

Are We Wrong360?

A User and Products Analysis by P3



What is Rong360?

The screenshot displays the Rong360 website interface. At the top left is the Rong360 logo. To its right, the text "Nationwide [Switch city]" is visible. A navigation bar contains "Home", "Loan", and "Mortgage" tabs. Below this is a green banner with the text "Open channel 360 customer complaints, collection violence hotline: 010-84359120 (early 8: 00- 9:00 pm)". The main content area features a loan application form with the following fields: "loan amount" (5.0, Ten thousand yuan), "Loan term" (12 months), and "Professional identity" (unlimited). A yellow "Search loan" button is positioned below these fields. To the right of the form are three circular icons with accompanying text: "1万家金融机构" (10,000 financial institutions), "免费申请" (Free application), and "最快1天放款" (Fastest 1-day disbursement). On the left side of the form, there is a vertical menu with options: "personal / business loans", "purchase loans", "purchase loan", "credit card", "melt applications 360", and "public finance". At the bottom of the form, it states "Popular loans: 50,000 personal loans 100,000 personal loans 200,000 corporate loans 500,000 corporate loans".

- Chinese loan platform
- Streamlines process for loan applicants
- Provides access to wider customer base for banks

<http://www.rong360.com/>



Our goal

We wish to understand better the characteristics of most frequently applied - for loans on Rong360

- What can banks do to make their loan offerings more appealing to customers?

We also wish to understand the driving factors of loan approval

- What can customers do to boost their chances of being approved?



What we know

- **Loan product data:** All of the loans available on Rong360.com (48, 433) and 33 dimensions per data point, including the city, loan term, and which personal information is needed in order to apply
- **User application data:** Applications submitted by users, including users' personal information as well as loan information, like the type of loan and amount sought (1,506,097 x 89)
- **User web data:** Records of users' page views on Rong360 website (238958 x 12)
- **Order data:** Basic record of loan applications and approval result (143152, 6)



Data Cleaning

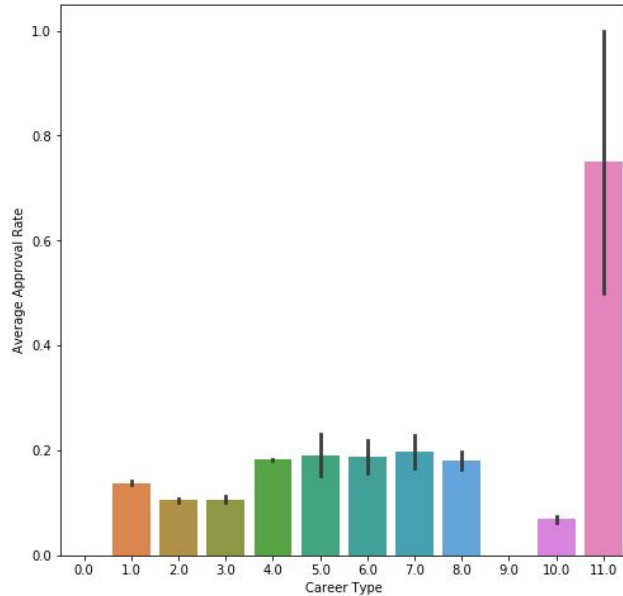
Pros:

- Relatively small data sets
- Segmented data allows for distribution of labor
- Several features were nearly uniform or mostly NA - allowed us to reduce dimensions

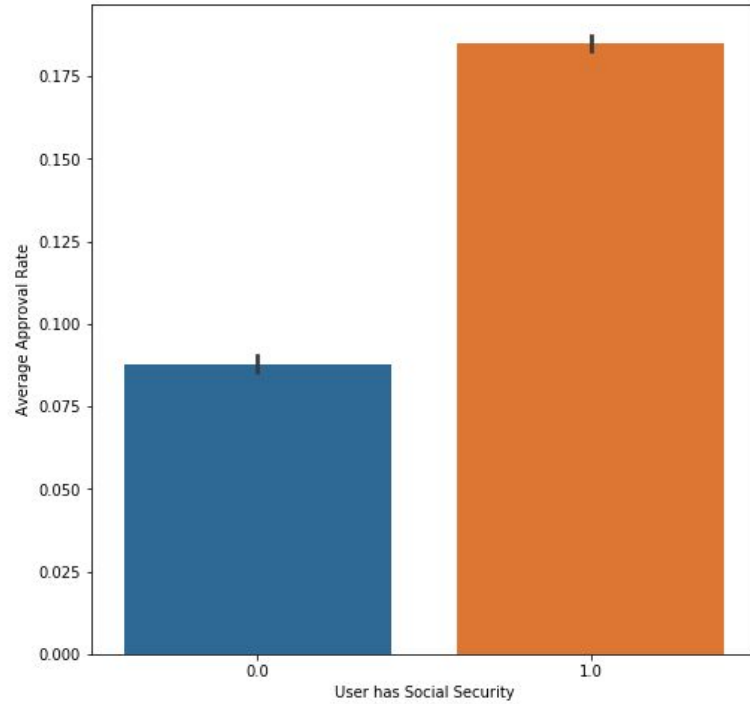
Cons:

- Information was encoded - meaning of categories was obfuscated and harder to orient ourselves in the data
- How to impute missing values
- Inconsistencies across various banks with respect which information they request and how it's recorded

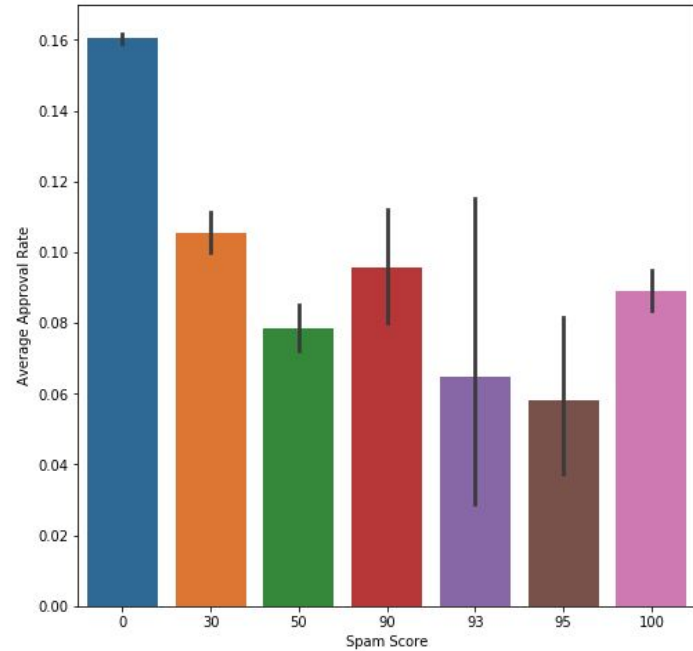
Data Analysis - Who is more likely to approved?



Users' careers matter



Whether users pay social security matters

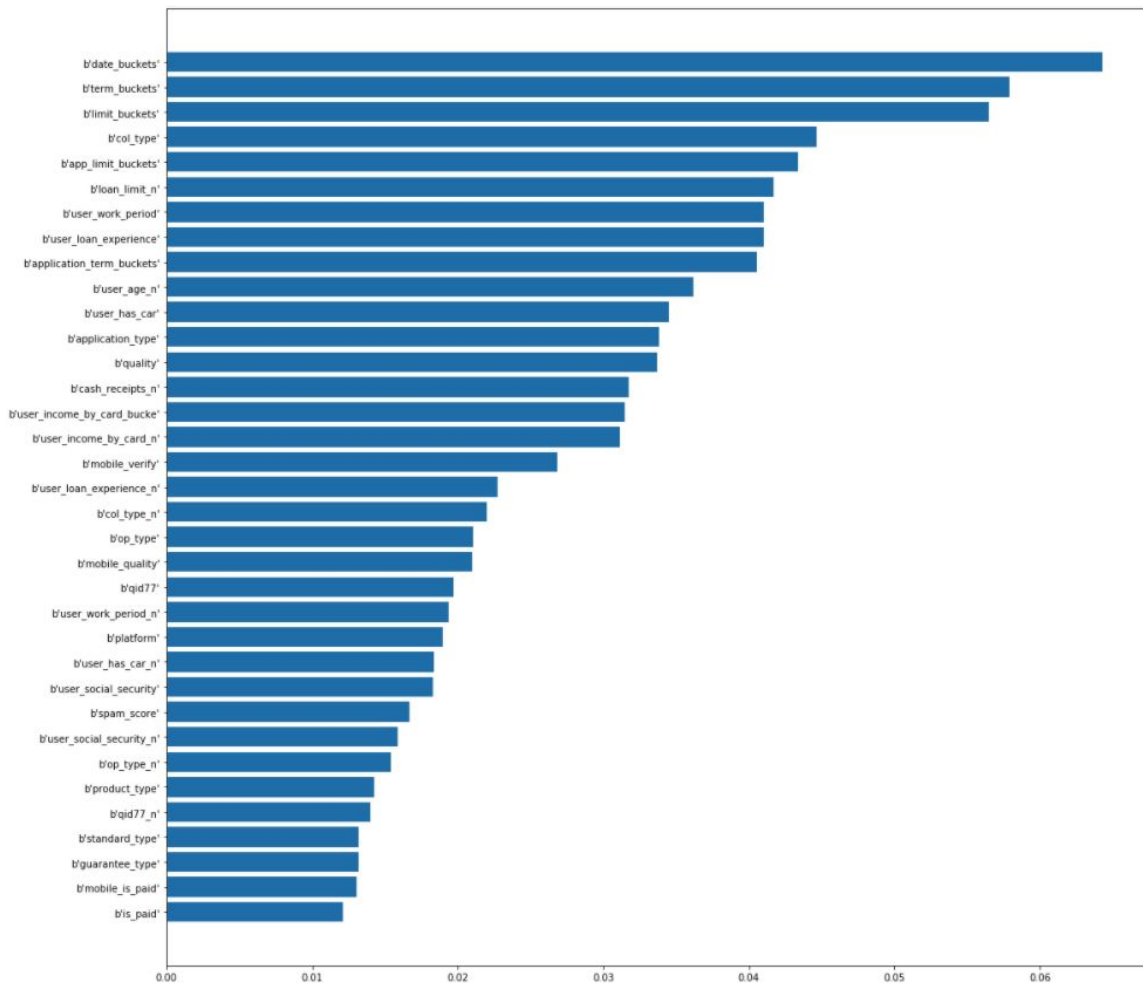


Whether Rong360 believes the applications are genuine matters



Other important characteristics

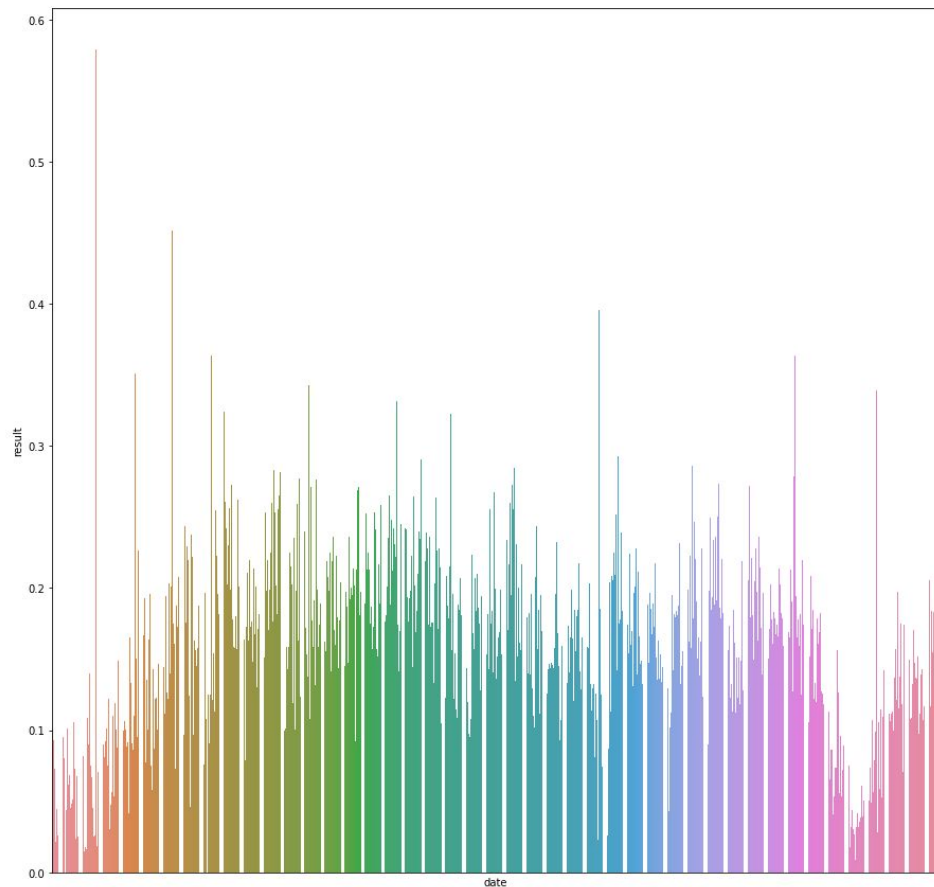
- Some important factors emerge through visualizations
- We use more rigorous methods to confirm what we've observed and reveal other determining characteristics
- Chi-squared tests failed to provide insight
- Random forest - generated feature importance was consistent with domain knowledge expectations and visualizations



Random Forest* feature importance
of application data

Notice loan term and loan limit are
two of the three most important
factors


*Train error: 0.06428
Test error: 0.14289



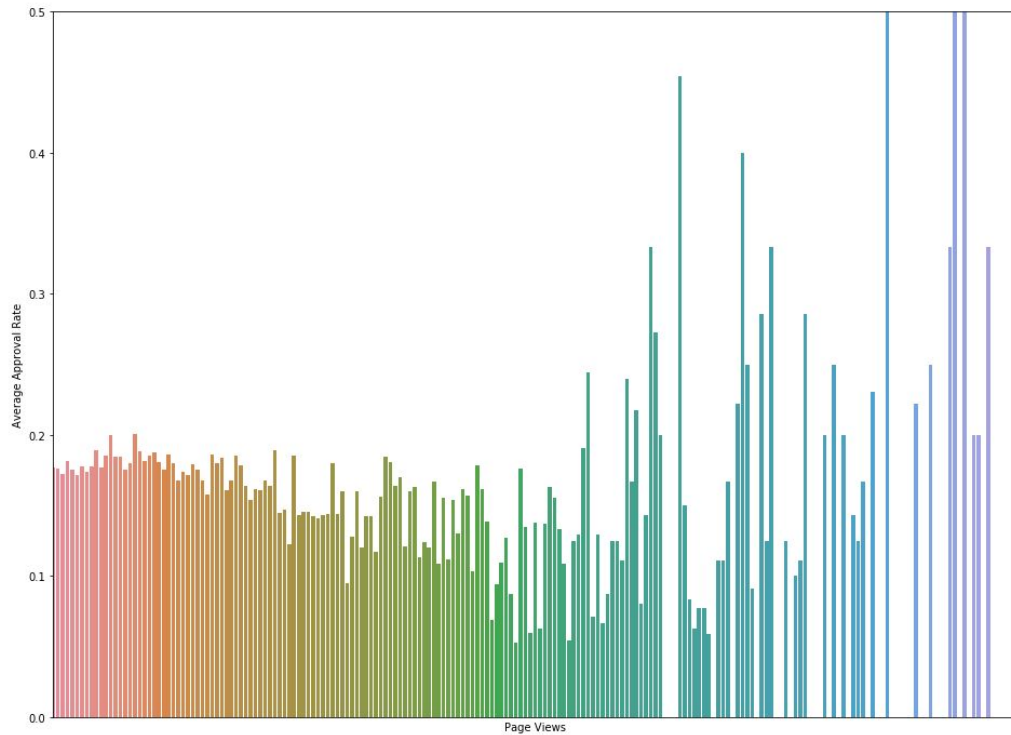
A closer look at approval rates by date

Interesting avenue of further exploration

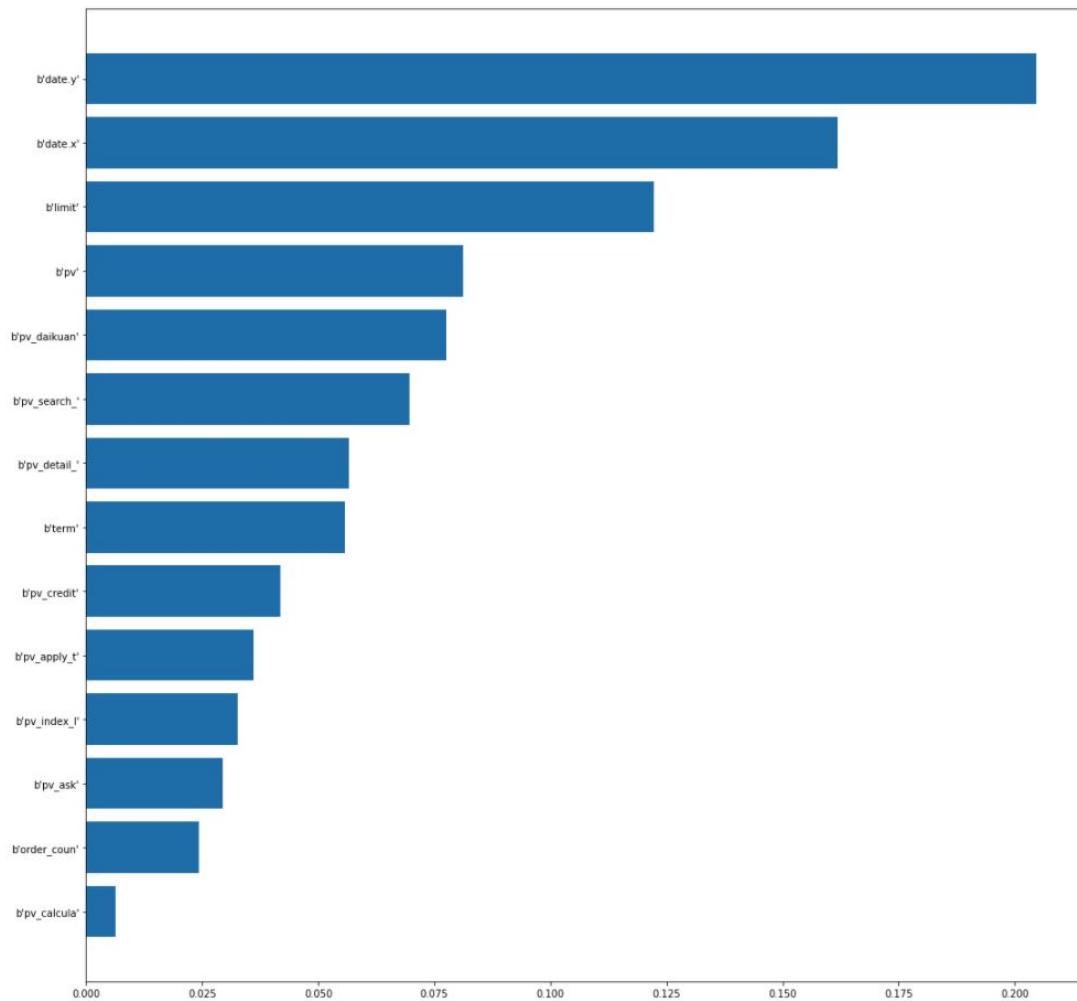
Partly because the dates were encoded, we chose to focus on understanding what makes loan products popular



How user behavior on Rong360 site affects loan approval



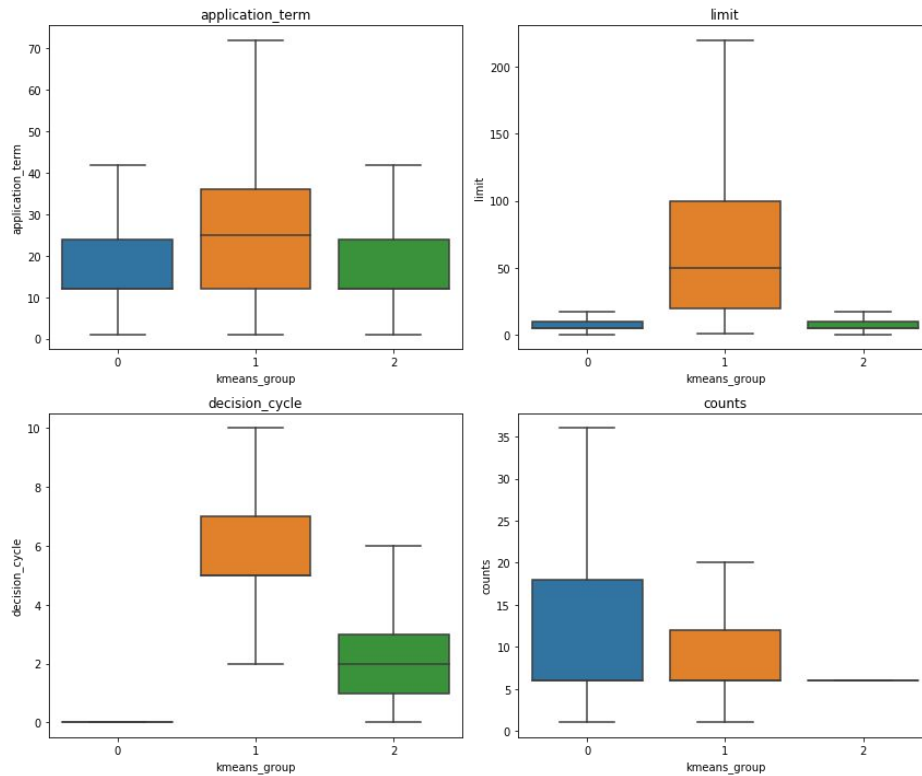
Likelihood of loan approval drops as number of page views increases

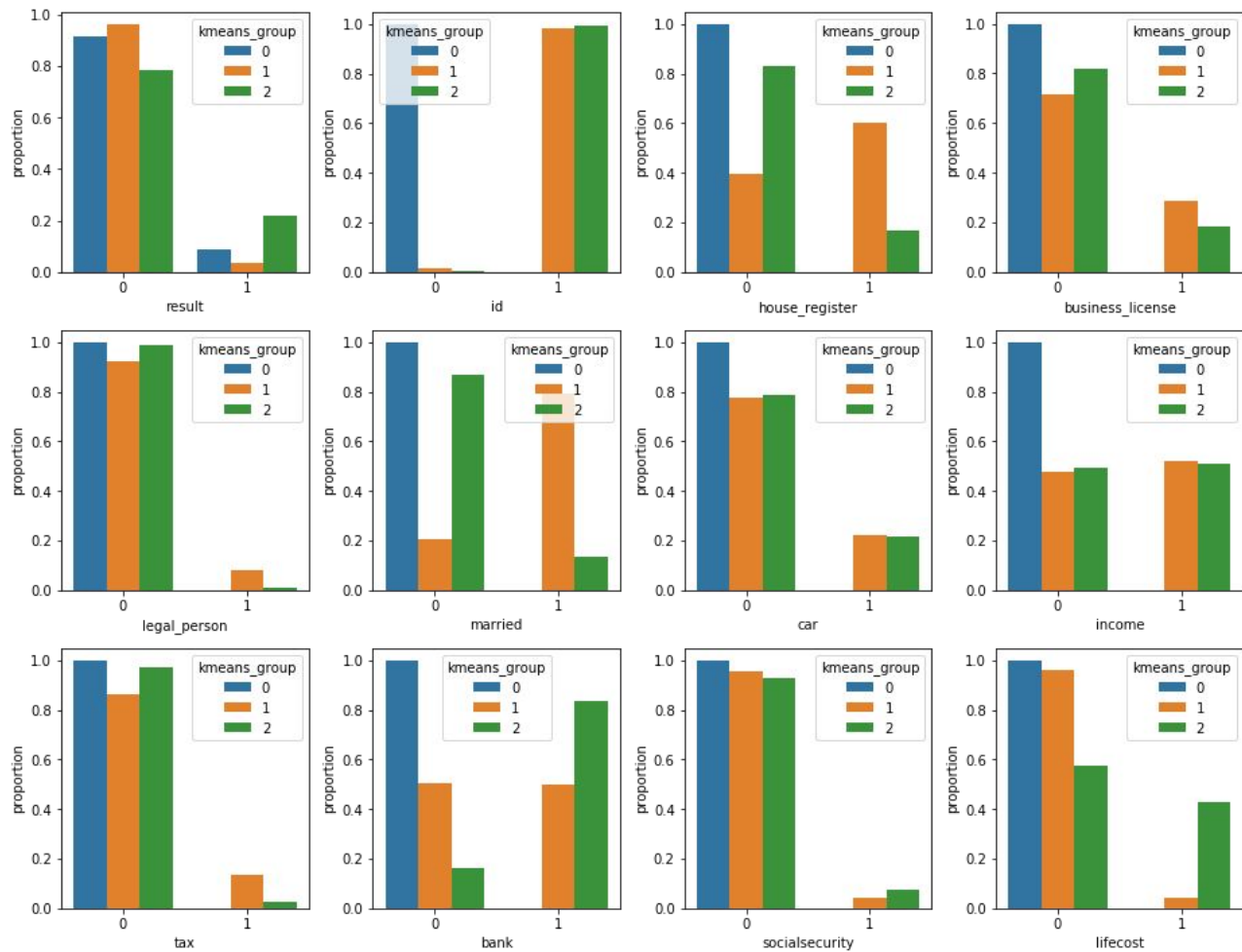


Most important user habits as determined by random forest*

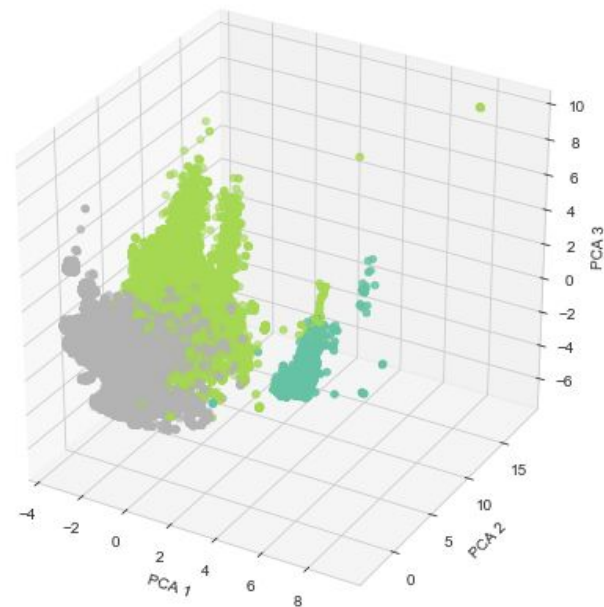
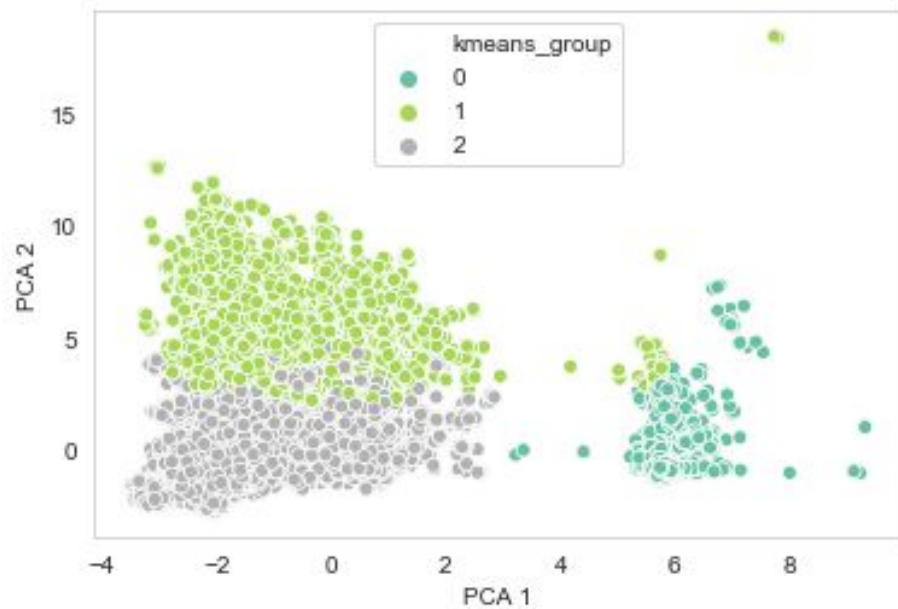
*Train error: 0.14149
Test error: 0.17155

Which characteristics do the most sought-after loans have in common?





PCA on loan characteristics





Further Avenues of Research

- Digging deeper into the effect of location on loan approval
- Feature engineering a loan approval rate per bank, seeing how # of bank branches correlates with loan approval rate
- Digging deeper into a time series analysis
- Gaining more insight into the makeup of the clusters