**INTRODUCTION**

Nowadays we can easily notice a wide range of service provided by communication service providers. This issue leads to rise of competition between companies in telecommunication industry. That is why many telecommunication companies have started to face with major problem such as customer churn. Activity of customers like leaving a company and rejecting its offered service because of dissatisfaction and due to better service offering from other competing service providers within the attractive prices to the same services. It becomes to be a loss of profit to the telecommunication companies. At the same time it became a challenge in the way of customer retention. Hence, companies which are going to introduce a new type of service and technologies to offer their customer with much better service and prices can succeed in customer retention. At the first step it is necessary to identify customers who are potential churner because loosing such customers can be a reason of loss of profit. This activity is known as customer churn prediction.

Machine learning techniques are found much more efficient in predicting customer churn. Telecom companies collect a huge amount of data about customers and network data that generated by users every day. Based on those data it is possible to identify customers’ behavior and implement behavioral analysis of customers. It helps to identify will this customer leave or not.

In these latter days there are many machine learning algorithms that used to build prediction model. One of the widespread and the most appropriate algorithm is decision tree.

The object of the research is personal data of the customers of telecommunication companies.

The aim of this research work is to implement behavioral analysis of customers based on collected data and build the most appropriate churn prediction model.

To achieve our goal we have to solve several problems such as:

1. Collect personal traffic of customers.
2. Determine the most appropriate machine learning algorithm to build prediction model.
3. Implement behavioral analysis of customers.
4. Implement prediction model based on chosen machine learning algorithm.

Scientific novelty:

1. Develop a model which implements customers’ behavioral analysis.
2. Develop a model that predicts customers’ churn and visualizes built decision tree.