**Bank Customer Churn Analysis: Key Demographics, Behavioral Insights, and Predictive Attributes**

**Overall Insights:**

* Total Customer Count: **1,000**
  + Male: 467 **(46.7%)**
  + Female: 533 (**53.3%)**
* Churned Customers: 204 (**20.4%)**
* Retained Customers: 796 (**79.6%)**

1. **Key Attributes of Churners vs. Retained Customers:**

* Age:
  + Approximately 66% of churned customers are aged 45-64. In contrast, **younger customers (aged 18-44) have a significantly lower churn rate and higher retention**.
* Credit Score:
  + Churners tend to have lower average credit scores compared to non-churners.
  + Among churners, the credit score distribution shows that:
    - 28.9% have scores between 300-579 (high risk).
    - 32.4% fall between 580-669 (moderate risk).
    - 22.5% are between 670-739 (low risk).
    - Customers with scores above 740 show the least likelihood of churn:
      * 11.3% churn rate for scores between 740-799.
      * Only 4.9% for scores 800+.
    - **This suggests that higher credit scores are strongly correlated with customer retention.**
* Balance:
  + Customers with balances below 100k show the lowest churn rate.
  + However, customers with balances exceeding 200k have a 100% churn rate, **indicating a potential risk of churn among high-balance customers.**

**2. Demographics of the Bank's Customers:**

* Country Distribution:
  + Customers are primarily from France (482), Spain (259), and Germany (259).
  + The overall churn rate is **20.4%**. Churn by country shows:
    - France: 15.98%
    - Spain: 28.96%
    - Germany: 20.08%
  + **France has the highest customer base but the lowest churn rate**, while Spain experiences the highest churn.
* Gender Insights:
  + Males are more likely to be retained compared to females, especially in France, which has the largest customer base and the lowest churn rate.
* Age Group:
  + French male customers show a **100%** retention rate for the **18-24** age group, a 95.4% retention rate for the 25-34 group, and 92.52% for the 35-44 group.
  + French female customers have similarly high retention:
    - 100% retention in the 18-24 age group.
    - 92.06% retention in the 25-34 age group.
    - 82.56% retention in the 35-44 age group.
  + This indicates that customers aged 18-34 are the most likely to stay with the bank.

This analysis highlights that age, credit score, and balance are key factors in predicting customer churn. Additionally, French customers exhibit higher retention rates across most demographics, especially among younger age groups and males.