Problem Statement:

In the telecom industry, customers are able to choose from multiple service providers and actively switch from one operator to another. In this highly competitive market, the telecommunications industry experiences an average of 15-25% annual churn rate. Given the fact that it costs 5-10 times more to acquire a new customer than to retain an existing one, customer retention has now become even more important than customer acquisition. For many incumbent operators, retaining high profitable customers is the number one business goal. To reduce customer churn, telecom companies need to predict which customers are at high risk of churn. In this project, you will analyze customer-level data of a leading telecom firm, build predictive models to identify customers at high risk of churn and identify the main indicators of churn.

There are two main models of payment in the telecom industry - postpaid (customers pay a monthly/annual bill after using the services) and prepaid (customers pay/recharge with a certain amount in advance and then use the services).In the postpaid model, when customers want to switch to another operator, they usually inform the existing operator to terminate the services, and you directly know that this is an instance of churn. However, in the prepaid model, customers who want to switch to another network can simply stop using the services without any notice, and it is hard to know whether someone has actually churned or is simply not using the services temporarily (e.g. someone may be on a trip abroad for a month or two and then intend to resume using the services again).Thus, churn prediction is usually more critical (and non-trivial) for prepaid customers, and the term 'churn' should be defined carefully. Also, prepaid is the most common model in India and southeast Asia, while postpaid is more common in Europe in North America. This project is based on the Indian and Southeast Asian market.

Solution Methodology:

► Data Reading & Understanding.

► Data Preparation

► Filter High value customer

► Derive Churn (Target Variables)

► EDA

1.Univariate data analysis: value count, distribution of variable etc.

2.Bivariate data analysis: correlation coefficients and pattern between the variables etc.

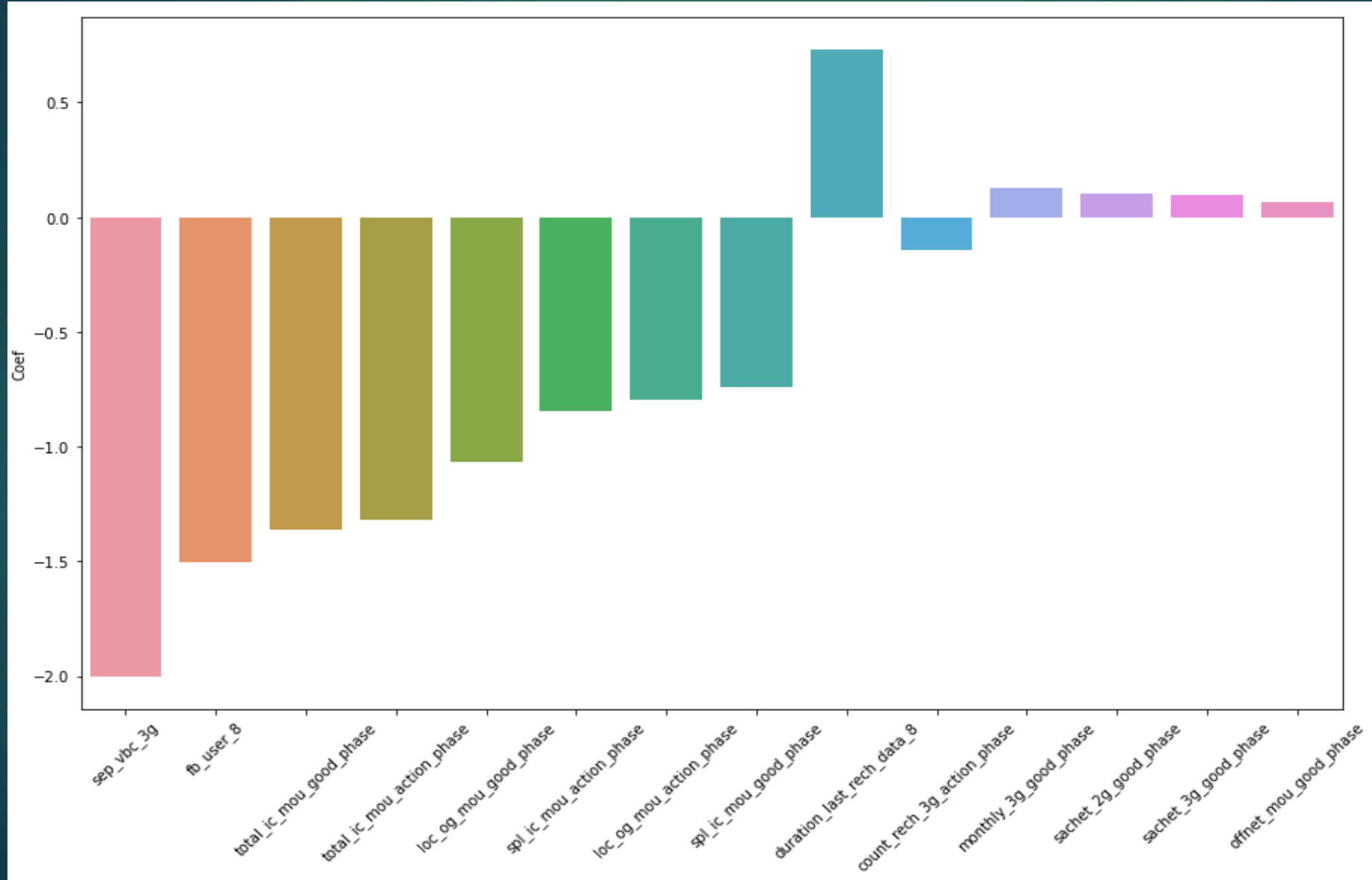► Model Building & validation.

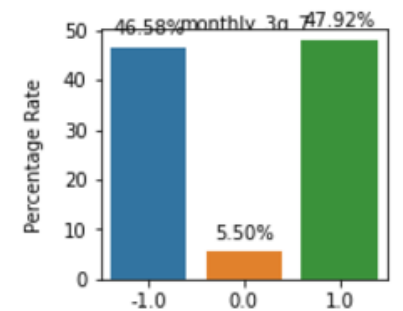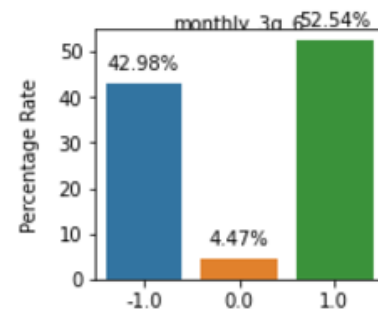► Conclusions and recommendations.
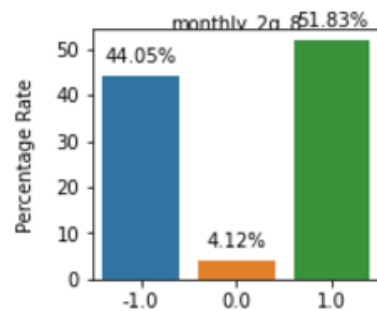
EDA:
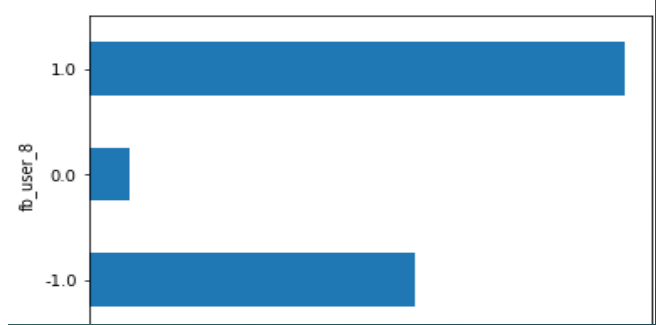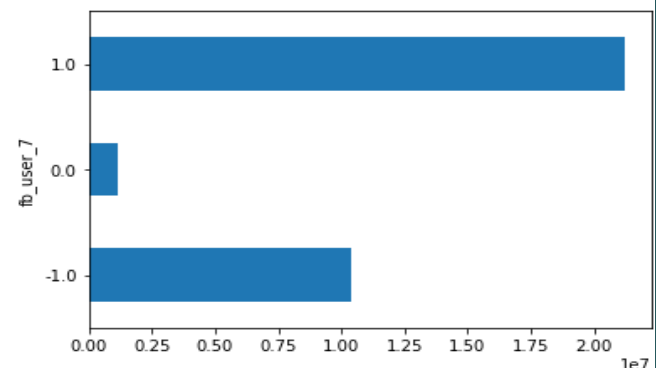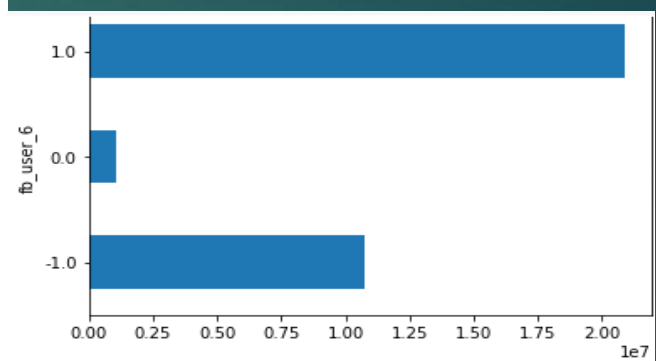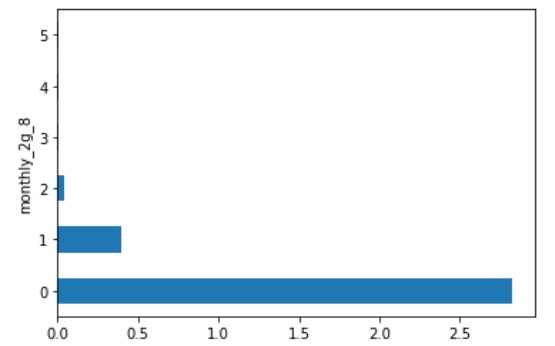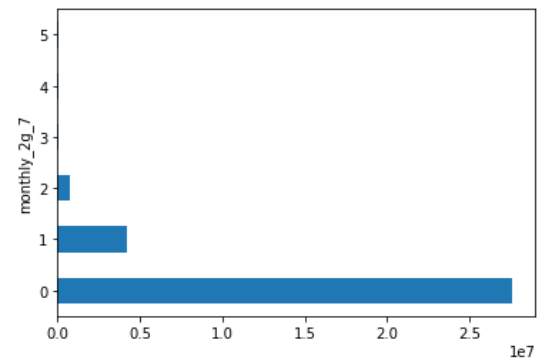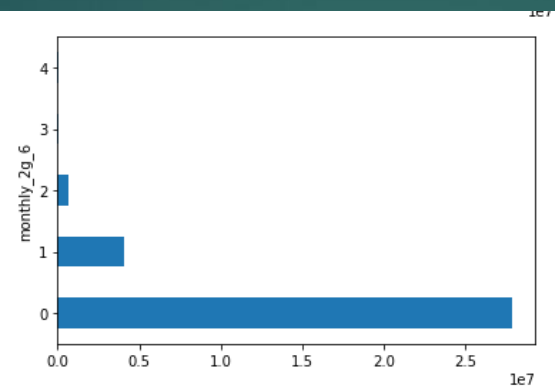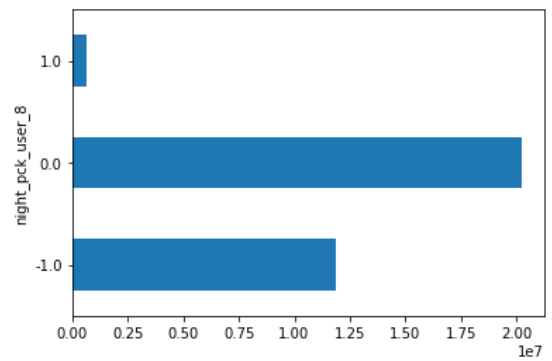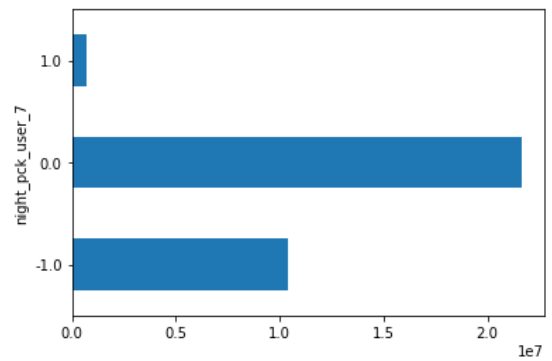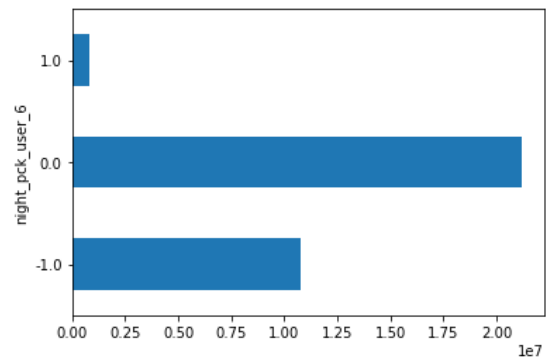
Model Building:
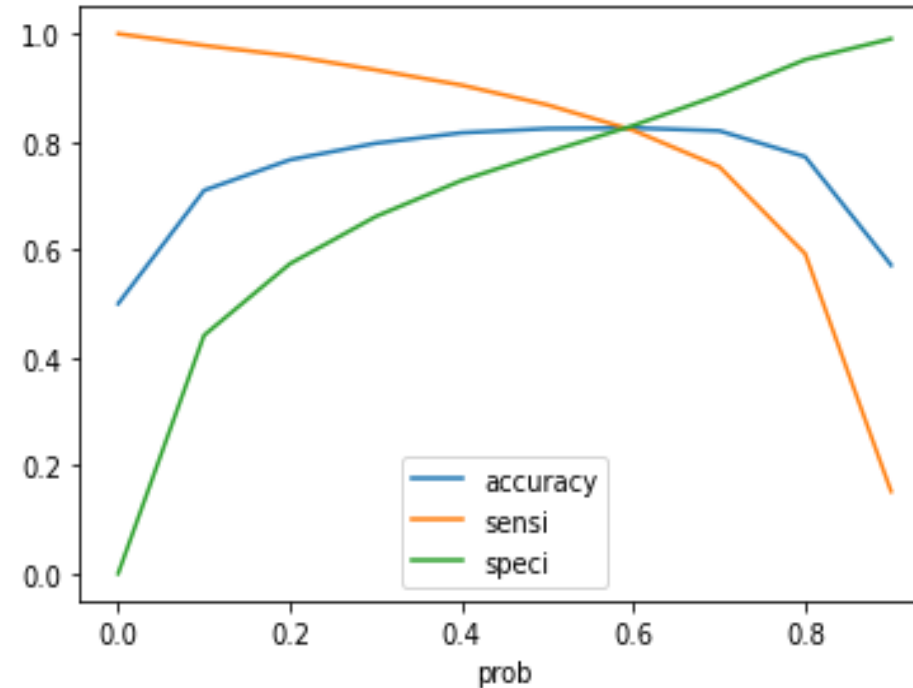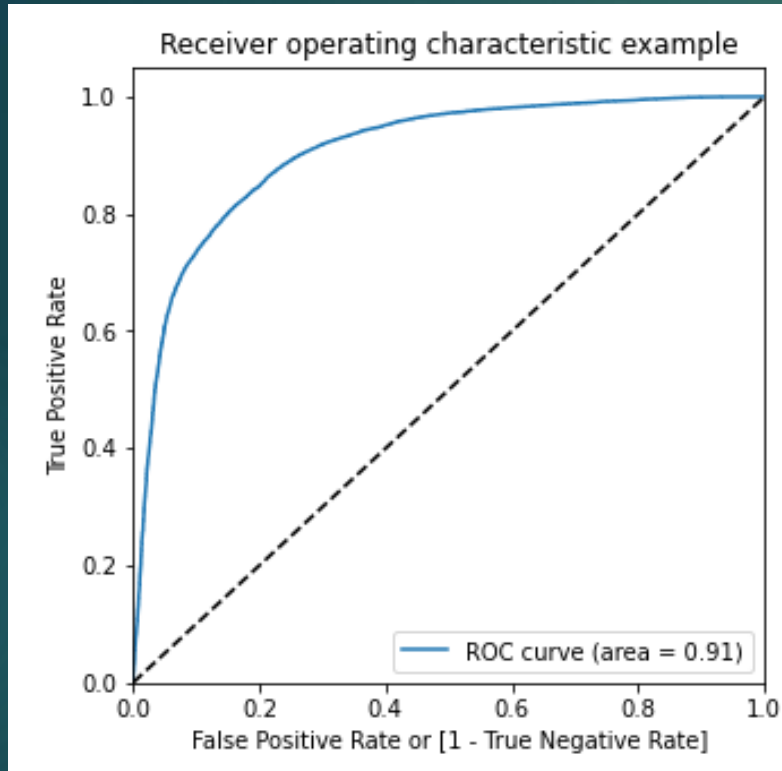
Logical Regression appears to be a superior option due to its high sensitivity (82%), positive predictive value (0.82%), and negative predictive value (0.83%)

feature and Coefficient to understand the influence of
each features on churn of the customers

Categorical Analysis:
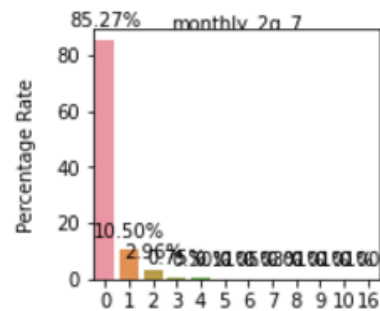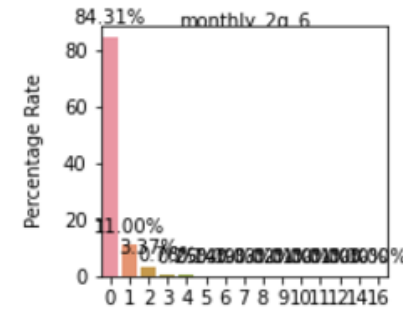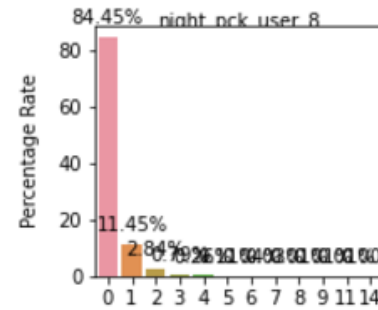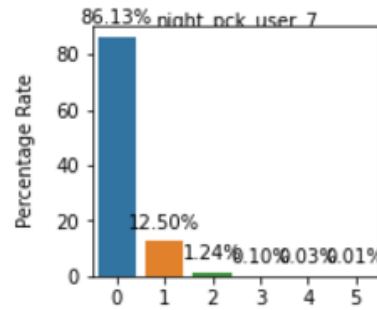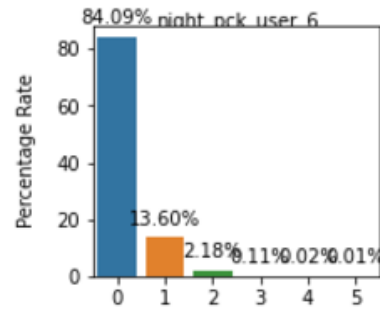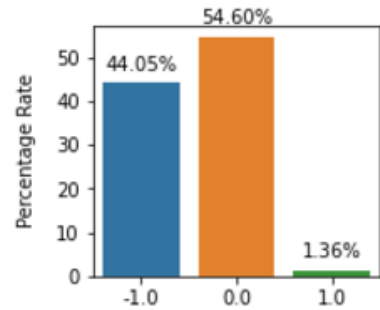
The top5 Features which can influence the customer Churn are :

1. sep_vbc_3g

- Volume based cost - when no specific scheme is not purchased and paid as per usage for 3g in the month of September
- This has negative coefficient meaning inversely correlated with churn.
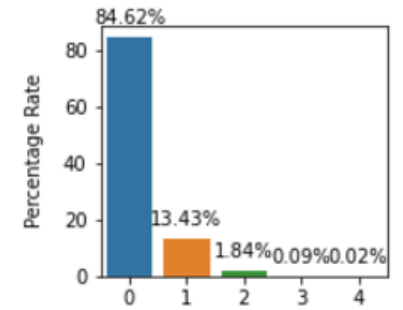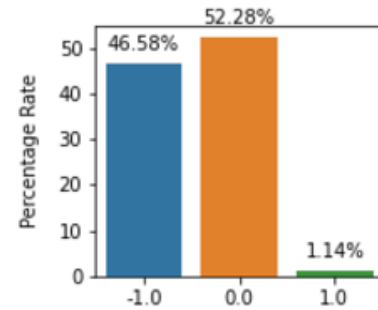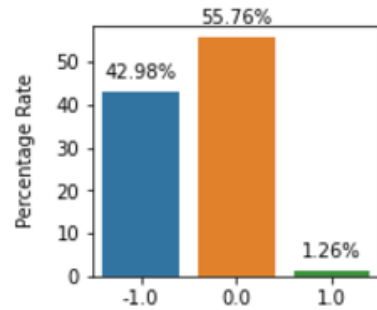- Means the more the value, lesser the chance of churn

2. fb_user_8

- Service scheme to avail services of Facebook and similar social networking sites on 8th month
- This has negative coefficient meaning inversely correlated with churn.
- Means the more the value, lesser the chance of churn

The top5 Features which can influence the customer Churn are :

3. total_ic_mou_good_phase

- Total Incoming Calls Minutes of usage - voice calls during the Good phase (6&7 months)
- This has negative coefficient meaning inversely correlated with churn.
- Means the more the value, lesser the chance of churn

4. total_ic_mou_action_phase

- Total Incoming Calls Minutes of usage - voice calls during the Action phase (8th month)
- This has negative coefficient meaning inversely correlated with churn.
- Means the more the value, lesser the chance of churn

The top5 Features which can influence the customer Churn are :

5. loc_og_mou_good_phase

- Local calls - within same telecom circle out going calls Minutes of usage - voice calls during the Good phase (6&7) months
- This has negative coefficient meaning inversely correlated with churn.
- Means the more the value, lesser the chance of churn
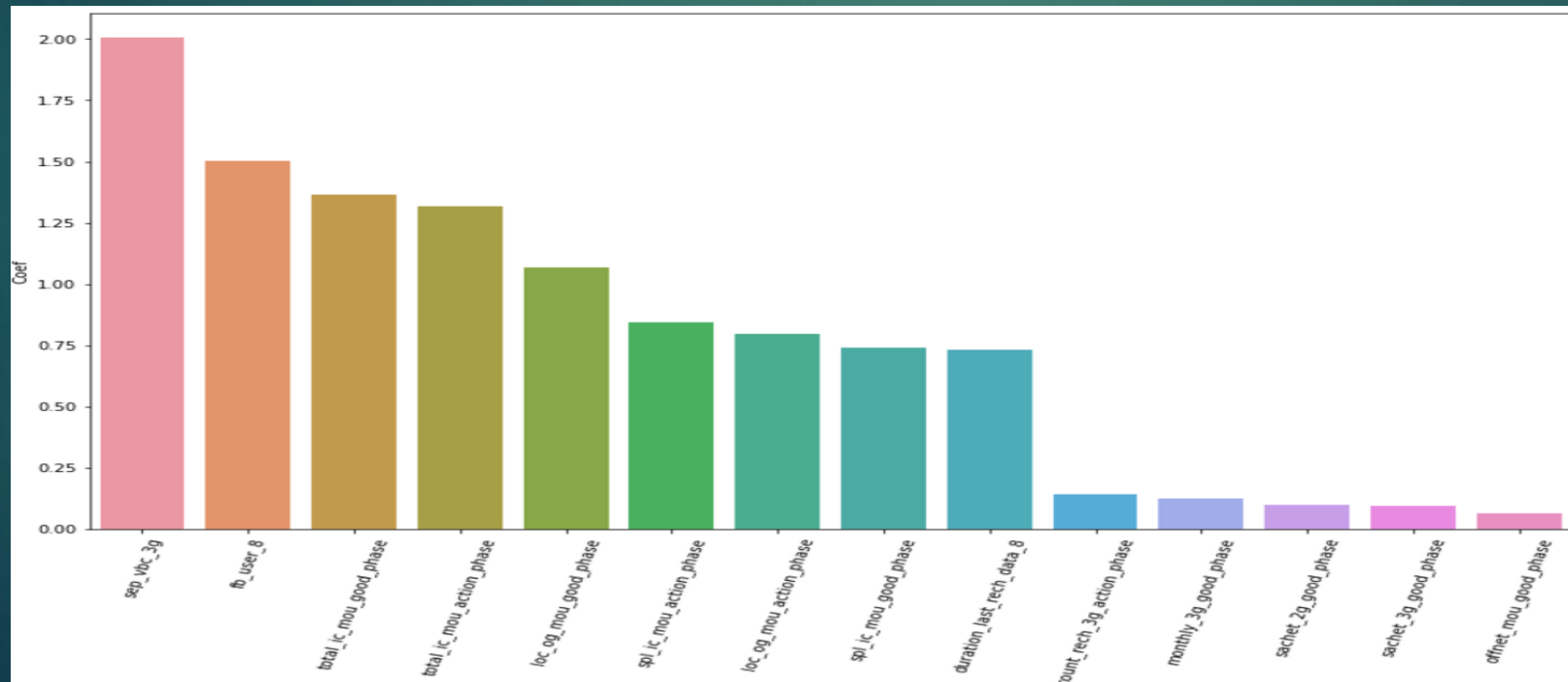
Recommendations & Conclusion :

1. Offering specific packages or themes for users to access popular services like Facebook, Instagram, and WhatsApp can help decrease the churn rate.

2. The introduction of competitive rates for 3g data can potentially decrease customer churn.

3. Introducing additional call package categories can increase customer acquisition and decrease churn.