Q4 2018 United States Loan Data (Lending Club)

TEAM GRYFFINDOR:

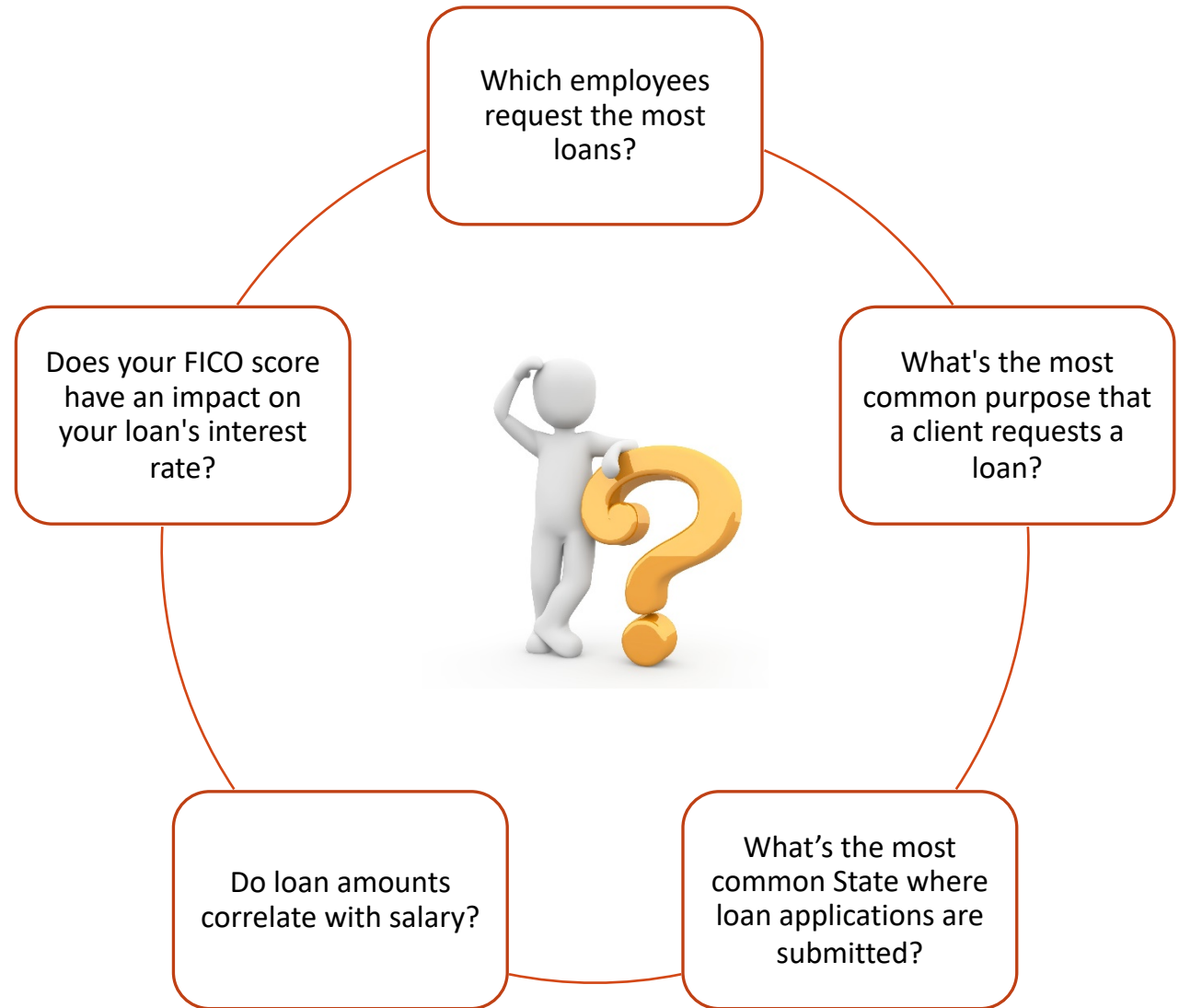JUAN FALCK, JUSTIN MORGAN, EDDIE PEREZ, DEEPA SHARMA, BRIAN SINGH
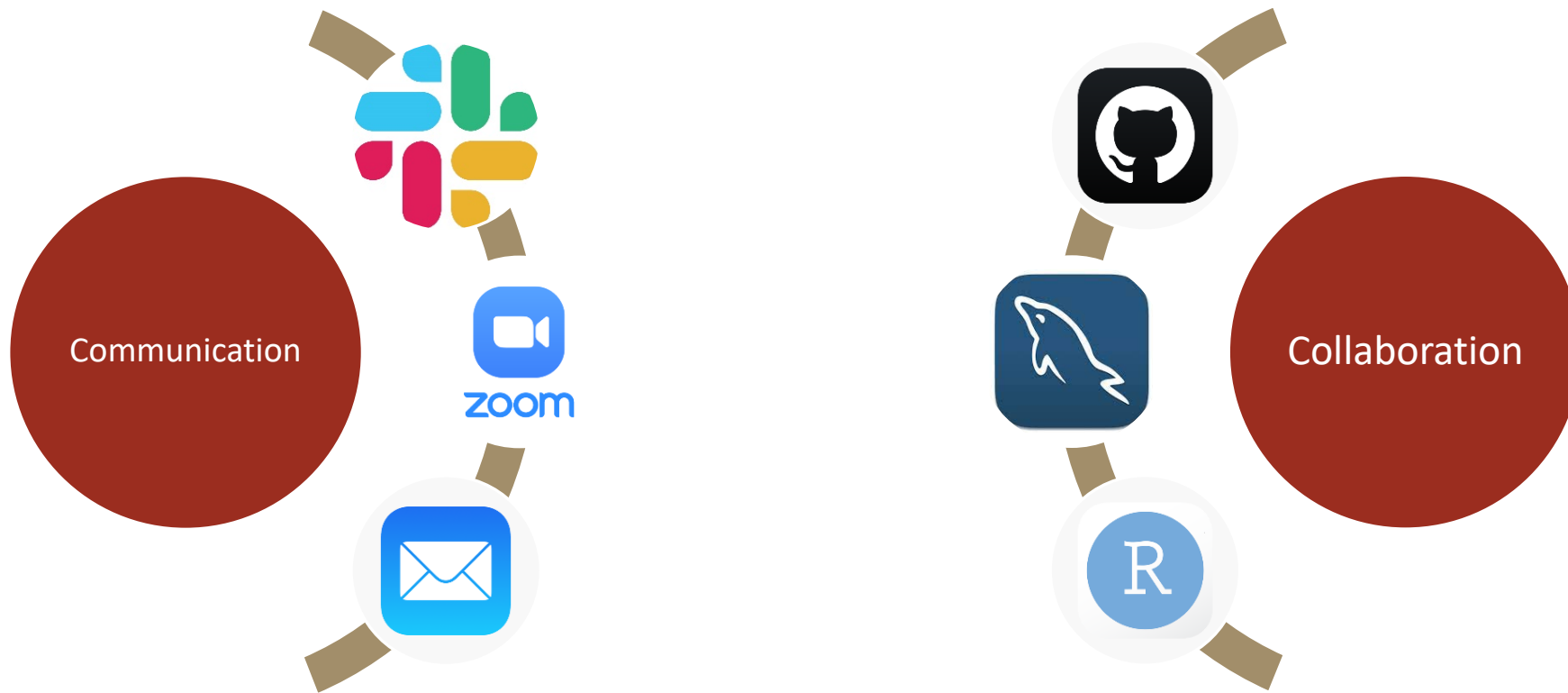
Background

Founded in 1998, Lending Club is the largest marketplace connecting borrowers with investors and helping them with personal loans, business loans, financing for medical procedures, and K-12 education. It's a win-win situation because they (borrowers) may achieve cheaper lending rates and more significant investment returns for investors.
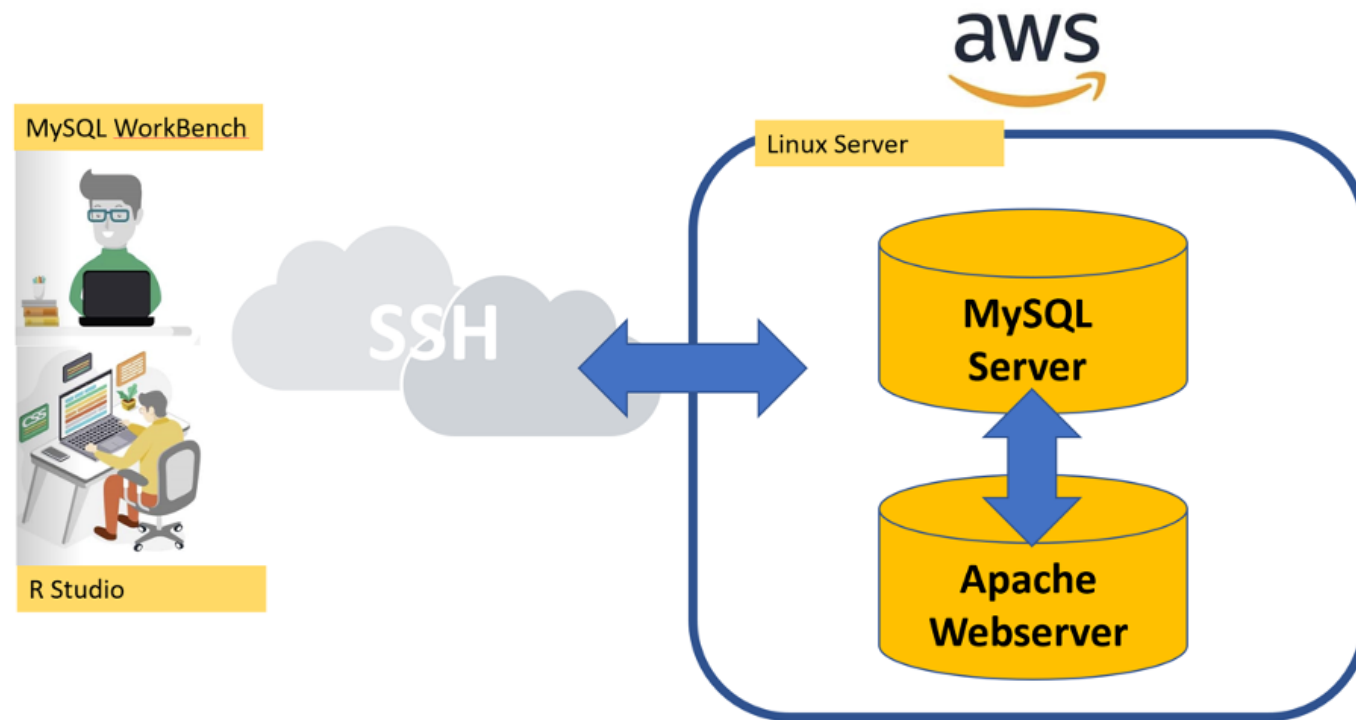
Scope
Q4 2018 Accepted Loans

Which employees request the most loans?

What's the most common purpose that a client requests a loan?

What's the most common State where loan applications are submitted?

Do loan amounts correlate with salary?

Does your FICO score have an impact on your loan's interest rate?

Communication & Collaboration

General Setup

Data

	id	member_id	loan_amnt	funded_amnt	funded_amnt_inv	term	int_rate	installment	grade	sub_grad
1	68407277	NA	3600	3600	3600	36 months	13.99	123.03	C	C4
2	68355089	NA	24700	24700	24700	36 months	11.99	820.28	C	C1
3	68341763	NA	20000	20000	20000	60 months	10.78	432.66	B	B4
4	66310712	NA	35000	35000	35000	60 months	14.85	829.90	C	C5
5	68476807	NA	10400	10400	10400	60 months	22.45	289.91	F	F1
6	68426831	NA	11950	11950	11950	36 months	13.44	405.18	C	C3
7	68476668	NA	20000	20000	20000	36 months	9.17	637.58	B	B2
8	67275481	NA	20000	20000	20000	36 months	8.49	631.26	B	B1
9	68466926	NA	10000	10000	10000	36 months	6.49	306.45	A	A2
10	68616873	NA	8000	8000	8000	36 months	11.48	263.74	B	B5
11	68356421	NA	22400	22400	22400	60 months	12.88	508.30	C	C2
12	68426545	NA	16000	16000	16000	60 months	12.88	363.07	C	C2
13	68338832	NA	1400	1400	1400	36 months	12.88	47.10	C	C2
14	66624733	NA	18000	18000	18000	60 months	19.48	471.70	E	E2
15	68466961	NA	28000	28000	28000	36 months	6.49	858.05	A	A2
16	68354783	NA	9600	9600	9600	36 months	7.49	298.58	A	A4
17	68466916	NA	25000	25000	25000	36 months	7.49	777.55	A	A4

Showing 1 to 16 of 2,260,701 entries, 151 total columns

-151 variables

-2.26M observations

Data wrangling

-75 variables

-686 observations

https://www.kaggle.com/datasets/wordsforthewise/lendingclub?select=accepted_2007_to_2018Q4.csv.gz

Database

- Data tables were related in MySQL Workbench into one parent table, LendingClub:
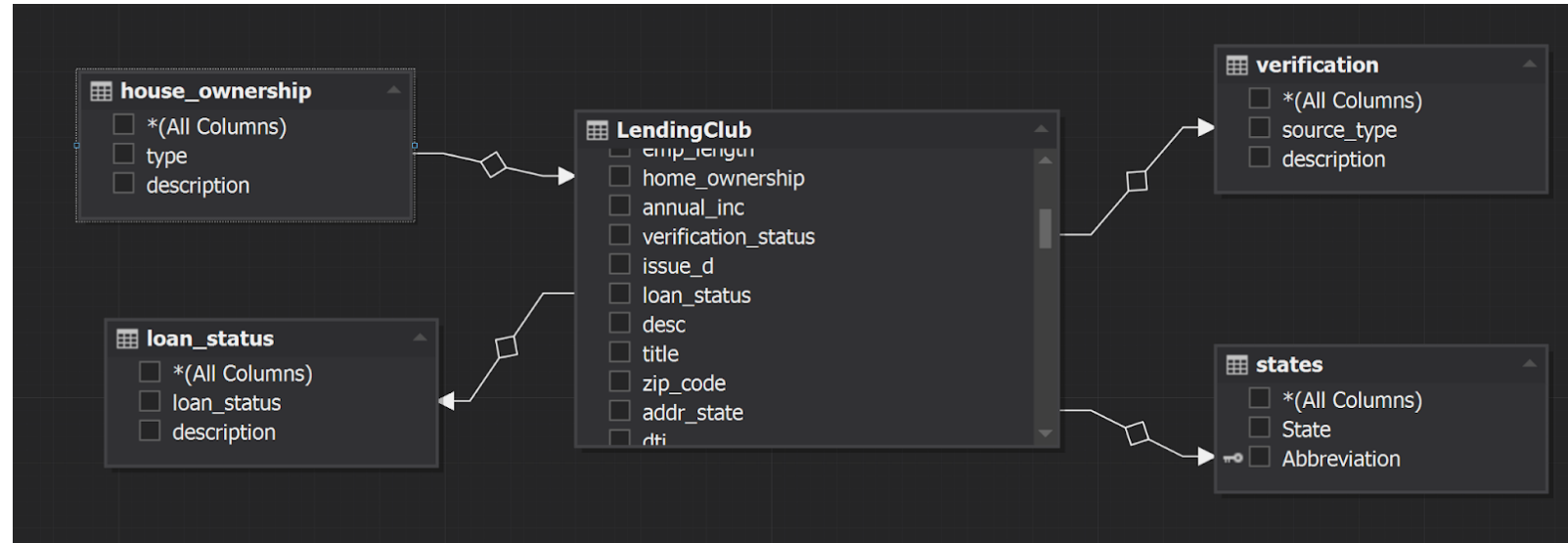
- The database was hosted on a server and accessed by the team via a private key

Which employees request the most loans?

Employe Title Count (Top 10)
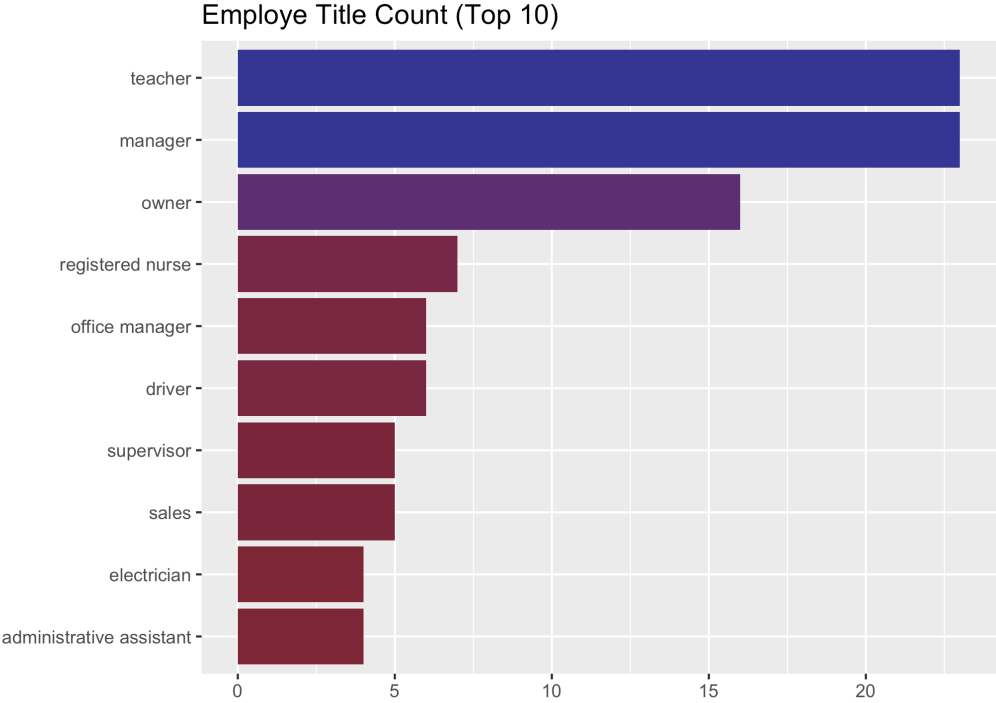
The data returned 61 applicants who did not disclose their employment title (excluded)

Teachers were the only group to receive loan grades of "E", which denote the riskiest loans. "Manager" is a generic title if attempting to conduct further research on the results
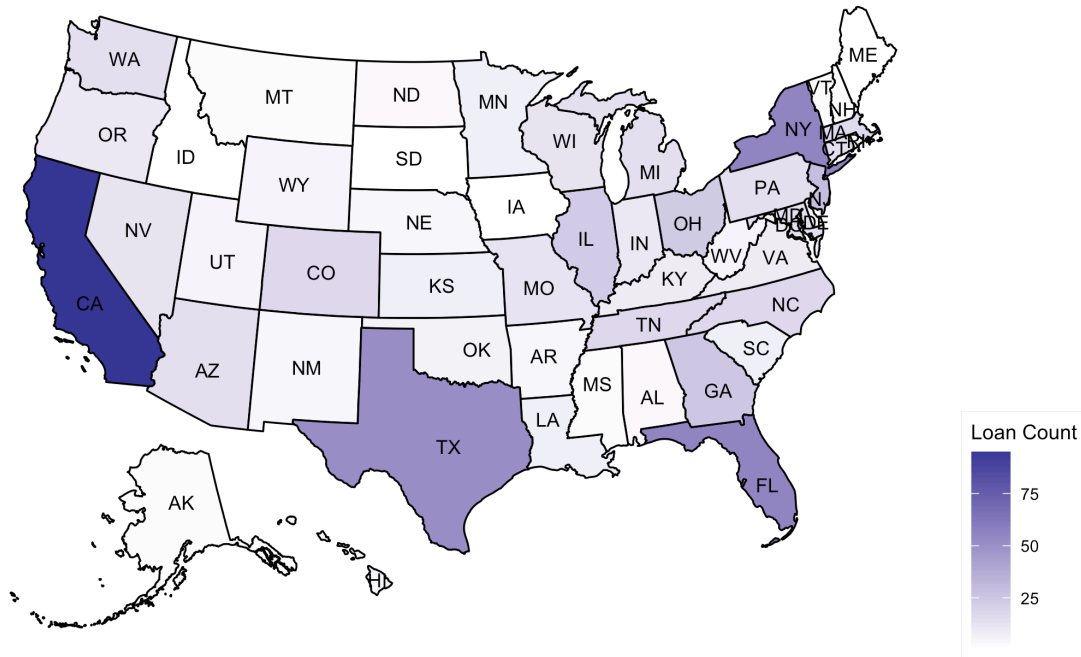
Top 5 Jobs by Loan Grade

What's the most common purpose that a client requests a loan?
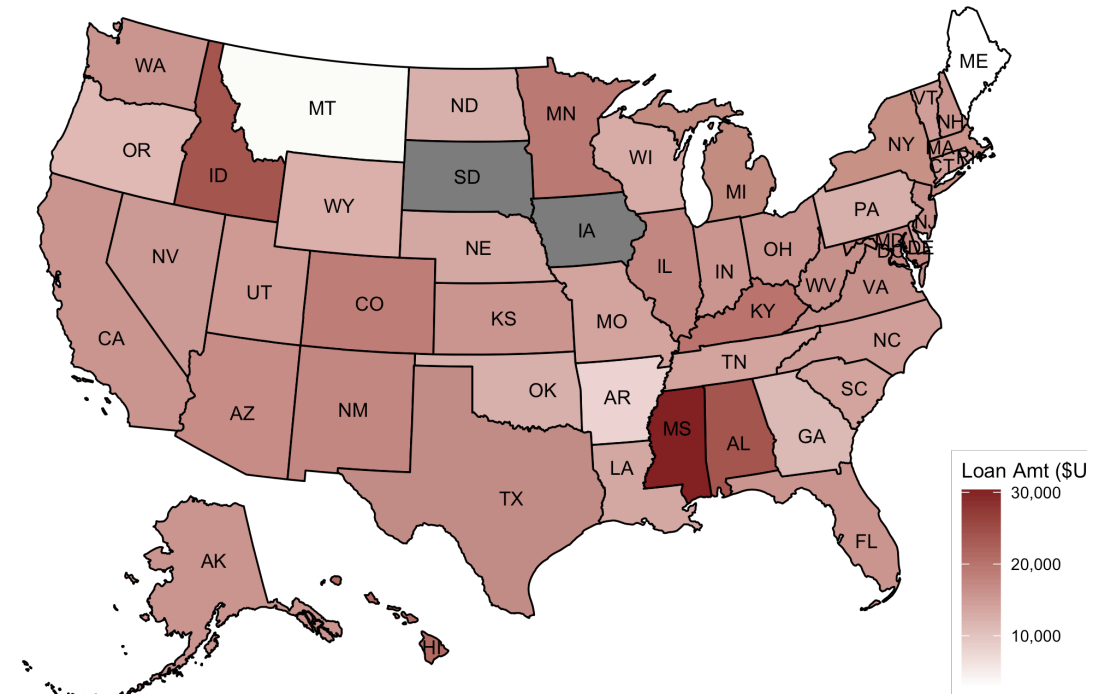
% Loan by Purpose (Top 10)
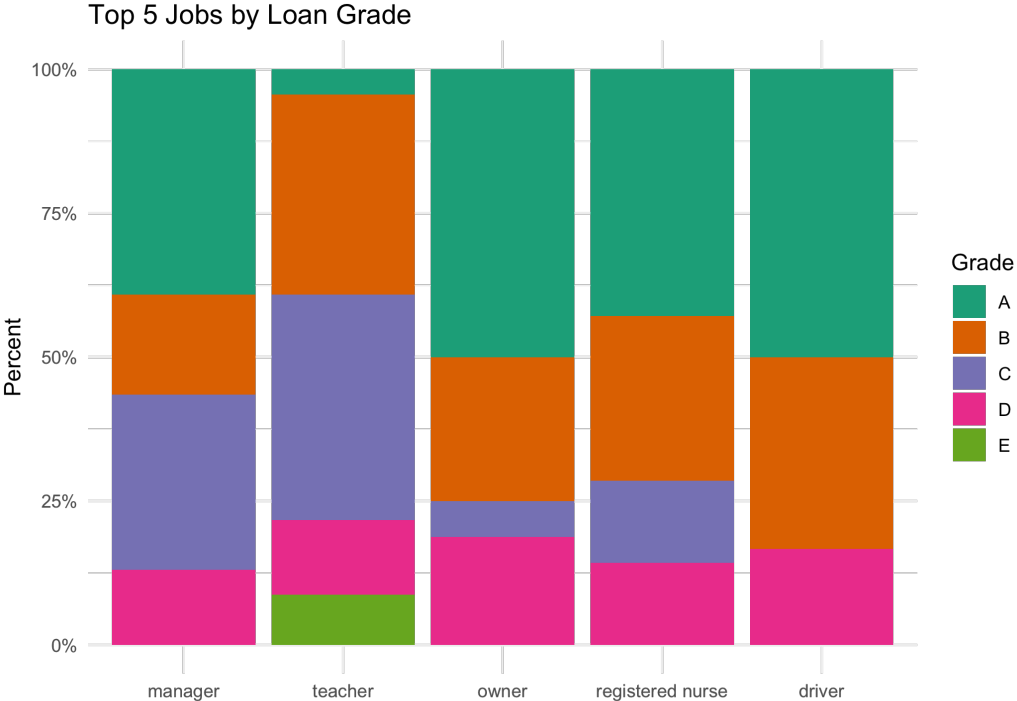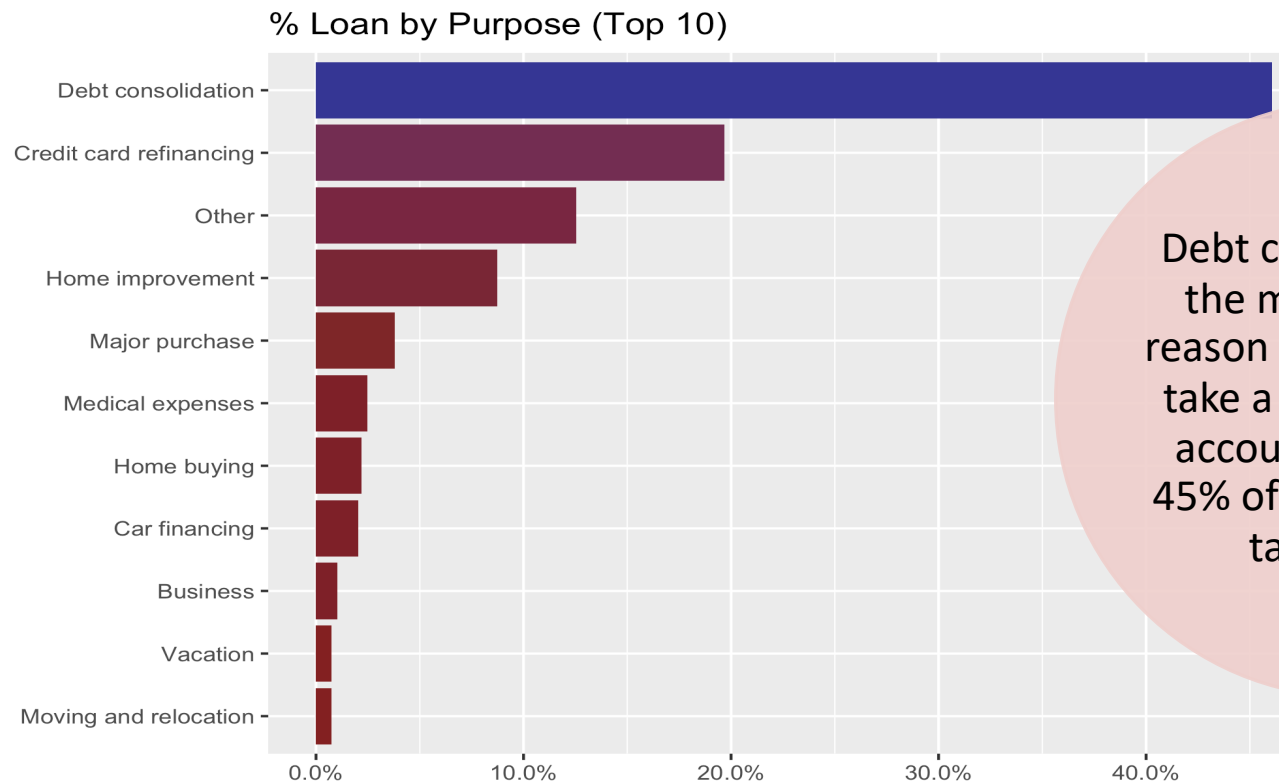
Debt consolidation is the most common reason that individuals take a personal loan, accounting for over 45% of the total loans taken out.*

*This appears to be confirmed by bankrate.com
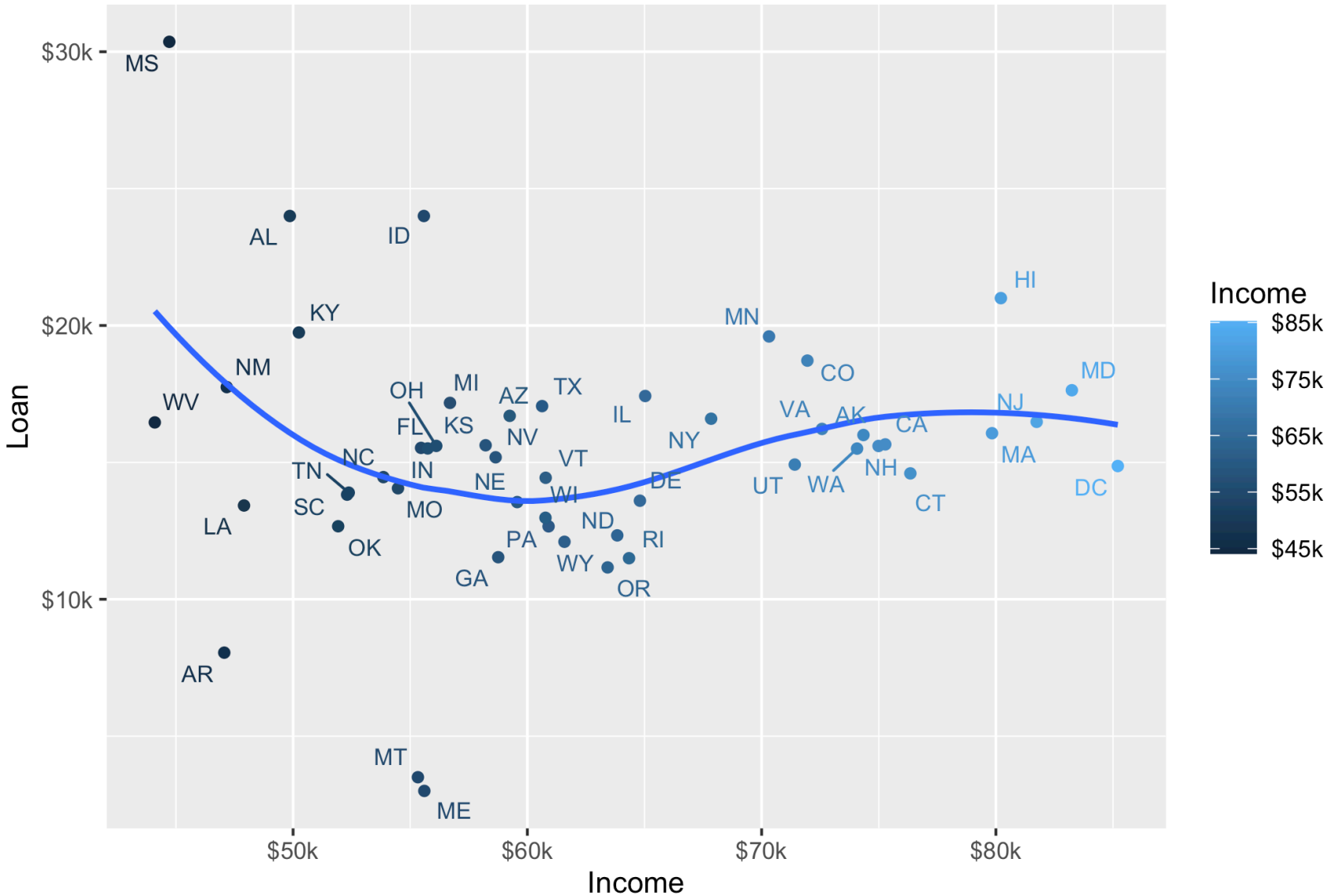
Accepted Loan Applications by State

Avg Loan Amount ($USD) by State

What's the most common State where loan applications are submitted?
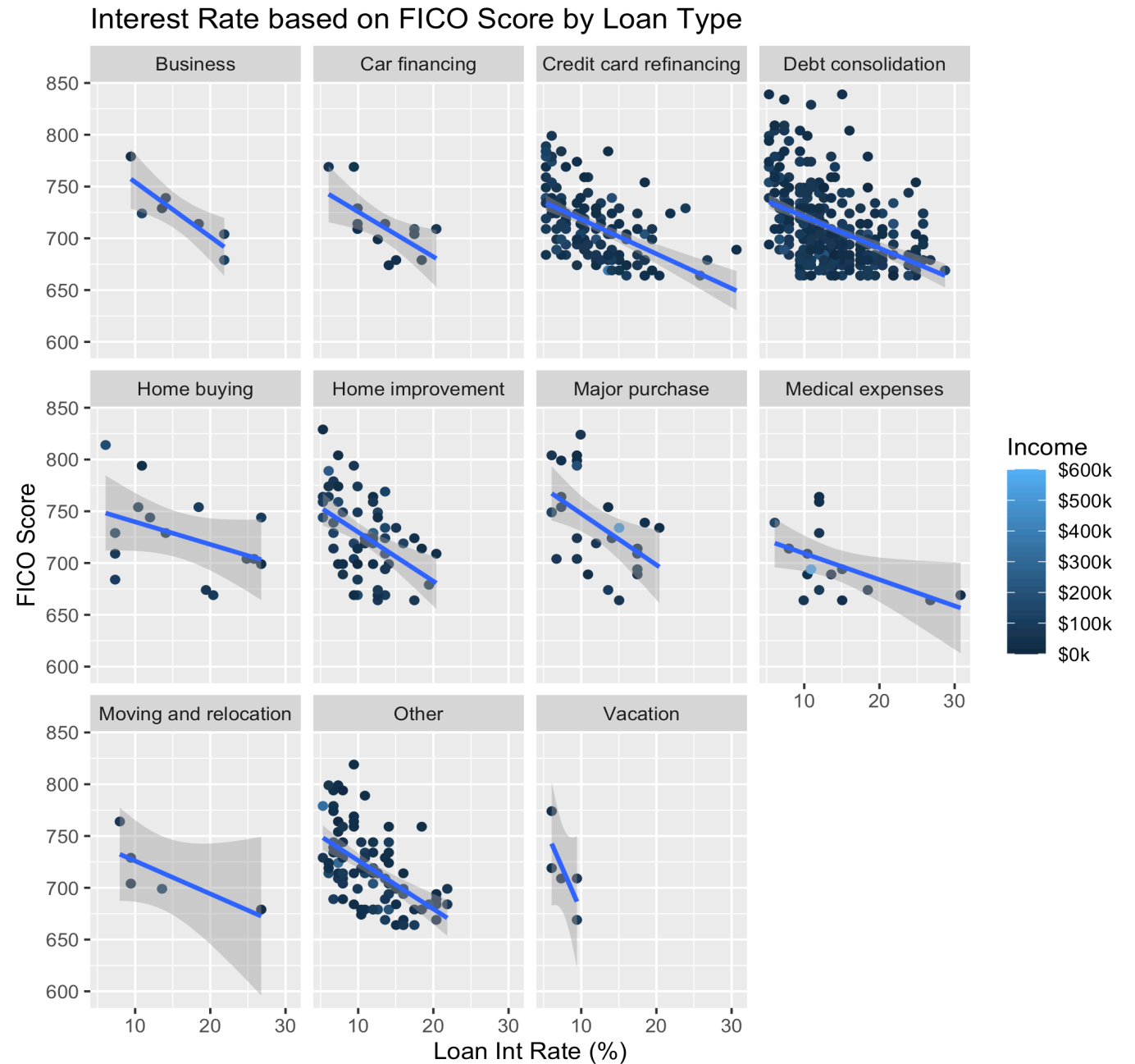
Mean Income vs. Mean Loan by State (2018)

Missouri has one of the lowest average incomes in 2018* with the highest loan average ($)

*https://en.wikipedia.org/wiki/List_of_U.S._states_and_territories_by_income

Do loan amounts correlate with salary?

Does your FICO score have an impact on your loan's interest rate?

Interest Rate based on FICO Score by Loan Type

Conclusion

Most common employee types taking loans - NA (61), teachers, managers, owners.

- Teachers had the highest proportion of E graded loans (riskiest), while owners had the highest proportion of A graded loans.

Loan purposes were dominated by Debt consolidation and Credit Card refinancing

- FICO scores had a clearly negative linear relationship with loan rates.

States with the most loan requests California, NY and Florida.

- Missouri and Idaho had the highest mean loan amount. Strikingly, Missouri also had one of the lowest mean annual incomes, while states such as Maryland/DC, Boston, New Jersey and Massachusetts, had the highest salaries and relatively modest loan rates.

Potential Next Steps

Merge demographic data from the census API to conduct an analysis of how this all relates to different aspects such as income, race, sex and more focused geographical boundaries.

Links

- Project 3 - Team Gryffindor Homepage

  http://data607project3.com/

- Github

  https://github.com/justinm0rgan/project3data607

Questions?