Project : Bank loan of customers

Presented By,

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INTRODUCTION

In this case study, we analyze the data sets Finance1 and Finance2. We noticed some missing values in the datasets, so first we cleaned it using Excel, here we have done EDA Analysis of this data.

From this Analysis, we understood the probability of getting a loan or not and got the idea about the customer who is interested to applying for a loan, in terms of grade, in terms of annual income, in terms of purpose, home ownership status. As a general assumption, we think that the lower-income group has taken higher amount of loan. Since there are a lot of factors, hence visualization is going to help us to understand and explore the data.
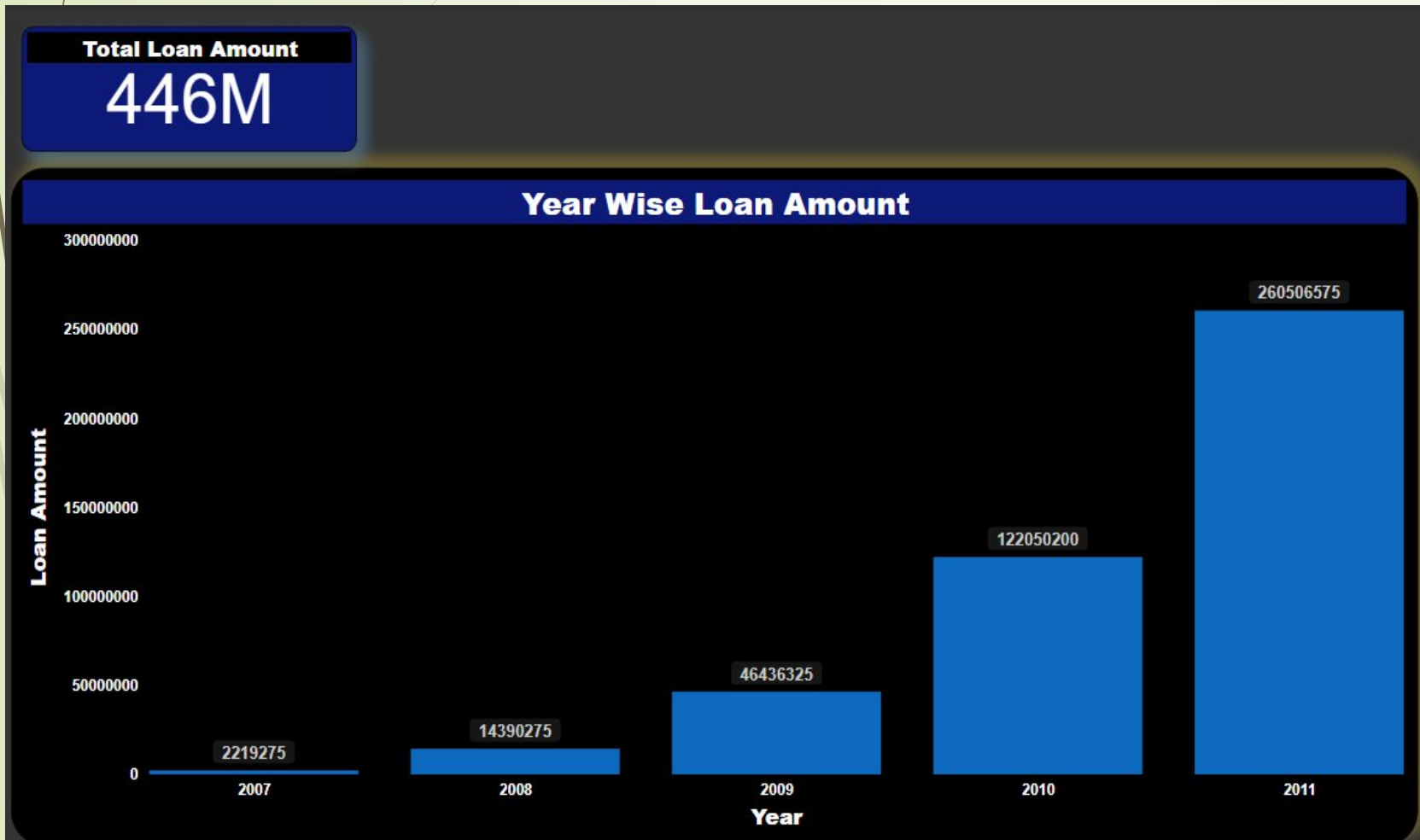
The main purpose of the project is to classify and analyze the nature of the loan applicants. From a proper analysis of data set and constraints of the banking sector, different graphs were generated and visualized. From the graphs, many conclusions have been made and information were inferred such as Debt consolidation is the most common reason for borrowing. The advantage of peer to peer lending is the lower interest rate. So most customer choose to consolidate debt. And credit card, house and small business are the other most popular reasons for borrowing.

Project KPI's

1. Year wise loan amount Stats

2. Grade and sub grade wise revolving balance

3. Total Payment for Verified Status Vs Total Payment for Non Verified Status

4. State wise and month wise loan status
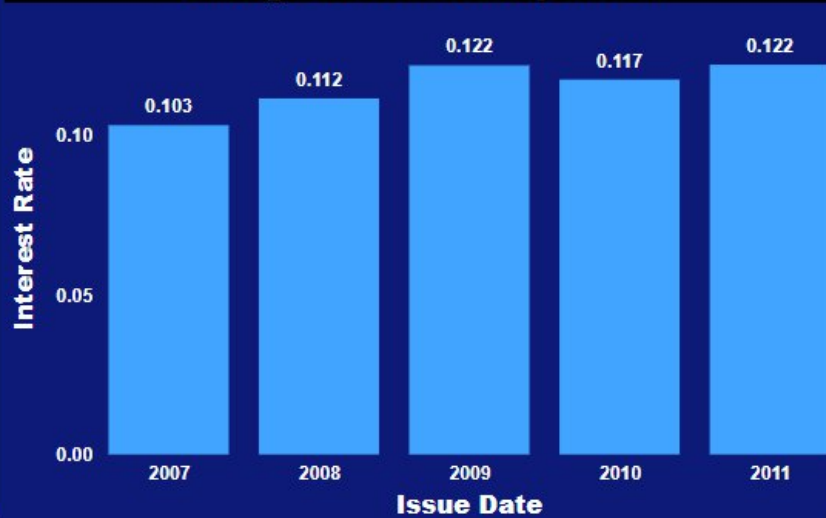
5. Home ownership Vs last payment date stats

KPI_1) Year wise loan amount Stats

Total Loan Amount
446M

Year Wise Loan Amount

Loan Amount (y-axis):
- 300000000
- 250000000
- 200000000
- 150000000
- 100000000
- 50000000
- 0

Year	Loan Amount
2007	2219275
2008	14390275
2009	46436325
2010	122050200
2011	260506575

- Loan Amount trended up, resulting in a 11638.36% increase in between 2007 and 2011.

- Total loan amount increased year by year.

- From 2007 to 2011 the graph shows steep inclination.

- Total Loan Amount given by the bank for a period of 5 years (2007-2011) is 446M.

Year wise Visualization

Average Interest Rate per Year

0.103 (2007), 0.112 (2008), 0.122 (2009), 0.117 (2010), 0.122 (2011)
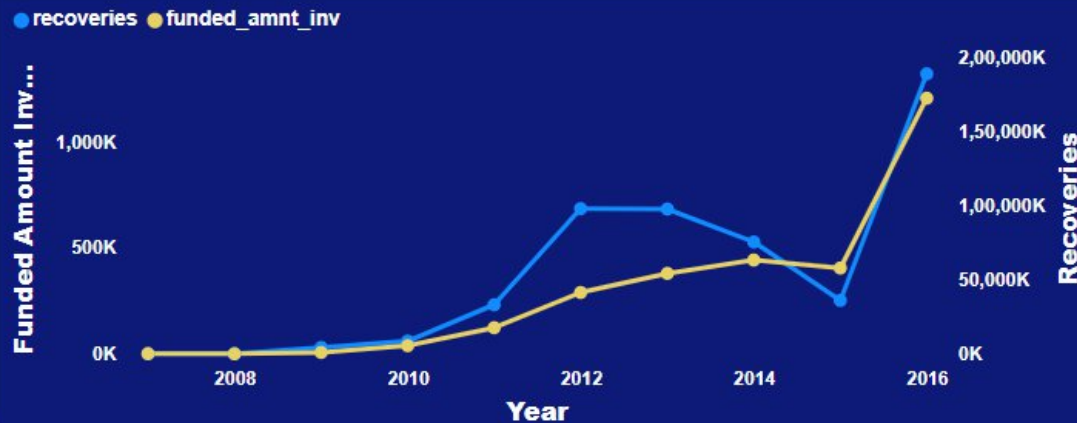
Year
- [ ] 2007
- [ ] 2008
- [ ] 2009
- [ ] 2010
- [ ] 2011

Total Funded Amount
434810K
funded_amnt

Overall Interest Rate
4.77K
int_rate

Funded Amount Invested V/S Recoveries
- recoveries
- funded_amnt_inv

Funded Amount by Purpose

| Purpose	FundedAmount
debt_consolidation	230937800
credit_card	58749550
home_improvement	33392050
other	31517000
small_business	23792875
major_purchase	17430925
car	10400450
wedding	9236050
medical	5615650
house	4843500
moving	3793550
educational	2174925
vacation	2049575
renewable_energy	876425

- Average of interest rate started trending up on 2007,raising by 18.39%(0.02) in 4 years.

- Average of int_rate jumped from 10.3% to 12.2% in between 2007 and 2011.

- Dept_Consolidation ,with 46.9% of record, most affect the distribution.

- 2009 and 2011 are having same average interest rate.

- The variations between Average interest rate of each year from 2007 to 2011 is considerably very low.

- Funded amount v/s recovery is almost same and the recovery rate is comparatively high in 2011 hence there is no dept considering from the bank recovery side.

- Across all 14 purpose, funded_amnt ranged from 876425 to 230937800

- At 230937800, debt_consolidation had the highest funded_amnt and was 26,249.98% higher than renewable_energy, which had the lowest funded_amnt at 876425.

- debt_consolidation accounted for 53.11% of funded_amnt.

KPI_2) Grade and subgrade wise revolving balance

| Grade	Revol Bal
A	$114.77M
B	$161.31M
C	$110.12M
D	$74.49M
E	$46.07M
F	$18.28M
G	$6.46M

Grade-sub gradewise revol_balance
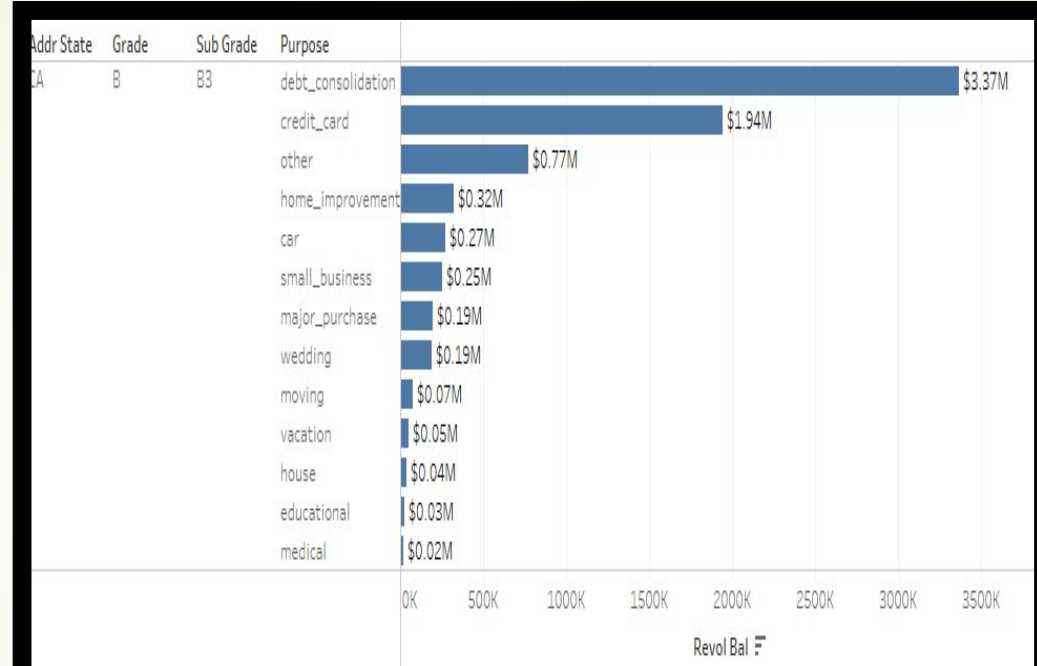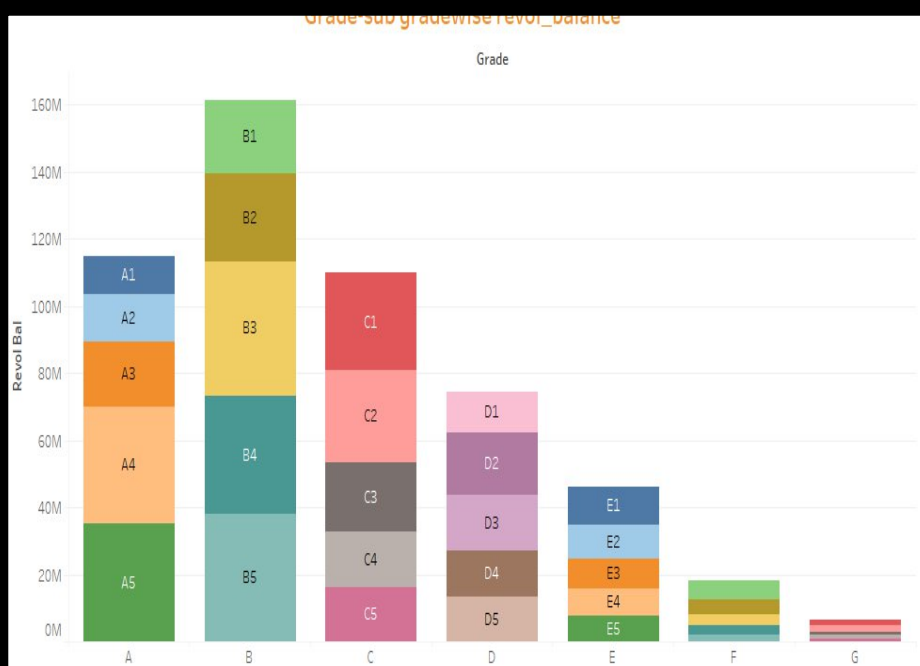
- The above table shows the sum of revolving balance grade wise.

- The bar chart represents that the customers with grading B has the highest revolving balance.

- If we further analyse , we can observe that the state California has the highest revolving balance among all the states.

- Considering the purpose of loan borrowed, we can observe that the debt consolidation indicates the highest revolving balance among the subgrade B3.

# KPI_3) Total Payment for Verified Status Vs Non Verified Status

Total Payment for Verified Vs Non Verified Status
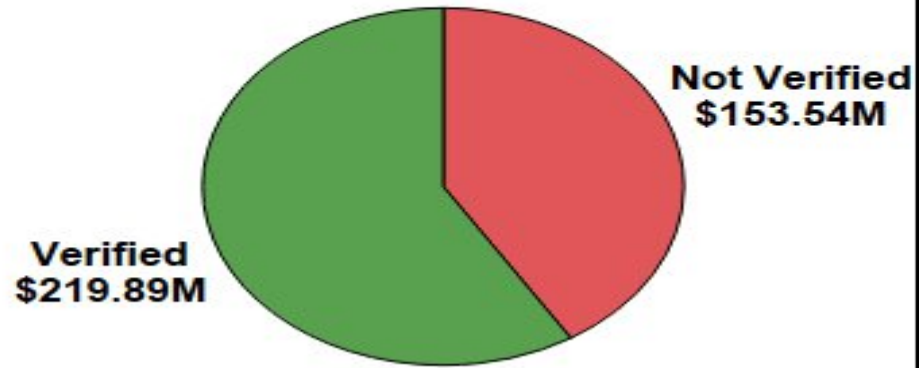
- Value of total verified payments is 219.89 million dollars

  and value of unverified payment is 153.54 million dollars

- Debt consolidation is major contributor with 6.83 million dollars

- Other contributors to the list are education ,home improvement, renewable energy,

  wedding, car etc

- Education and renewable are least contributor with 0.07 million dollars and 0.28 million

  dollars contribution respectively.
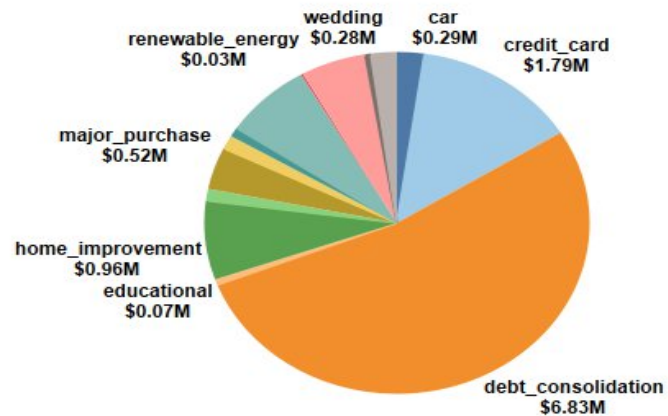
KPI_4) State wise and month wise loan status
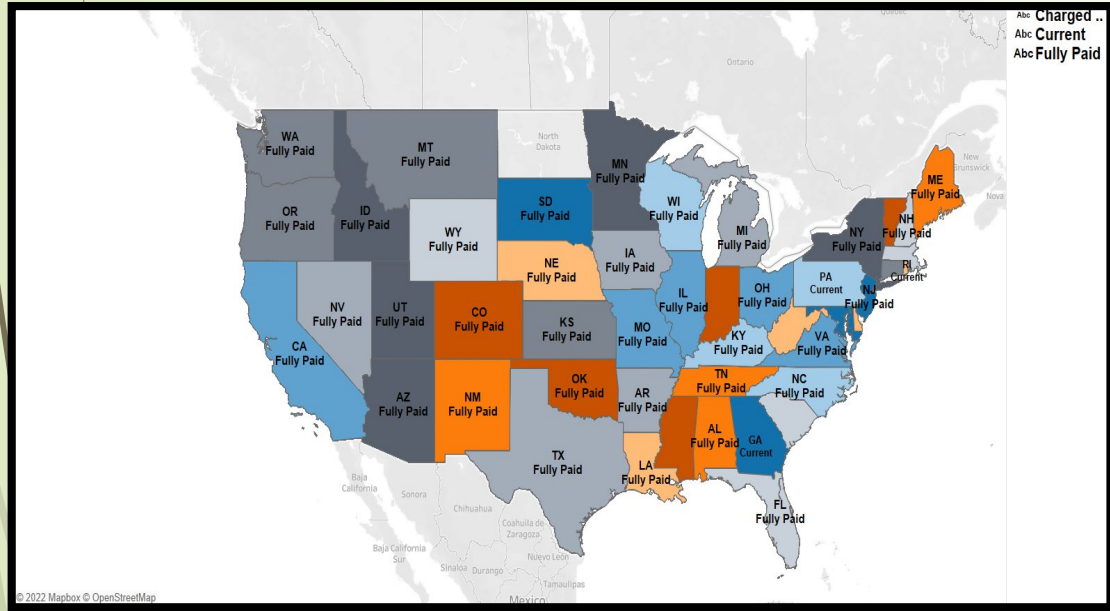
| Charged Off	Current	Fully Paid
15%	4%	80%

- As per the data, state wise loan status, most of the state like 80% of state fully paid loan recovery rate is good

- In 2011 fully paid loan account is more as compare to other years

- In USA end of the year loan paid percentage is increasing , it helps to reduce risk and year wise loan recover rate can improve.

- Majorly people buy the loan for debt consolidation.

- TX,NY,CA are state has 35% share in total loan amount, Also account which lies in B Grade have 30% contribute in loan amount.
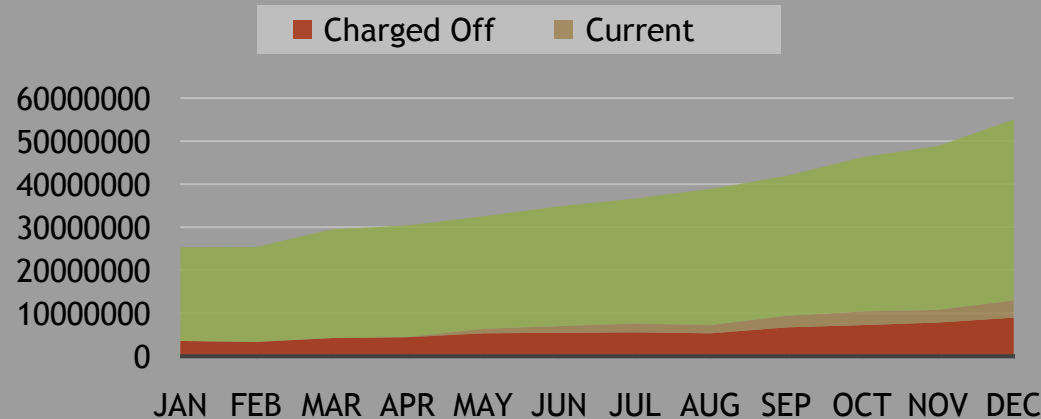
KPI_5) Home ownership Vs last payment date stats
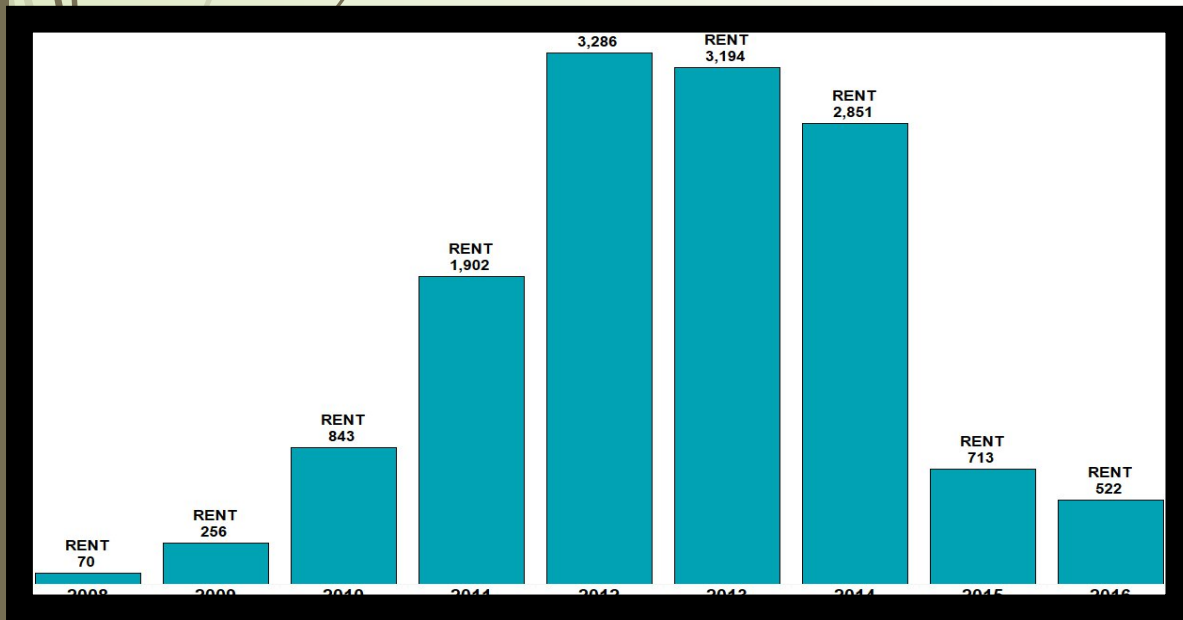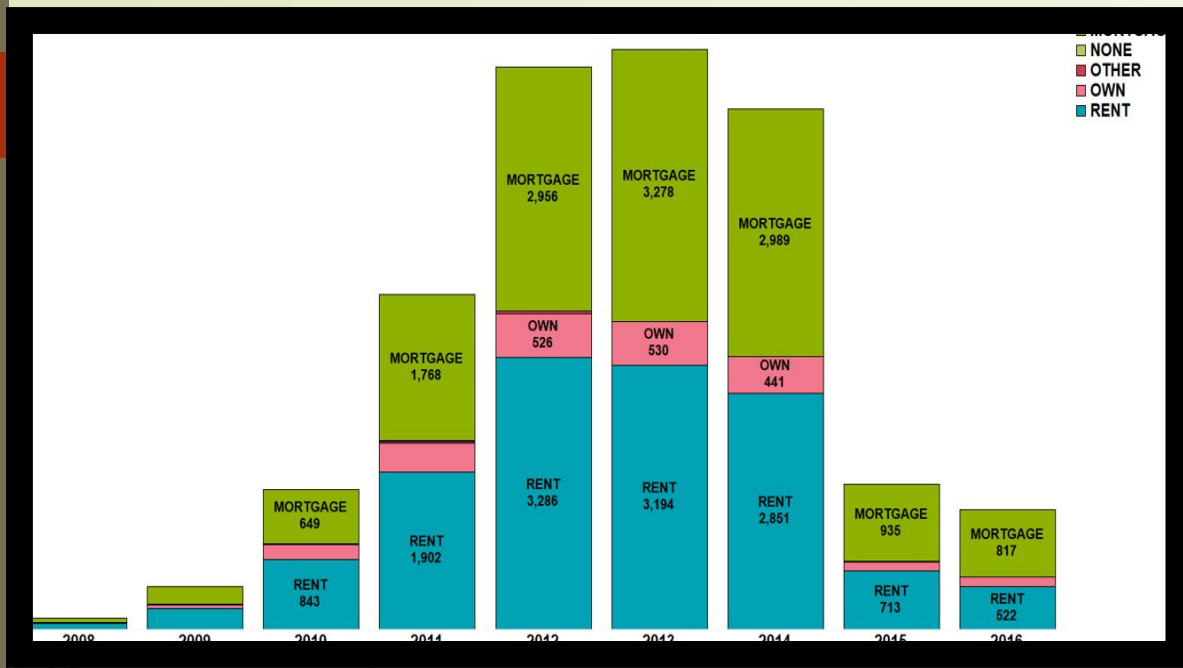
From observations, there are 4 types of home ownerships
1)Mortgage
2)Own
3)Rent &
4)Other

From the bar chart we can conclude the below observations w.r.t last payment date& ownership status:

- For acquiring the loan from bank, In the year of 2013, the count of last payment amount for mortgage is highest i.e. 3278. At the same time, it is lowest in the year of 2008 i.e. 56
- From 2008 to 2013, for loan, the mortgage keeping rate is increasing in trend and after that from 2014 it is decreasing

- For Own as a home ownership, from 2008 to 2013, the count of last payment amount is increasing, while it is degrading from year 2014 to 2016
- Here, Highest value for the count of last payment amount is 530 for year 2013 while lowest one is 11 for the year of 2008

- For Rent as a home ownership, the year 2012 shows the highest count of last payment amt i.e. 3286 while the year 2008 shows the lowest count i.e. the 70
- Here also, from the year 2008 to 2013 the trend is increasing and it has decreased from 2014 to 2016

Conclusion:

- From the year 2008 to 2013, the count of last payment amount for all kind of home ownerships is increasing in nature while it decreases from the year 2014 onwards.
- Here, we can say that, the preference for RENT as home ownership is more than the mortgage and own one by comparing the last payment date and last payment amount.