**DM Assignment Sec-1**

**Case Background**

Imagine TalkTel is one of the leading telecommunication providers in India. Let’s start with its product portfolio.

TalkTel has a strong presence across the country. It offers Broadband internet service that includes its fiber internet and dongle services. It also offers postpaid and prepaid plans, both in voice calls and data. It also offers DTH services under its TV packages. Other services include partnerships with OTT service providers and handset manufacturers.

All these services are also available as bundles for TalkTel’s customers. A bundle essentially is when a firm offers more than just one of its services to its customers. Its customers are present across its entire portfolio. However, in order to avoid the loss of customers, it needs to understand them better.

let’s understand what are the key metrics that govern its business?

**Problem statement**

First metric is the average revenue per user, also known as ARPU. Average revenue per user tells the story of how much money a company is making for each person using its service. It is synonymous to customer lifetime value. Generally, telecommunications companies that offer bundling services enjoy a higher ARPU.

Second metric is customer churn. Customer churn is defined in a similar fashion as you have studied throughout this program. This metric measures the number of subscribers who leave and obviously, a low churn rate is ideal. Companies that experience a high churn rate are under more pressure to generate revenue from other areas or gain new customers.

Third metric is subscriber growth rate. A telecommunications company's future revenue growth has much to do with its ability to grow its customer base and add new subscribers. Subscriber growth is, therefore, an extremely important metric. A steady subscriber growth rate indicates a competitive telecommunications company that is keeping up with technology trends, thereby keeping customers happy and attracting new customers.

Subscriber acquisition cost is very similar to customer acquisition cost. Although it seems straight-forward, subscriber acquisition cost has many layers. Of course, you’re going to need to factor in money spent on marketing and advertising. But those aren’t the only costs involved with gaining new subscribers. You also need to factor in commission costs to the people selling your product, as well as the costs involved with actually onboarding customers.

Coming to TalkTel, although the firm has a stronghold in the sector, its customers are gradually migrating to competition. If this churn doesn’t stop, the firm will be in huge trouble.

So due to intense competition and the threat of going bust, it decides to hire you as the data analyst and come up with a strategy to counter this.

As a data scientist in the marketing department of company X, help them design a program to reach a given customer at the right time with relevant offers so as to enhance its customers retention and improve client loyalty.

Do you have a quantitative approach in your mind that can predict which of their existing customers are likely to discontinue their service and should be the target audience for this campaign?

In such scenarios, you develop a model for identifying the customers who are likely to churn and should be targeted for this campaign which brings us to our next section on “Customer Churn Analysis”.

1. Perform exploratory data analysis
2. Preprocess the data
3. Select the right model.
4. Train the model
5. Test the model (Predictions and reporting)
6. Evaluate the model performance
7. Suggest ways of improving the model

Following are some points for you to take note of, while doing the assignment:

* The data in some of the rows in the data set may be corrupted.
* Try to simplify the code & write comments for better understanding.
* State all your assumptions clearly.
* Provide clear explanations to explain your stand.