**1. Accuracy: 0.82 (or 81.76%)**

* The model has an accuracy of 81.76%, meaning it correctly predicts whether a customer will churn or not 81.76% of the time. While this is a decent accuracy, there might still be room for improvement, particularly in predicting the minority class (churned customers).

**2. Confusion Matrix**

The confusion matrix shows the following values:

* **True Negatives (TN)**: 931 — The number of customers who did not churn and were correctly predicted as not churning.
* **False Positives (FP)**: 105 — The number of customers who did not churn but were predicted as churned.
* **False Negatives (FN)**: 152 — The number of customers who churned but were predicted as not churning.
* **True Positives (TP)**: 221 — The number of customers who churned and were correctly predicted as churning.

The matrix gives insight into the performance of the model for both classes (churned and non-churned). The model is better at predicting **non-churned** customers (True Negatives), but has a higher number of **False Negatives** (i.e., it fails to predict some of the churned customers correctly).

**3. Classification Report**

The classification report provides key metrics for evaluating the model's performance:

* **Class 0 (Non-Churned Customers):**
  + **Precision**: 0.86 — The model is 86% accurate when predicting that a customer will not churn. This indicates the model is quite good at predicting non-churned customers.
  + **Recall**: 0.90 — The model correctly identifies 90% of the customers who did not churn. This is a strong recall score, indicating that the model doesn't miss many non-churned customers.
  + **F1-score**: 0.88 — A balanced measure of precision and recall for non-churned customers, showing good performance.
* **Class 1 (Churned Customers):**
  + **Precision**: 0.68 — The model is 68% accurate when predicting that a customer will churn. This suggests the model is less reliable in identifying churned customers compared to non-churned ones.
  + **Recall**: 0.59 — The model only correctly identifies 59% of the churned customers. This means a significant number of churned customers are missed by the model (False Negatives).
  + **F1-score**: 0.63 — This is relatively low, indicating that while the model does okay in predicting churn, there’s still substantial room for improvement in identifying churned customers.
* **Overall (Accuracy, Macro, and Weighted Averages):**
  + **Macro Average**: The macro average (average of precision, recall, and F1-score across both classes) gives a sense of overall model performance without being biased by class imbalance. Here, the model performs decently in both precision (0.77) and recall (0.75) but struggles more in recall for churned customers.
  + **Weighted Average**: The weighted average accounts for class imbalances, which reflects a performance of 0.81 in precision, recall, and F1-score, showing that the model is fairly balanced across both classes, with slightly more focus on the non-churned class.
* **Churn Distribution**: To see how many customers churned or stayed.
* **Correlation Heatmap**: To understand relationships between numerical features.
* **Confusion Matrix**: To see the performance of the classification model.
* **ROC Curve & Precision-Recall Curve**: To evaluate model performance for imbalanced data.
* **Feature Distribution**: To understand how individual features are distributed.
* **Pairplot**: To visualize relationships between multiple features.