**Research topic:**

Reducing customer churn caused by network downtime.

Impact of network downtime on customer churn

Problem

In the telecommunication sector, the cost of customer acquisition is high. For startup businesses, network downtime is the main cause of loss of customer base.

Network downtime occurs when a network is inaccessible due to failure of a particular system, application or an entire network. It can be caused by maintenance activities, unexpected technical failures or power cuts. Network downtime leads to customer churn due to unreliability of the services on offer. This causes the consumers to lack confidence in the services being provided hence the consumer switches to other competing alternative services. In this case, it costs the company more to acquire new clients as compared to retaining the existing ones.

Objectives

1. To detect and predict network downtime.
2. To identify the frequency of network downtime experienced by different consumer groups.
3. To predict customer churn due to network downtime

Tools

Anomaly detection – to detect and predict downtime. [Isolation forest] Network traffic data

Customer segmentation – to determine the different groups/clusters of customers and how each cluster is affected by network downtime. To determine services and products (FMCG) that can be marketed to the consumers in bundles. [Clustering techniques]

Customer churn – To determine customers at higher risk of churning. [Supervised learning techniques]