DAB 100 - Introduction to Data Analytics

Final Group Project – Group #5

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Team introduction and contribution

Kavya	-	Data cleaning
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Data cleaning

The given Customer churn dataset contains corresponding to various customer properties and subscription.

Checked all columns for null values and found null values in “TotalCharges” variable.

Removed unwanted columns ("Dependents", "OnlineSecurity", "OnlineBackup", "DeviceProtection“) from the data set.

Data transformation

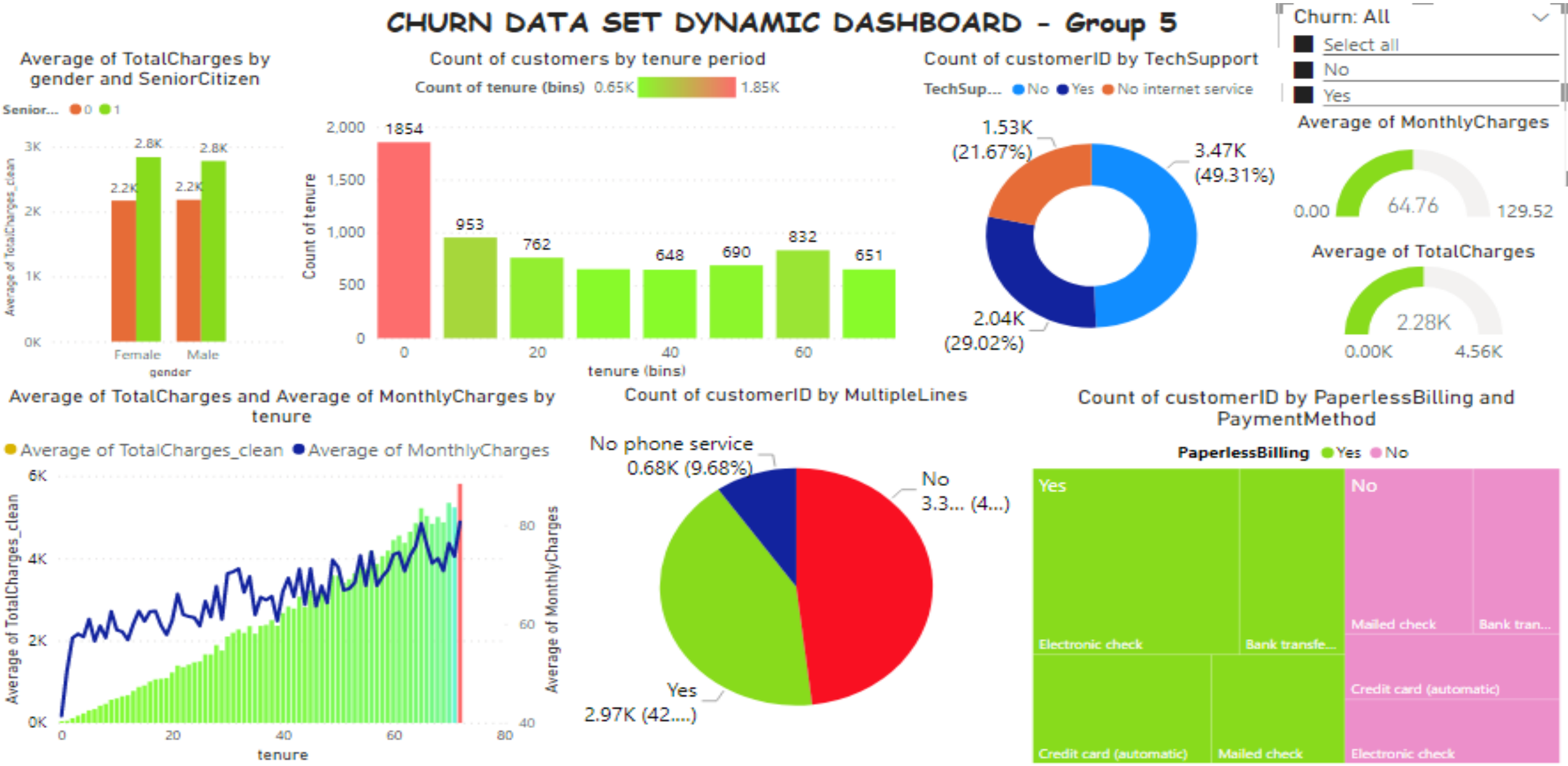
Created a new column for having TotalCharges variable filled.

All the observations with null TotalCharges values had 0 as tenure.

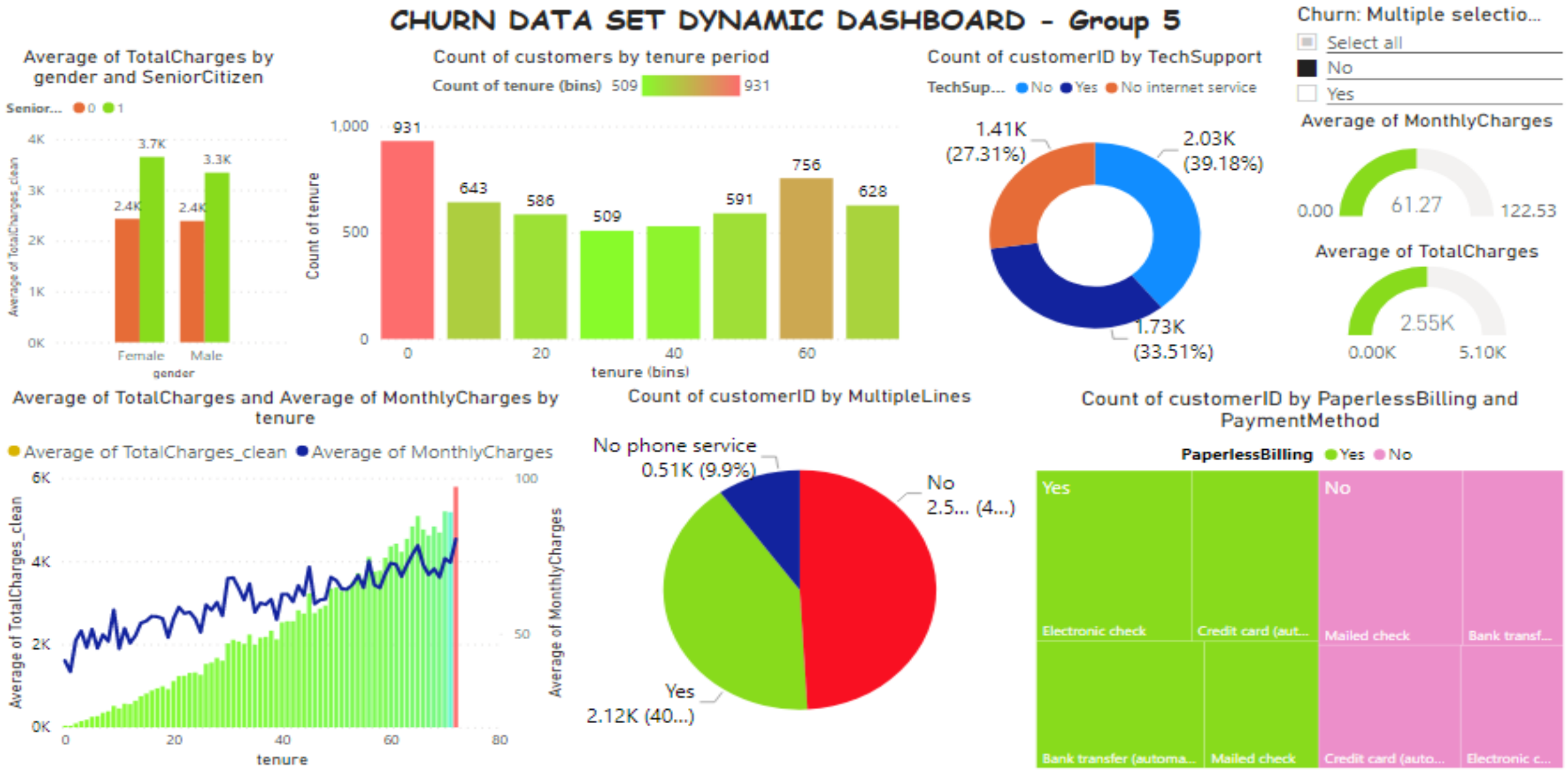
New column named as TotalCharges_clean is created using the below formula

- If (TotalCharges > 0 & tenure > 0) then TotalCharges else MonthlyCharges

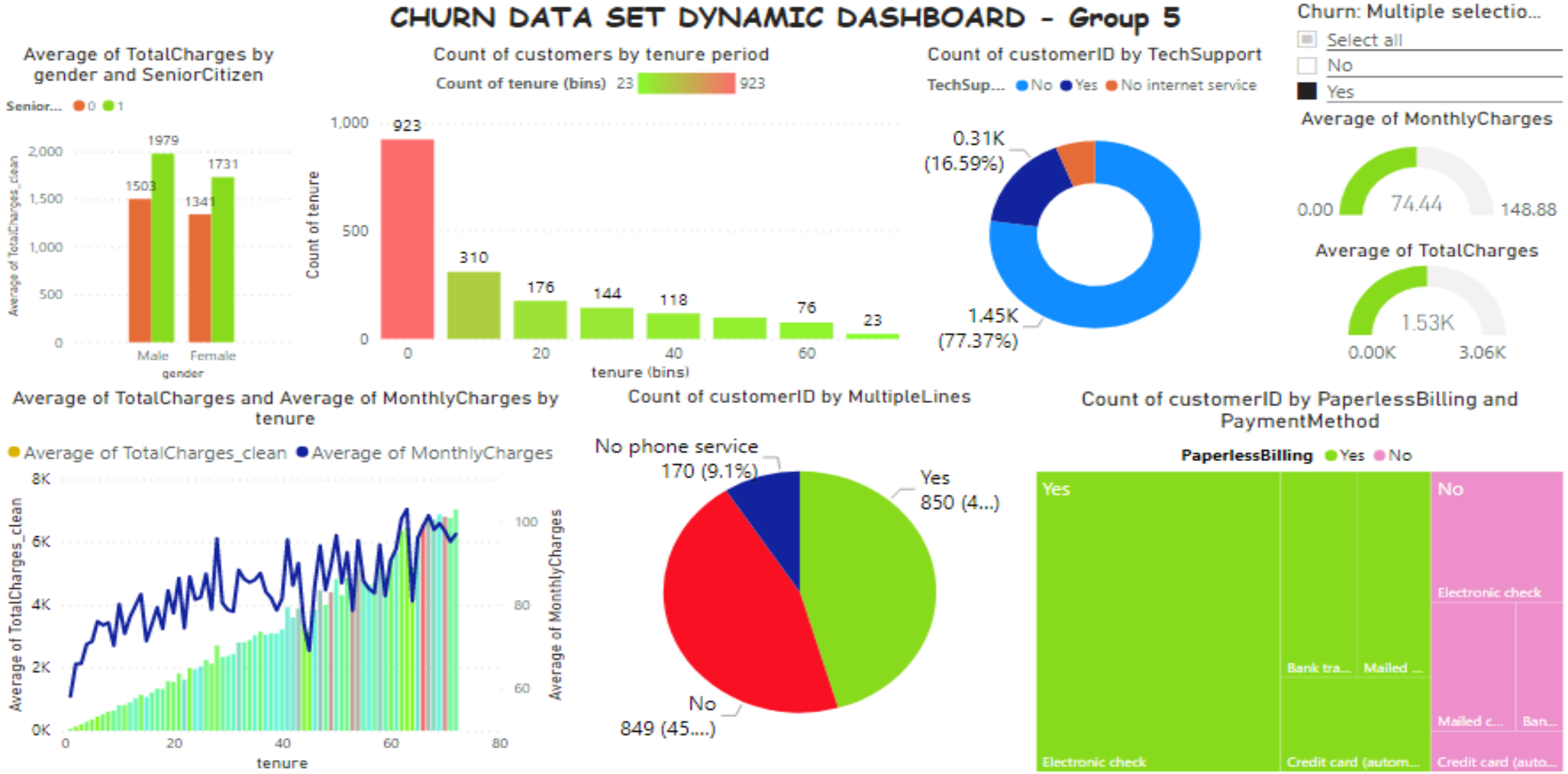
Data Visualization – All customers



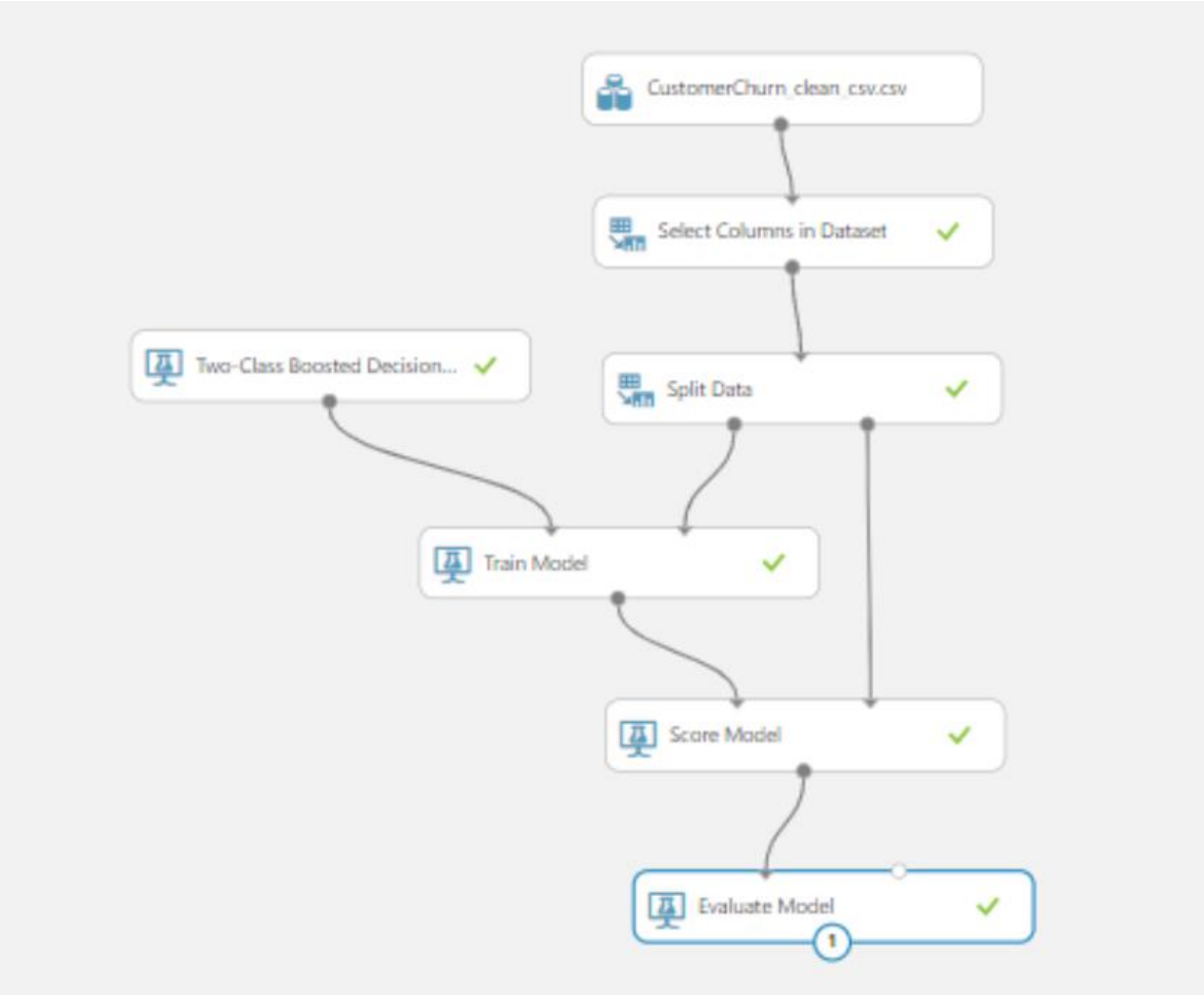
Data Visualization – Non-churned customers



Data Visualization – Churned customers

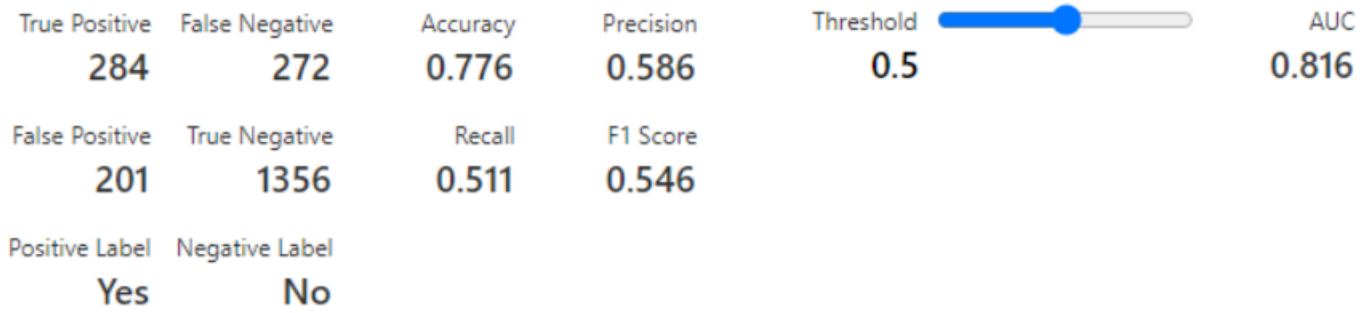


Azure – Two Class Booster Decision Tree

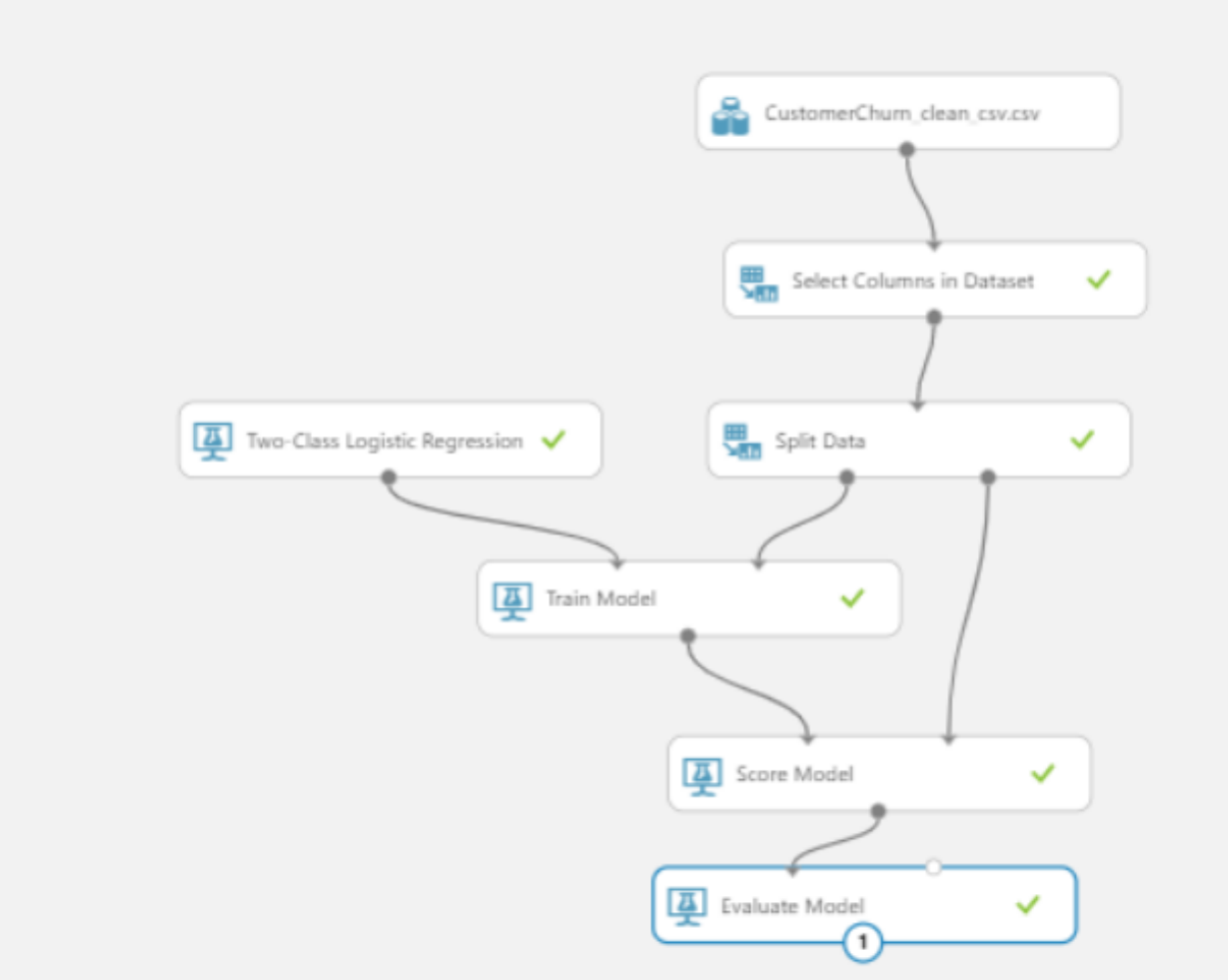


Azure – Two Class Booster Decision Tree

Observation from the Two Class Booster Decision tree with threshold value of 0.5.
The model is with 77.6% accuracy.

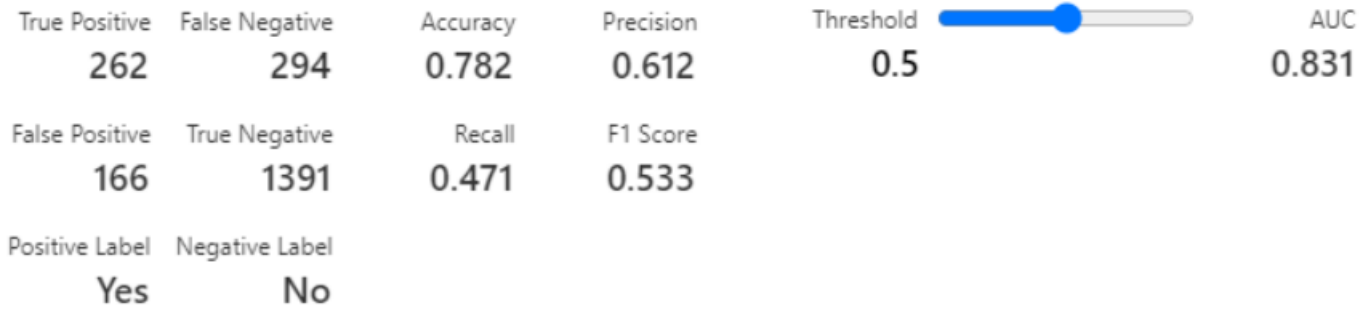


Azure – Logistic Regression model



Azure – Logistic Regression model

Observation from Logistic Regression model with threshold 0.5.
The accuracy is 78.2% in predicting the churn in this model.



Conclusion

- We have created the plot between True Positive rate and False Positive rate at varying thresholds
- The area under the curve is 0.812 and as we know that higher AUC leads to a better model because it's able to distinguish the positive values from the negative values.
- A threshold value of 0.5 implies that if the probability is more than 0.5, it is considered as likely, i.e. Positive.
- From this we're able to conclude that Logistic accuracy is more than the decision tree model.

Conclusion

- From the data and the visualizations we could conclude that most of the churned customers are the new/customers within 1 year of service tenure.
- Tech support facility has not been used by most of the customers who has churned.
- Most of the customers who churned use the electronic payment method.
- To reduce the churn the telecom service provider can provide exiting offers to increase their tenure period thereby reducing the overall churn.
- Also proper awareness is to be created among the customers to make use of tech-support effectively.

References

- https://www.tutorialgateway.org/create-bins-in-power-bi/