Assignment 7

- Construct a software agent that uses a learning model to identify the customer ‘churn’.
- 1. Import the dataset available on Kaggle (https://www.kaggle.com/datasets/blastchar/telco-customer-churn)into the Colab environment.
- 2. Create a neural network model with one input, three hidden and one output layer.
- 3. Check the performance with SGD, ADAM and RMSProp optimizer.

Variables

Input Features

‘customerID’, ‘gender’, ‘SeniorCitizen’, ‘Partner’, ‘Dependents’, ‘tenure’, ‘PhoneService’, ‘MultipleLines’, ‘InternetService’, ‘OnlineSecurity’, ‘OnlineBackup’, ‘DeviceProtection’, ‘TechSupport’, ‘StreamingTV’, ‘StreamingMovies’, ‘Contract’, ‘PaperlessBilling’, ‘PaymentMethod’, ‘MonthlyCharges’, ‘TotalCharges’

Target Variable

Churn

Code Segment

```
df = pd.read_csv('churn.csv')
df = df.drop('customerID',axis=1)

for i in cat:
    df[i] = df[i].replace('Yes',1)
    df[i] = df[i].replace('No',0)

df.gender = df.gender.replace('Male',1)
df.gender = df.gender.replace('Female',0)
```

```
from sklearn.preprocessing import LabelEncoder
label = LabelEncoder()
df['InternetService'] = label.fit_transform(df['InternetService'])
df['Contract'] = label.fit_transform(df['Contract'])
df['PaymentMethod'] = label.fit_transform(df['PaymentMethod'])
```