

Pig E. Bank Analysis



Introduction:

Pig E. Bank is a well known global bank looking for analytical support to its anti-money-laundering compliance department.

Goal:

Help Pig E. Bank assess client risk and transaction risk, as well as reporting on metrics. Build and optimize models that assist the bank in running their compliance program more efficiently.

Steps and Skills:

- Big Data
- Time-series analysis & Time-series forecasting
- Data bias impact on ethics
- Data mining
- GitHub

GitHub Repository Link: <https://github.com/Nancy-Kolaski>

Tools Used:



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Comparing Current & Former Customers



	FORMER	CURRENT	COMBINED
COUNTRIES	COUNTRIES <input type="button" value="v"/> France 37.75% Germany 36.76% Spain 25.49% Grand Total 100.00%	COUNTRIES <input type="button" value="v"/> France 51.15% Germany 23.16% Spain 25.70% Grand Total 100.00%	COUNTRIES <input type="button" value="v"/> France 48.38% Germany 25.96% Spain 25.66% Grand Total 100.00%
AGE RANGE	AGE RANGE <input type="button" value="v"/> 18-24 years 0.99% 25-34 years 11.82% 35-44 years 35.47% 45-54 years 33.50% 55-64 years 15.76% 65 years and up 2.46% Grand Total 100.00%	AGE RANGE <input type="button" value="v"/> 18-24 years 4.33% 25-34 years 35.75% 35-44 years 43.51% 45-54 years 9.67% 55-64 years 3.94% 65 years and up 2.80% Grand Total 100.00%	AGE RANGE <input type="button" value="v"/> 18-24 years 3.64% 25-34 years 30.84% 35-44 years 41.86% 45-54 years 14.56% 55-64 years 6.37% 65 years and up 2.73% Grand Total 100.00%
GENDER	GENDER <input type="button" value="v"/> Female 59.31% Male 40.69% Grand Total 100.00%	GENDER <input type="button" value="v"/> Female 341 Male 444 Grand Total 785	Row Labels <input type="button" value="v"/> Female 46.71% Male 53.29% Grand Total 100.00%
TENURE	Tenure <input type="button" value="v"/> 0 2.94% 1 14.71% 2 13.24% 3 9.80% 4 8.33% 5 9.80% 6 10.29% 7 7.35% 8 9.80% 9 10.29% 10 3.43% Grand Total 100.00%	TENURE <input type="button" value="v"/> 0 4.07% 1 9.29% 2 10.56% 3 10.31% 4 8.78% 5 10.05% 6 9.29% 7 9.92% 8 11.20% 9 11.07% 10 5.47% Grand Total 100.00%	TENURE <input type="button" value="v"/> 0 3.84% 1 10.40% 2 11.11% 3 10.20% 4 8.69% 5 10.00% 6 9.49% 7 9.39% 8 10.91% 9 10.91% 10 5.05% Grand Total 100.00%
NUMBER OF PRODUCTS	NumOfProducts <input type="button" value="v"/> 1 69.61% 2 15.69% 3 13.73% 4 0.98% Grand Total 100.00%	NumOfProducts <input type="button" value="v"/> 1 46.82% 2 52.54% 3 0.64% Grand Total 100.00%	NumOfProducts <input type="button" value="v"/> 1 33.84% 2 59.06% 3 6.57% 4 0.53% Grand Total 100.00%
IS ACTIVE MEMBER (1=YES, 0=NO)	Is Active Member <input type="button" value="v"/> 0 70.10% 1 29.90% Grand Total 100.00%	Is Active Member <input type="button" value="v"/> 0 43.77% 1 56.23% Grand Total 100.00%	Is Active Member <input type="button" value="v"/> 0 49.19% 1 50.81% Grand Total 100.00%
FORMER VS. CURRENT CUSTOMERS	Exited from bank? <input type="button" value="v"/> 1 204 Grand Total 204	Exited from bank? <input type="button" value="v"/> 0 786 Grand Total 786	Former vs. current <input type="button" value="v"/> 0 79.39% 1 20.61% Grand Total 100.00%

- ★ Germany has higher amount who leave (36% vs 24% who stay)
- ★ France makes up most of the clientele for Pig E. Bank, (less people leave)
- ★ Spains is split pretty equally between those who leave and those who stay (25-26%).
- ★ Most customers have ages of 25-44 years.
- ★ Those who leave the bank tend to be a little older (35-54 years)
- ★ More females leave (59%)
- ★ Most people left with 1 or 2 years of Tenure (28%)
- ★ Majority of the clients who left only had one product. Of the current clients, 53% have 2 products.
- ★ 70% of those who left were not active members.
- ★ 56% of current clients are active members.
- ★ Combined group (current & former), equal divide for active and not active.
 - Perhaps, more member engagement/involvement could influence them to stay
- ★ 79% (a good majority) have not left the bank. 21% of clients left.

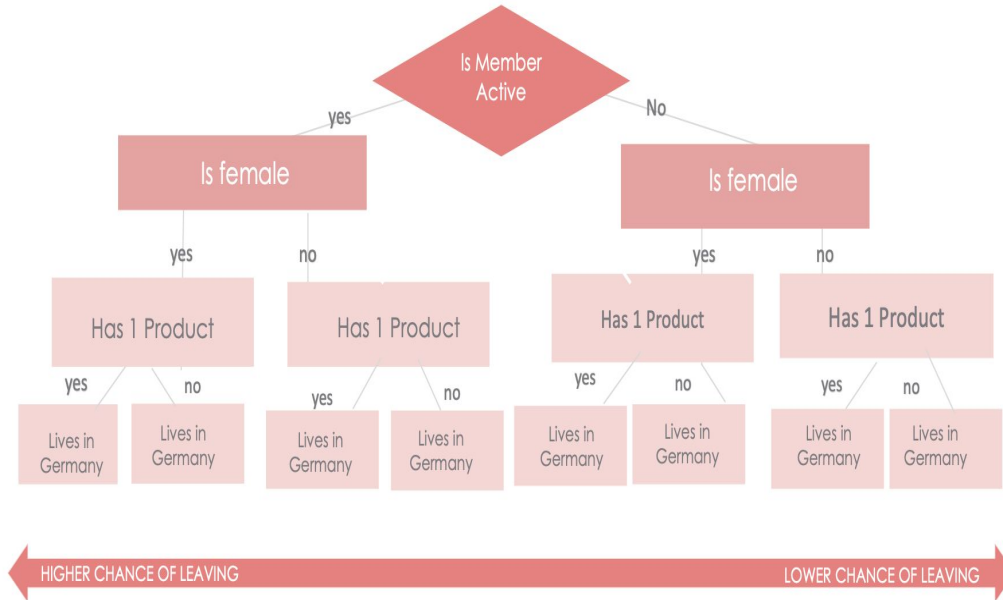
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Decision Tree

21% of all Pig E. Bank's clients leave. Who is most likely to be in this group?

DESCRIPTIVE STATISTICS FOR CURRENT VS FORMER CLIENTS (AND COMBINED)				
	Mean	Max	Min	Count
Age of Former	45	69	22	205
Age of Current	38	82	18	787
Age of Combined Total	39	82	18	992
Balance of Former	\$90,239.22	\$213,146.20	\$0.00	205
Balance of Current	\$74,807.56	\$197,041.80	\$0.00	787
Balance of Combined	\$78,003.00	\$213,146.20	\$0.00	992
Tenure of Former	5	10	0	205
Tenure of Current	5	10	1	787
Tenure of Combined	5	10	1	992
Number of Products for Former	1	4	1	205
Number of Products for Current	2	3	1	787
Number of Products for Combined	2	4	1	992
Estimated Salary of Former	\$97,155.20	\$199,725.39	\$417.41	205
Estimated Salary of Current	\$98,984.61	\$199,661.50	\$371.05	787
Estimated Salary of Combined	\$98,574.54	\$199,725.39	\$371.05	992
Credit Score of Former	637	850	376	205
Credit Score of Current	652	850	411	787
Credit Score of Combined	649	850	376	992



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Insights:

- 21% of Pig E Bank's clients have left.
- Females make up the 59% of those who leave the bank
- 70% of clients who left had only one product.
- 70% of those who left were not active members.
- Most people left with 1 or 2 years of Tenure, making up 28% of those who left
- France makes up most of the clientele for Pig E. Bank, with smaller numbers who leave in comparison to their presence in the company. Germany tends to have the most departures as they average a higher percent of those who leave (36%), than those who are current (24%).
- The Majority of Pig E Bank's current customers fall between the ages of 25-44 years, however those who leave the bank tend to be a little older at 35-54 years. These age groups make up 69% of all who leave.

Recommendations:

- Target inactive customers
- Keep customers informed through regular emails, newsletters, and company updates.
- Offer incentives to customers in Germany to see if departures from Pig E. Bank can be avoided. If this is successful, continue this in France.
- Conduct further research with geographical focus to better understand why more customers leave in Germany and/or why they stay in France.
- Create leveled flags for customers who fit into the "departure" categories, in order to offer more support and/or incentives to stay. The more categories they belong in, the bigger they are flagged.
 - Those with only one product, who are not active members, who have only 1-2 years of Tenure, are female, and are from Germany