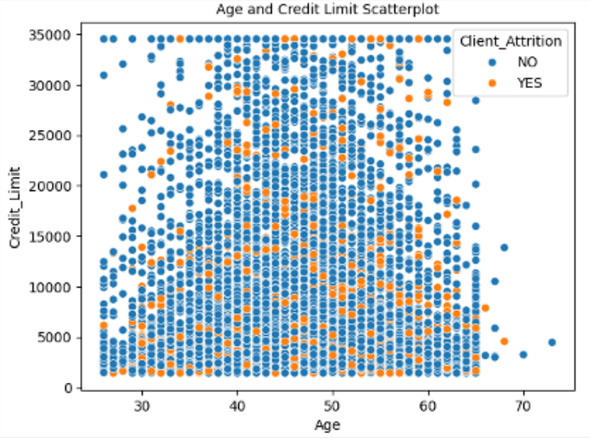
Why are customers leaving?

Previous Quarter

Percent Missing Numeric	
Revolving Balance	24%
Credit Limit	0.3456%
Change in Transaction Count	0.0691%
Change in Transaction Amount	0.0494%
Average Open to Buy	0.0099%
Client ID	0%

-Checking what's missing, remove variables with over 15% missing
--impute missing values for remaining columns



-Scatterplot showing relationship between age, credit limit, and attrition

Correlation

Regression Results

Multiple Linear Regression

R-squared: 0.293

	coef	P>|t|
const	0.2754	0.000
Age	0.0048	0.086
Avg_Open_To_Buy	−0.1493	0.000
Contacts_In12Mon	−0.0146	0.000
Dependent_Count	−0.0001	0.961
Inactive_In12Mon	−0.0033	0.229
Products_By_Clients	0.0109	0.000
Total_Trans_Amt	0.0056	0.066

Quantile Regression

Pseudo R-squared: 0.1775

	coef	P>|t|
Intercept	0.1220	0.000
const	0.1220	0.000
Age	0.0037	0.252
Avg_Open_To_Buy	−0.1247	0.000
Contacts_In12Mon	−0.0159	0.000
Dependent_Count	0.0002	0.961
Inactive_In12Mon	−0.0050	0.115
Products_By_Clients	0.0075	0.030
Total_Trans_Amt	0.0045	0.202

Neither of these regression models produce an R squared that indicates a good model.Need to analyzeze different variables

RMSE

```
**********Quantile Regression Summary**********

Regression statistics

            Mean Error (ME) : 0.0289
 Root Mean Squared Error (RMSE) : 0.2334
     Mean Absolute Error (MAE) : 0.1872
```

```
**********Multiple Linear Regression Summary**********

Regression statistics

            Mean Error (ME) : -0.0018
 Root Mean Squared Error (RMSE) : 0.2306
     Mean Absolute Error (MAE) : 0.1894
```

```
********** LASSO Regression Summary**********

Regression statistics

            Mean Error (ME) : -0.0017
 Root Mean Squared Error (RMSE) : 0.2306
     Mean Absolute Error (MAE) : 0.1894
```

```
********** Decision Tree Regression **********

Regression statistics

            Mean Error (ME) : 0.0043
 Root Mean Squared Error (RMSE) : 0.1543
     Mean Absolute Error (MAE) : 0.1009
```

```
********** Random Forrest Regression **********

Regression statistics

            Mean Error (ME) : 0.0026
 Root Mean Squared Error (RMSE) : 0.1157
     Mean Absolute Error (MAE) : 0.0819
```

```
********** KNN REGRESSION **********

Regression statistics

            Mean Error (ME) : -0.0058
 Root Mean Squared Error (RMSE) : 0.2606
     Mean Absolute Error (MAE) : 0.1863
```

Going by RMSE, DT and RF models are the best predictors