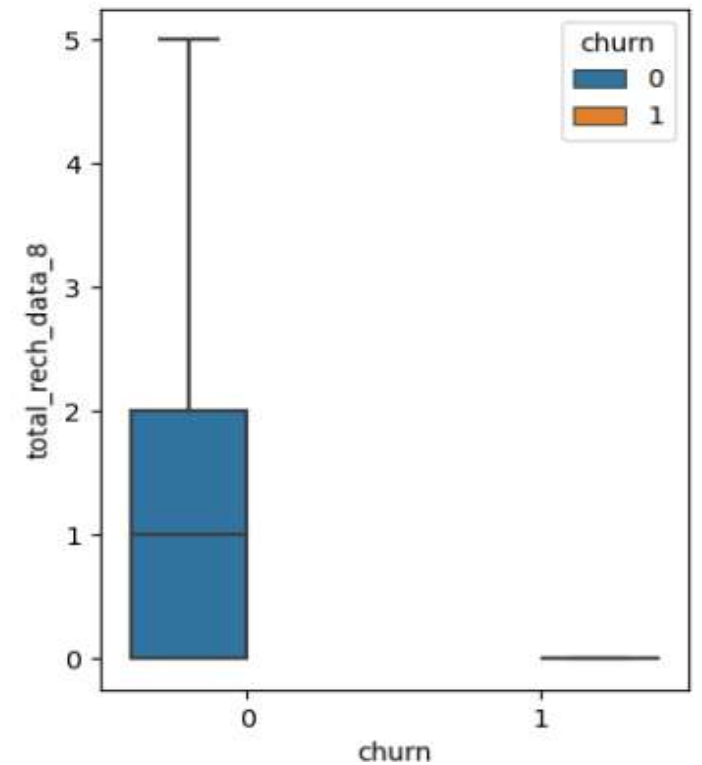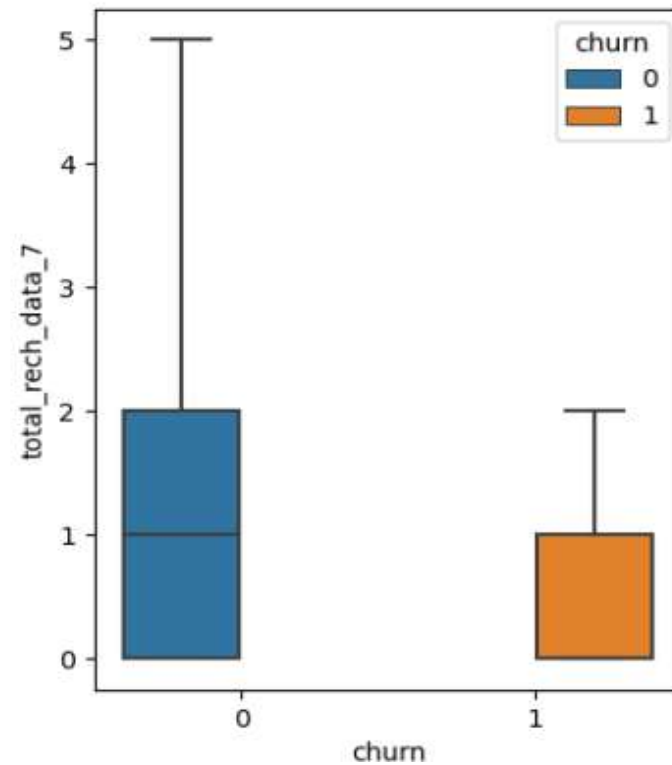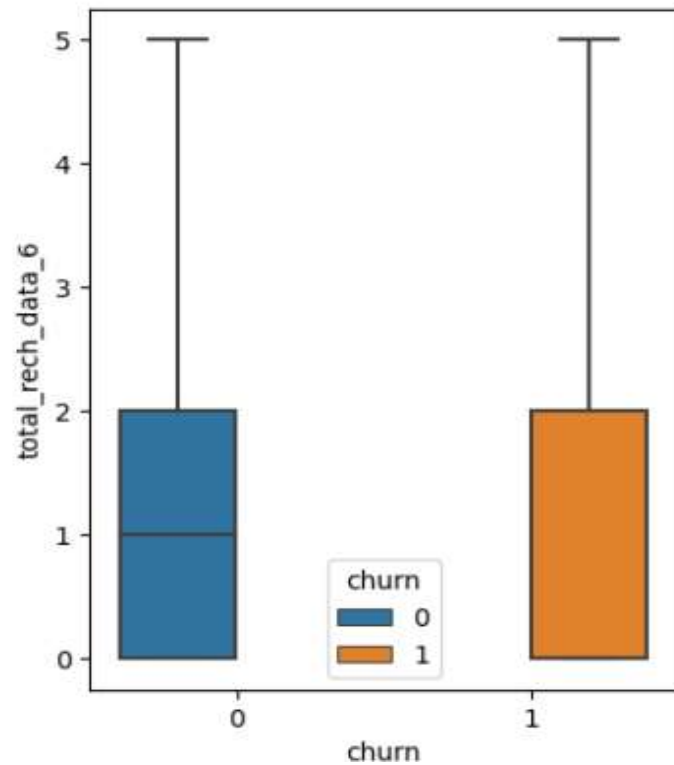


Data Visualization of churn vs total_rech_num

# Box Plot:  Churn Vs Total Recharge Amount
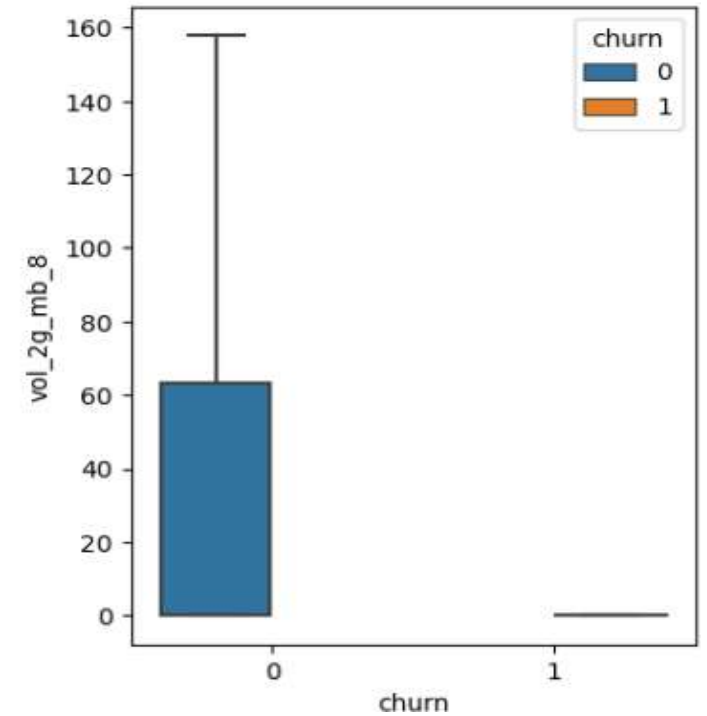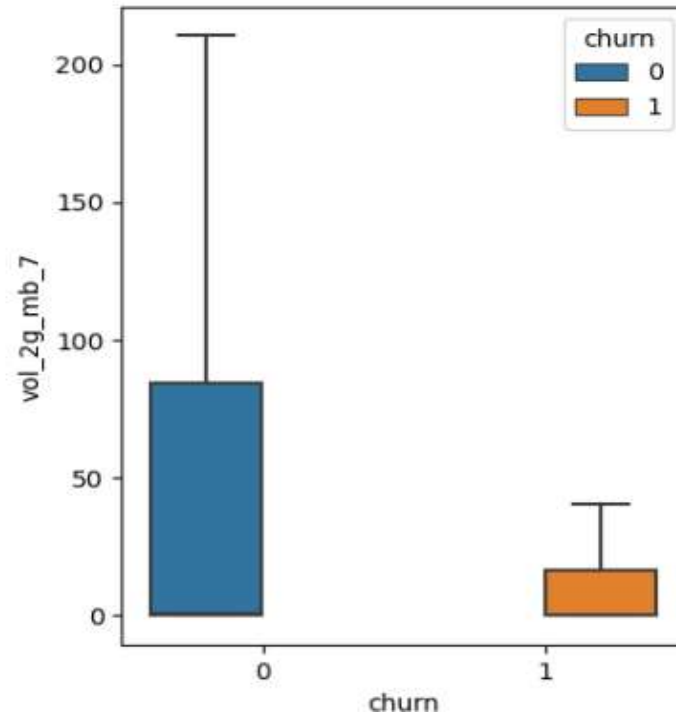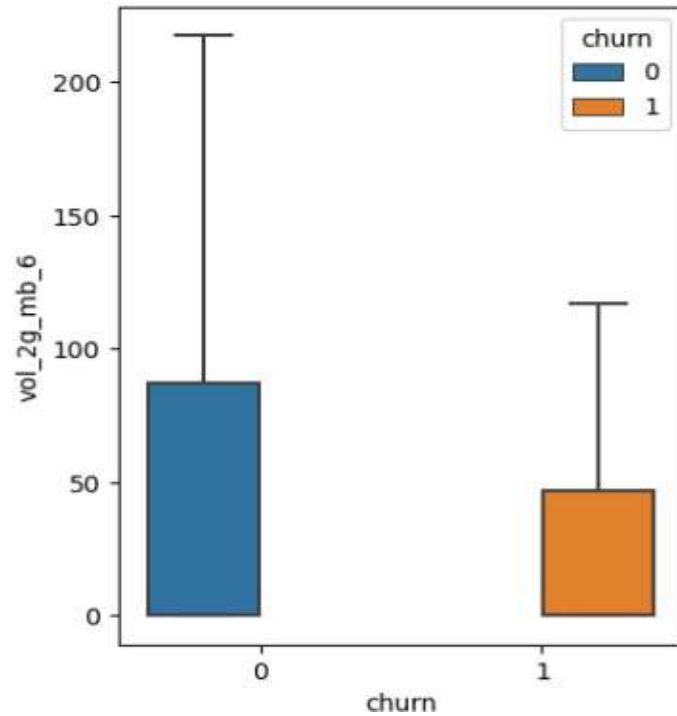
Data Visualization of churn vs total_rech_amt

# Box Plot: Churn Vs Total Internet recharge



Data Visualization of churn vs total_rech_data
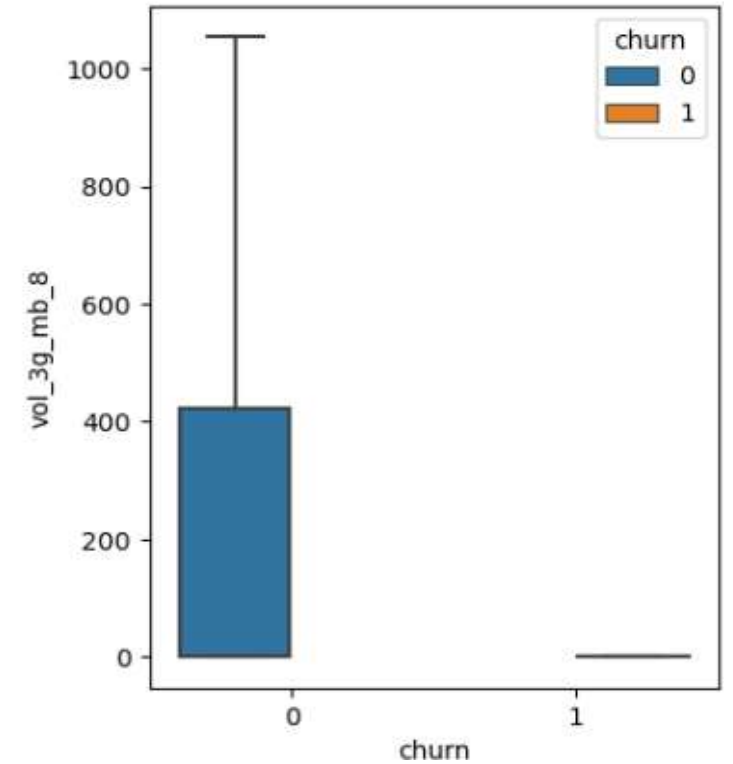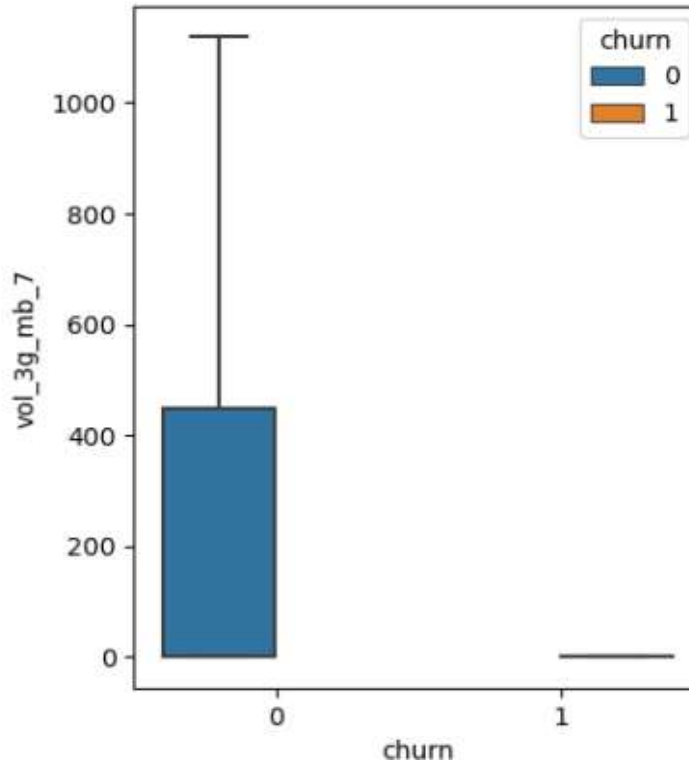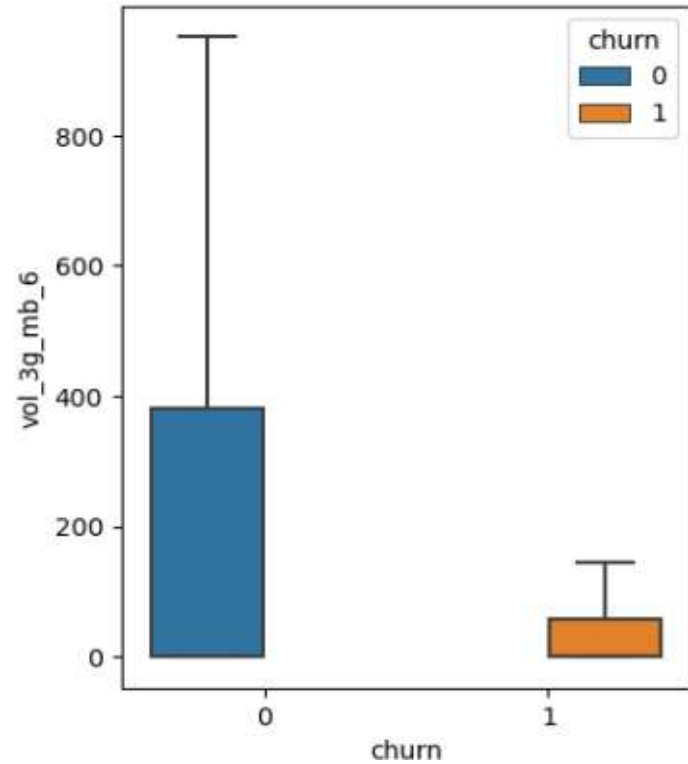
# Box Plot:  Churn Vs Total 2G internet usage in MB
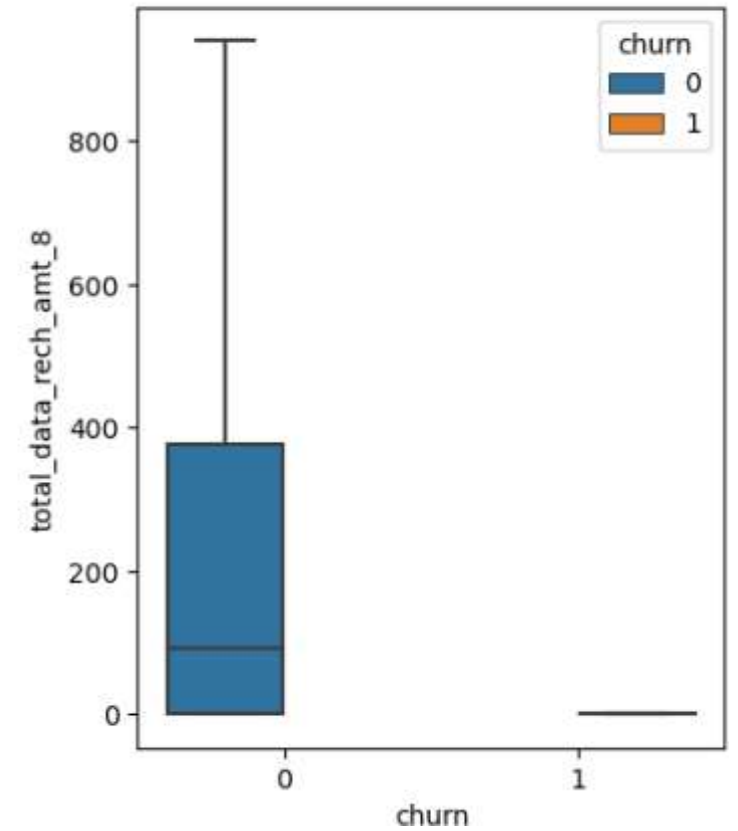


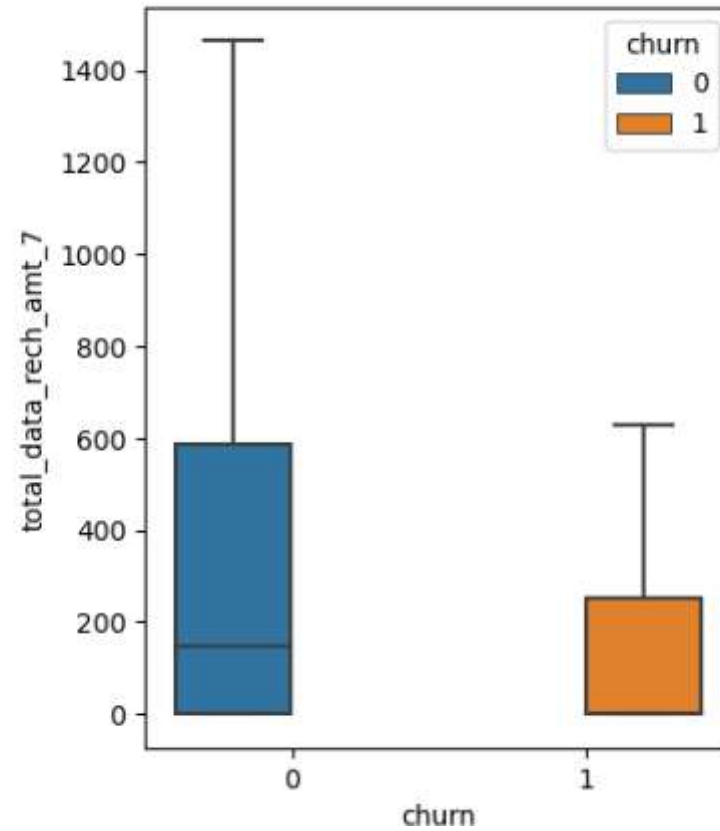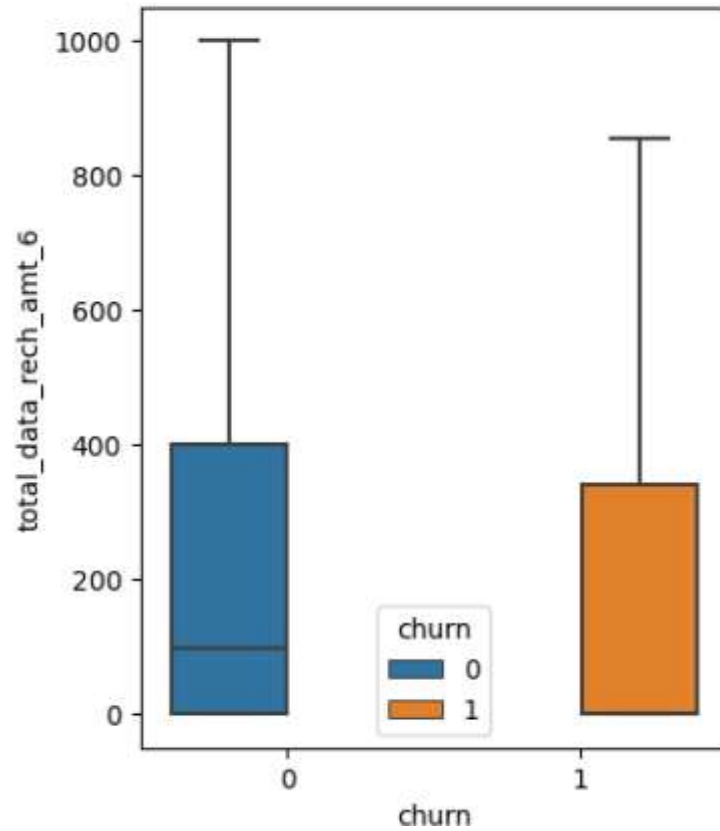Data Visualization of churn vs vol_2g_mb

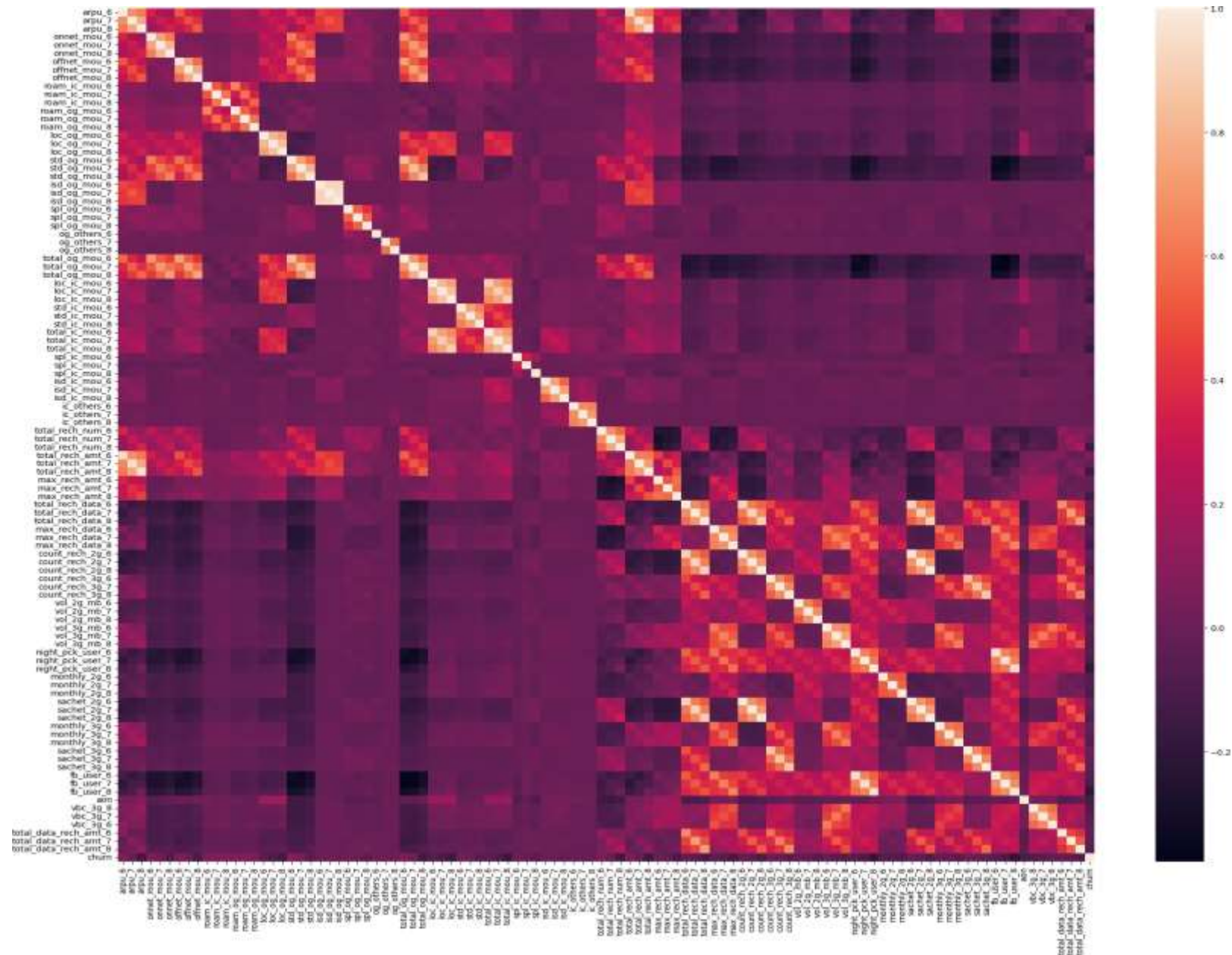# Box Plot : Churn Vs Total 3G internet usage in MB



Data Visualization of churn vs vol_3g_mb
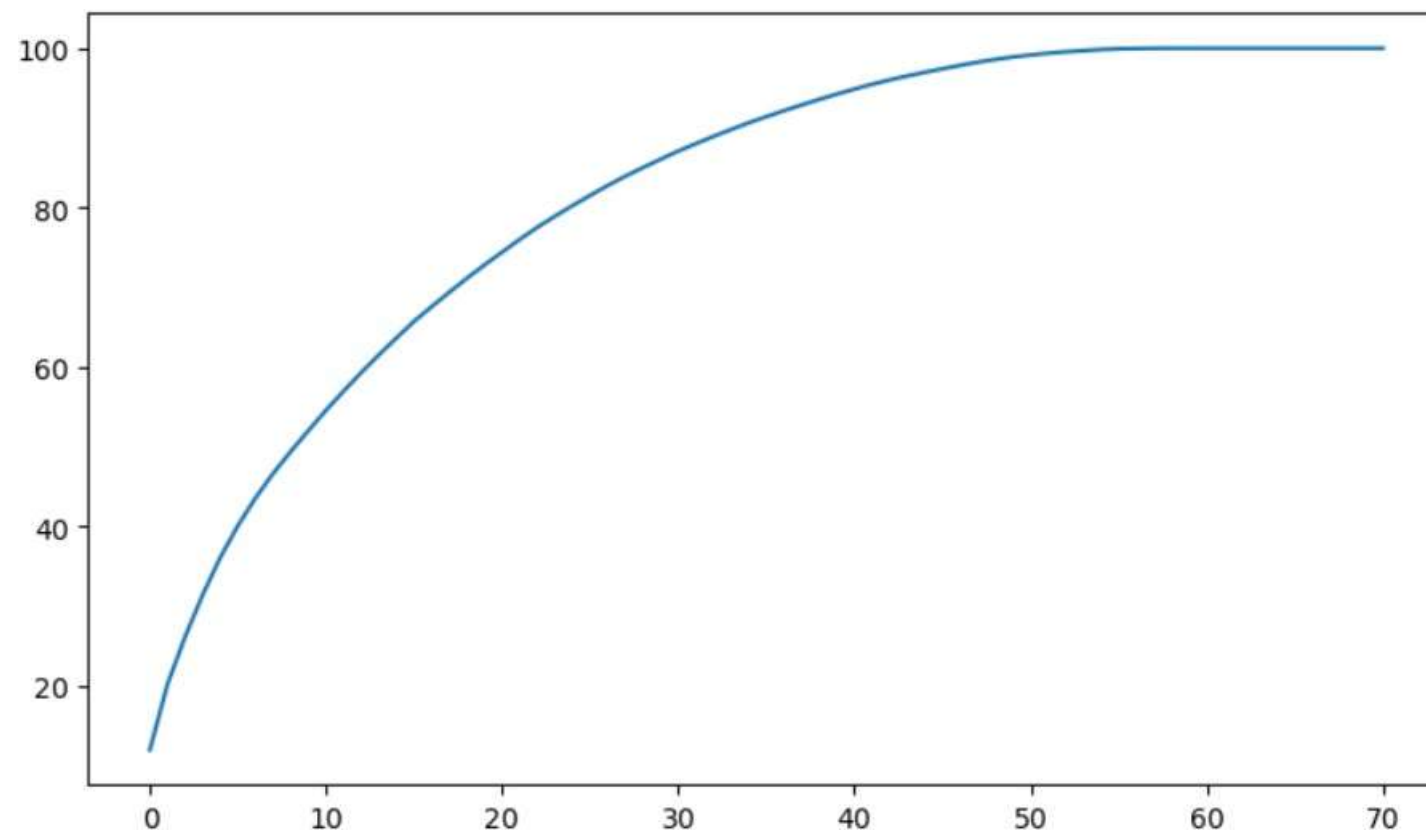
# Box Plot: Churn Vs Total Internet Recharge Amount
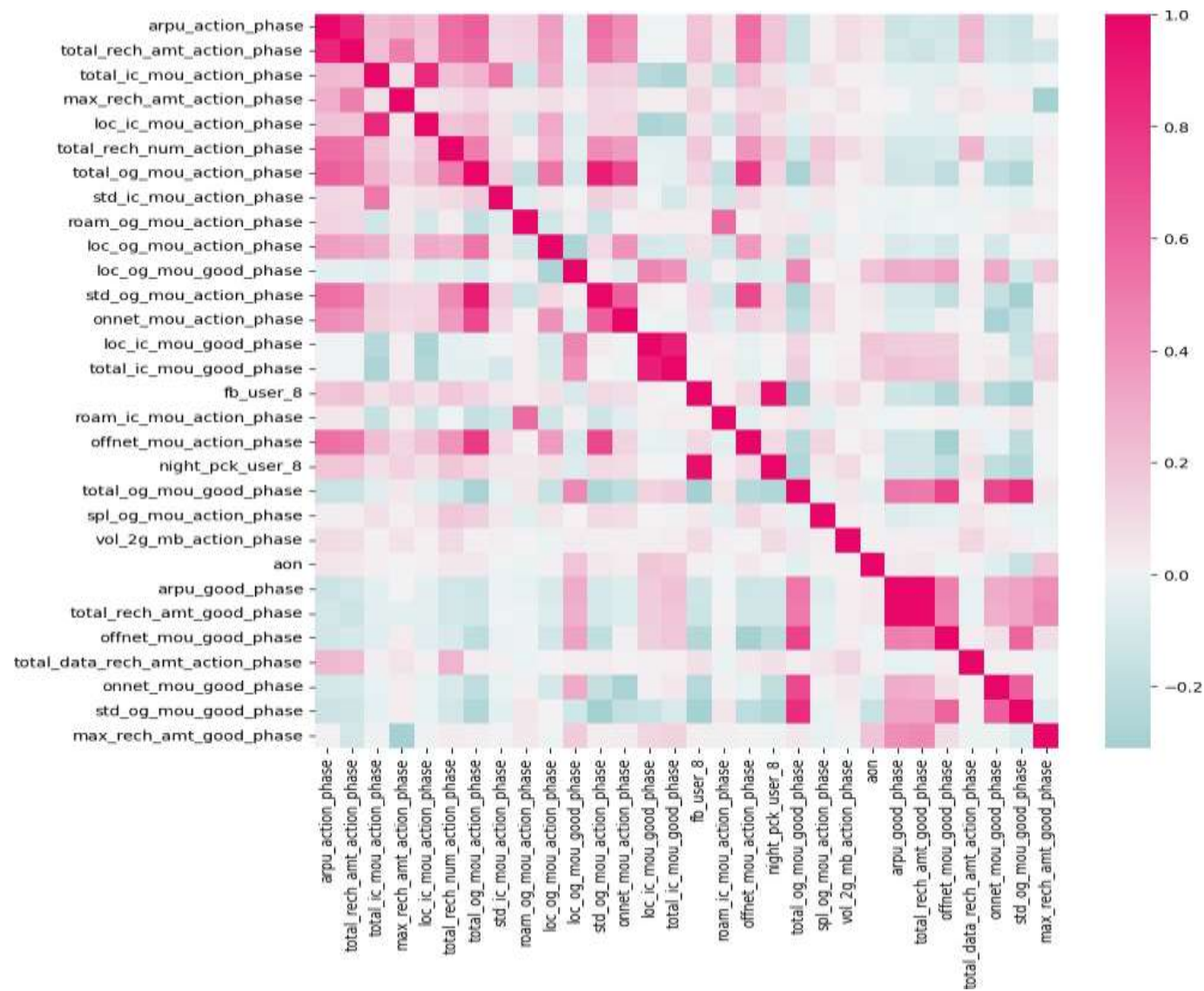
Data Visualization of churn vs total_data_rech_amt

**Heat Map between Different Variables**

# Cumulative Variance Ratio

**Heat Map between Variables**

# Business Insights

1) Telecom company needs to pay attention to the roaming rates. They need to provide good offers to the customers who are using services from a roaming zone.

2) The company needs to focus on the STD and ISD rates. Perhaps, the rates are too high. Provide them with some kind of STD and ISD packages.

3) To look into both of the issues stated above, it is desired that the telecom company collects customer query and complaint data and work on their services according to the needs of customers.

# THANK YOU