Customer Churn Analysis (R Shiny App)

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Overview

- Motives
- Dataset
- ETL Methods
- App Demonstration
- Future Work

Motives

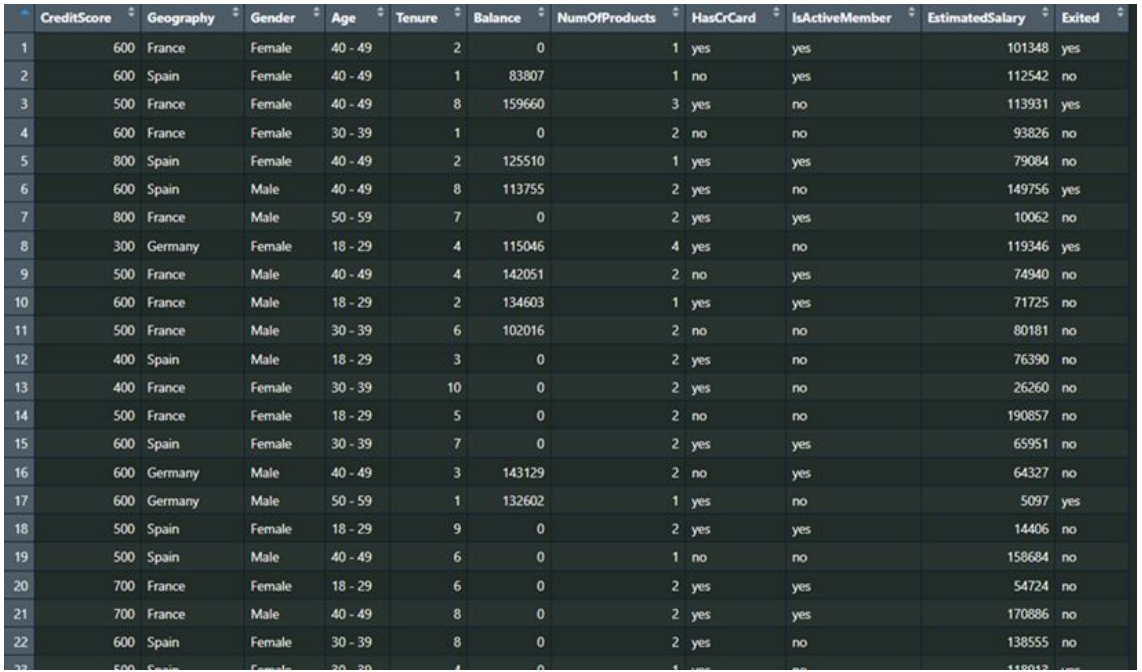
- Good understanding of customer churn is important for businesses to…
  - allocate resources
  - better plan for business cycles
  - improve from current churn rate
- The goal of this application is a generic customer churn dashboard to baseline current churn for a specific customer demographic and then identify categories for improvement

Customer Churn Dataset

- Sourced from Kaggle
- Bank Customer Churn Dataset:
  - Customer data from a European bank
  - 10,000 individual customer records
  - 11 feature columns and 1 target (churn) column
- https://www.kaggle.com/datasets/gauravtopre/bank-customer-churn-dataset

ETL Method

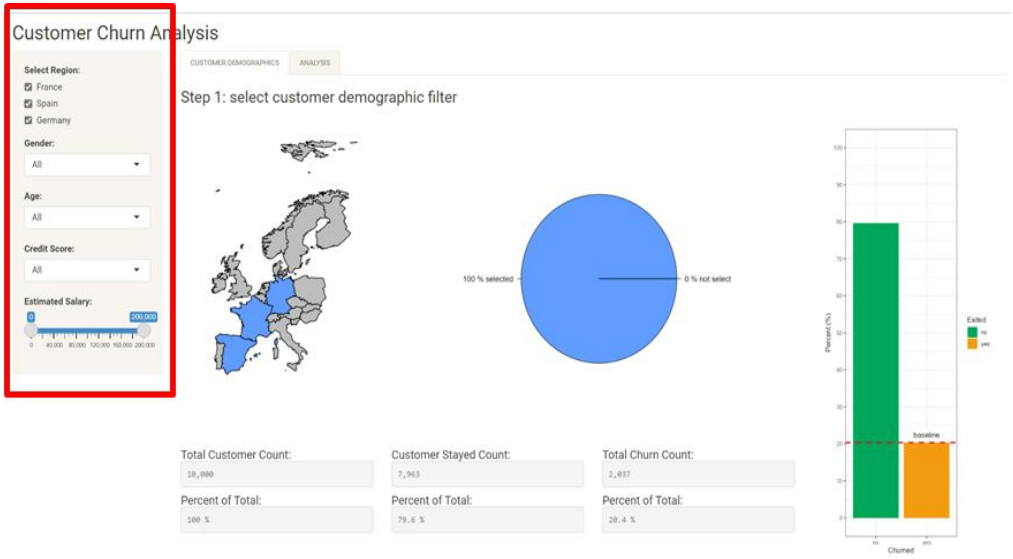
- Transformed columns to categorical via data binning
- Dataset:
  - Categorical (nominal):
    - country
    - gender
    - credit_card
    - Active_member
  - Categorical (orginal):
    - credit_score
    - age
    - tenure
    - Products_number
  - Numeric
    - balance
    - estimated _salary
  - Removed customer_id column



	CreditScore	Geography	Gender	Age	Tenure	Balance	NumOfProducts	HasCrCard	IsActiveMember	EstimatedSalary	Exited
1	600	France	Female	40 - 49	2	0	1	yes	yes	101348	yes
2	600	Spain	Female	40 - 49	1	83807	1	no	yes	112542	no
3	500	France	Female	40 - 49	8	159660	3	yes	no	113931	yes
4	600	France	Female	30 - 39	1	0	2	no	no	93826	no
5	800	Spain	Female	40 - 49	2	125510	1	yes	yes	79084	no
6	600	Spain	Male	40 - 49	8	113755	2	yes	no	149756	yes
7	800	France	Male	50 - 59	7	0	2	yes	yes	10062	no
8	300	Germany	Female	18 - 29	4	115046	4	yes	no	119346	yes
9	500	France	Male	40 - 49	4	142051	2	no	yes	74940	no
10	600	France	Male	18 - 29	2	134603	1	yes	yes	71725	no
11	500	France	Male	30 - 39	6	102016	2	no	no	80181	no
12	400	Spain	Male	18 - 29	3	0	2	yes	no	76390	no
13	400	France	Female	30 - 39	10	0	2	yes	no	26260	no
14	500	France	Female	18 - 29	5	0	2	no	no	190857	no
15	600	Spain	Female	30 - 39	7	0	2	yes	yes	65951	no
16	600	Germany	Male	40 - 49	3	143129	2	no	yes	64327	no
17	600	Germany	Male	50 - 59	1	132602	1	yes	no	5097	yes
18	500	Spain	Female	18 - 29	9	0	2	yes	yes	14406	no
19	500	Spain	Male	40 - 49	6	0	1	no	no	158684	no
20	700	France	Female	18 - 29	6	0	2	yes	yes	54724	no
21	700	France	Male	40 - 49	8	0	2	yes	yes	170886	no
22	600	Spain	Female	30 - 39	8	0	2	yes	no	138555	no

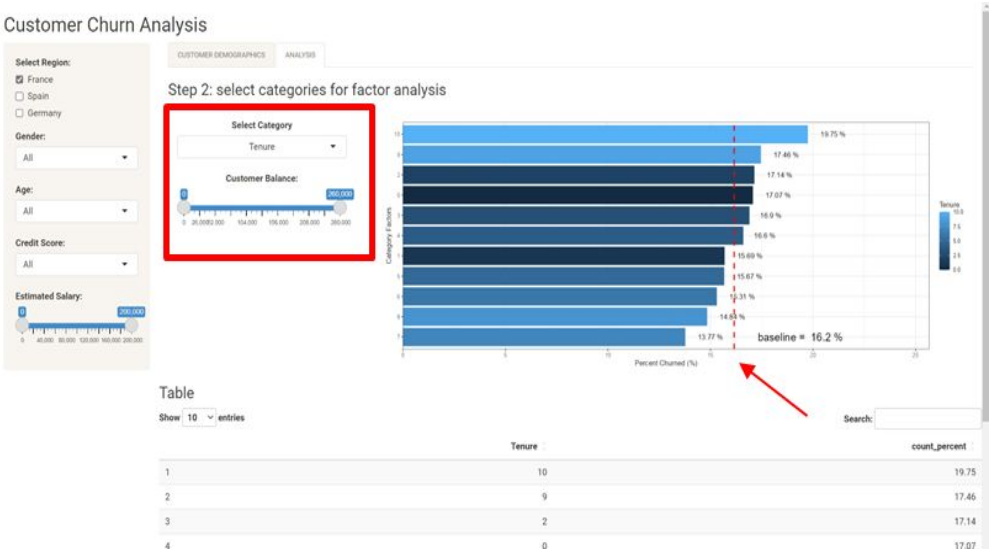
App Demonstration

- Step 1: Filter by customer feature inputs
  - Geography
  - Gender
  - Age
  - Credit Score
  - Estimated Salary
- Baseline churn percent is calculated



App Demonstration

- Step 2: Select business category
  - Tenure
  - Credit card holder
  - Number of products
  - Active member
- View churn percent distribution
- Compare to baseline



Future Work

- Implement more advanced analytics for statistical analysis
- Machine learning methods
  - Cluster analysis
  - Regression and classification predictions
- Redesign app to auto update via database connection