PHASE-4

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COLLEGE CODE : 7177

CUSTOMER CHURN PREDICTION USING DATA ANALYTICS WITH COGNOS

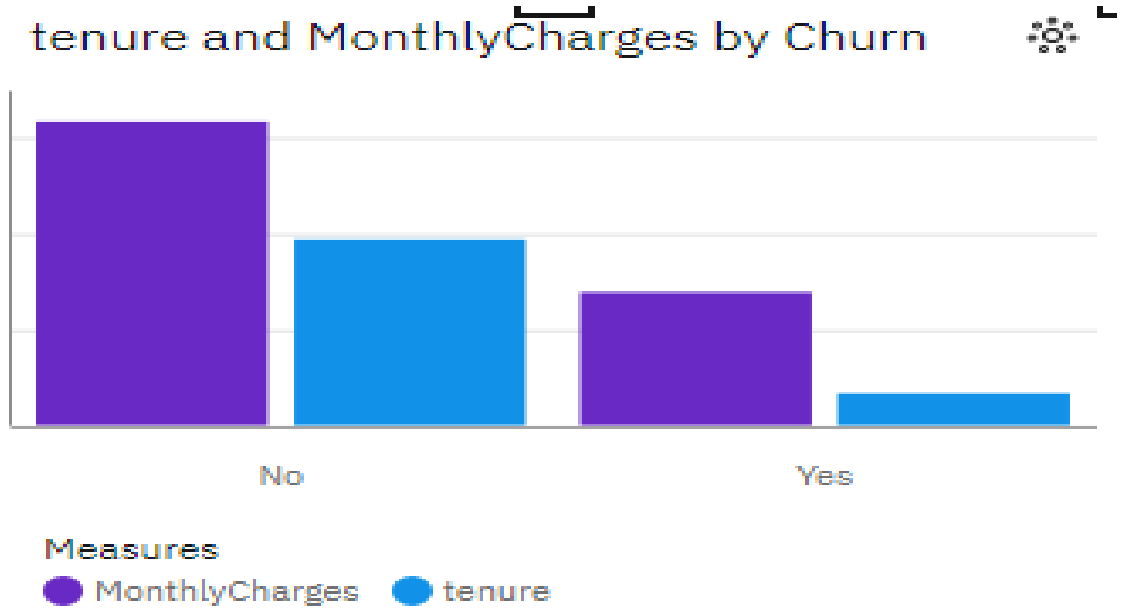
Introduction:

In this project, we have performed a comprehensive analysis of feature importance and applied a machine learning algorithm to tackle a specific problem. Our approach involves visualizing feature importance using bar plots and leveraging a machine learning model to make data-driven decisions.

Description:

This project revolves around the exploration of feature importance and its critical role in understanding data and making informed choices. We have employed a machine learning algorithm to address a particular challenge or task, leveraging the power of predictive analytics. To aid in the interpretation of our results, we have effectively utilized bar plots to visually represent the significance of different features in our dataset. This combination of feature analysis, machine learning, and visualization ensures that our project is both data-driven and highly informative.We created interactive dashboard and reports in churn patterns,retention rate,key factors influencing churn.

CHURN PATTERNS



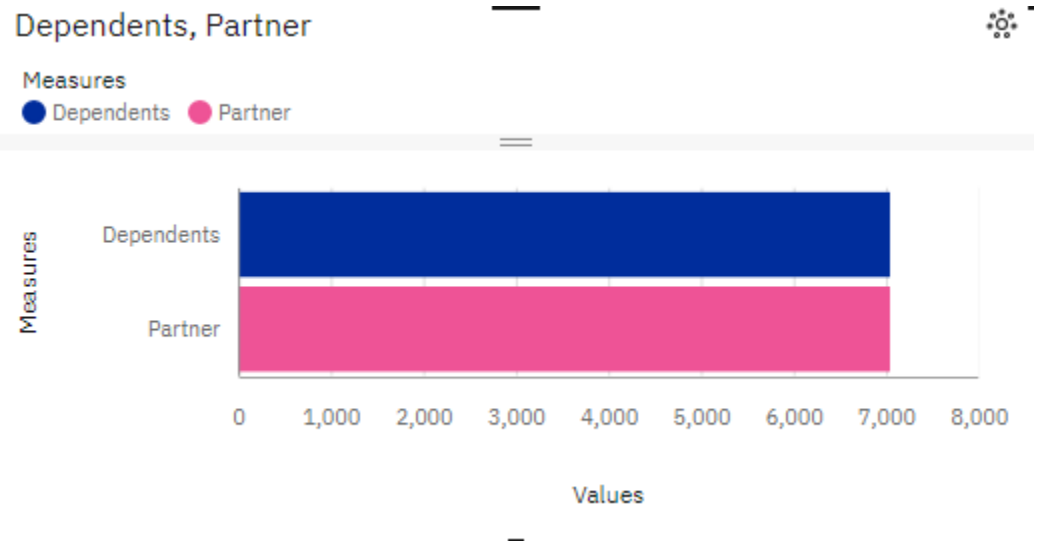
Visualization data | WA_Fn-UseC_-Telco...stomer-Churn.csv

Churn	Values	Measures group (2)
No	316985.75	MonthlyCharges
No	194387	tenure
Yes	139130.85	MonthlyCharges
Yes	33603	tenure

TotalCharges by OnlineSecurity and Churn

Visualization data | WA_Fn-UseC_-Telco...stomer-Churn.csv

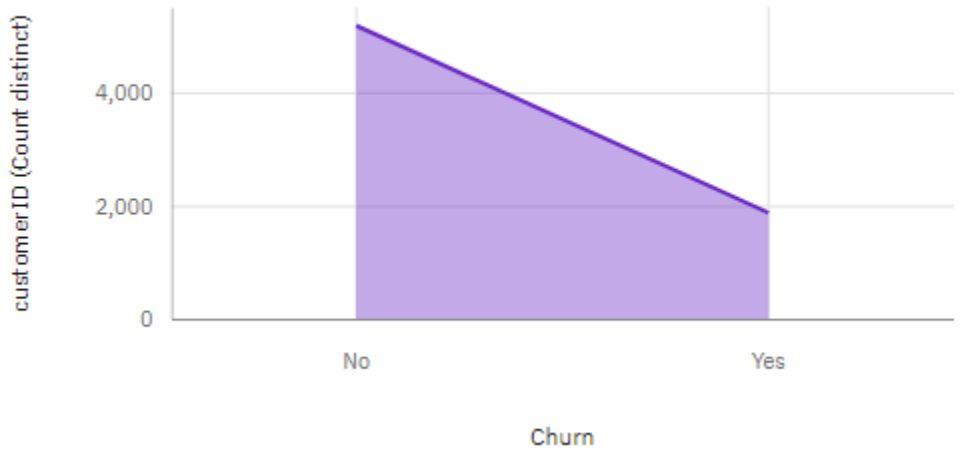
OnlineSecurity	Churn	TotalCharges
No	No	5391958.8
No	Yes	2078605.15
No internet service	No	991481.95
No internet service	Yes	19652.95
Yes	No	6809801.05
Yes	Yes	764668.8



Visualization data | WA_Fn-UseC_-Telco...stomer-Churn.csv

Values	customerID	Measures group (2)
2	7043	Dependents
2	7043	Partner

customerID by Churn



Visualization data | WA_Fn-UseC_-Telco...stomer-Churn.csv

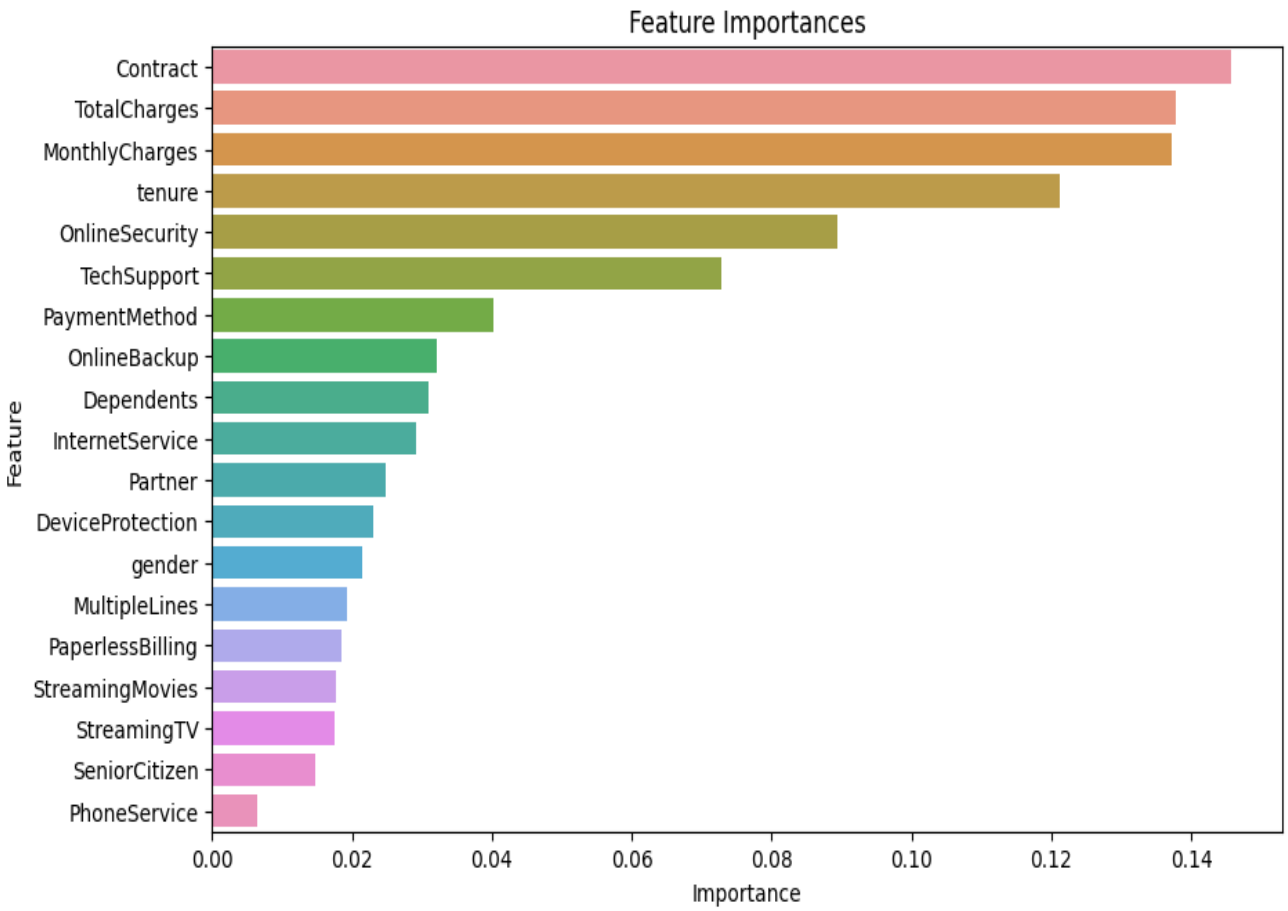
Churn	customerID
No	5174
Yes	1869

Feature Importance Analysis: Analyzing feature importances and visualizing them using a bar plot.

In [16]:

linkcode

```
# Analyze feature importances

feature_importances = rf.feature_importances_

features = X.columns

importance_df = pd.DataFrame({'Feature': features, 'Importance': feature_importances})

importance_df = importance_df.sort_values(by='Importance', ascending=False)


# Visualize feature importances

plt.figure(figsize=(10, 6))

sns.barplot(x='Importance', y='Feature', data=importance_df)

plt.xlabel('Importance')

plt.ylabel('Feature')

plt.title('Feature Importances')

plt.show()
```


Feature Importances
Contract
TotalCharges
MonthlyCharges
tenure
OnlineSecurity
TechSupport
PaymentMethod
OnlineBackup
Dependents
InternetService
Partner
DeviceProtection
gender
MultipleLines
PaperlessBilling
StreamingMovies
StreamingTV
SeniorCitizen
PhoneService
Feature
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
Importance