**Application ID: 2413815**

**https://github.com/2413815/CFPB**

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**Set up:**

For this project I have created three database tables based on Income data from Census , geography information from census and complaints data from CFPS and load the data from those files into the tables.

I joined the tables as I shown below and run my different queries as I showed in this document.

I posted the results from different queries into google spreadsheets. I used google charts and javascript to show my final report in html file.

Each report is represented in one separate HTML file.

There is an index file which has links to all reports and html files. All files need to be on the same folder.

You can access files by opening them individually or through index file.

All HTML files, word document and readme file posted on :

https://github.com/2413815/CFPB

You may download the zip file and unzip the files to access all files.

**JOIN Queries:**

SELECT Income2.\*, geography.\*

FROM Income2 INNER JOIN geography ON Income2.LOGRECNO = geography.LOGRECNO;

SELECT [income-gography].\*, Consumer\_Complaints.\*

FROM [income-gography] RIGHT JOIN Consumer\_Complaints ON [income-gography].ZCTA5 = Consumer\_Complaints.[ZIP code];

**Missing/Wrong data:**

There are some missing/wrong data in files provided. There are some invalid values for zipcodes, states or blank data. There are different way to address these issues depending on the data type and data context. We may use data history to guess the correct data for missing/invalid data. We may use the other information provided in the record to guess the value of invalid or missing field (e.g. by looking at zipcode we can guess the value of state). We may use average or median values for numeric values.

**1. First report: Complaint Volume by product in 2015 and 2014**

Table 1 shows the complaint volume by product in 2015.

The following SQL queries used to get the result shown in TABLE1.

*SELECT Consumer\_Complaints.product, Count(\*) AS NumberComplaints2015*

*FROM Consumer\_Complaints*

*WHERE Consumer\_Complaints.DateReceived < #1/1/2016# AND Consumer\_Complaints.DateReceived >= #1/1/2015#*

*GROUP BY Consumer\_Complaints.product;*

| **Table1** | |
| --- | --- |
| **product** | **NumberComplaints2015** |
| Bank account or service | 17146 |
| Consumer Loan | 7902 |
| Credit card | 17300 |
| Credit reporting | 34274 |
| Debt collection | 39813 |
| Money transfers | 1619 |
| Mortgage | 42378 |
| Other financial service | 311 |
| Payday loan | 1591 |
| Prepaid card | 1785 |
| Student loan | 4501 |

Table2 shows the complaint volume by product in 2014.

The following SQL queries used to get the result shown in TABLE2.

*SELECT Consumer\_Complaints.product, Count(\*) AS NumberComplaints2014*

*FROM Consumer\_Complaints*

*WHERE Consumer\_Complaints.DateReceived < #1/1/2015# AND Consumer\_Complaints.DateReceived >= #1/1/2014#*

*GROUP BY Consumer\_Complaints.product;*

| **TABLE2** | |
| --- | --- |
| **product** | **NumberComplaints2014** |
| Bank account or service | 14676 |
| Consumer Loan | 5460 |
| Credit card | 13976 |
| Credit reporting | 29241 |
| Debt collection | 39162 |
| Money transfers | 1169 |
| Mortgage | 43005 |
| Other financial service | 116 |
| Payday loan | 1706 |
| Prepaid card | 336 |
| Student loan | 4285 |

**2. Second report: Complaint Volume by States in 2015 and 2014**

Table3 shows the complaint volume by states in 2015.

The following SQL queries used to get the result shown in TABLE3.

*SELECT Consumer\_Complaints.state, Count(\*) AS NumberComplaints2015*

*FROM Consumer\_Complaints*

*WHERE Consumer\_Complaints.DateReceived < #1/1/2016# AND Consumer\_Complaints.DateReceived >= #1/1/2015#*

*GROUP BY Consumer\_Complaints.state;*

\* only 52 states included

| **Table3** | |
| --- | --- |
| **state** | **NumberComplaints2015** |
| AK | 164 |
| AL | 1971 |
| AR | 757 |
| AZ | 3814 |
| CA | 23728 |
| CO | 2845 |
| CT | 1781 |
| DC | 972 |
| DE | 873 |
| FL | 15868 |
| GA | 7525 |
| HI | 540 |
| IA | 683 |
| ID | 641 |
| IL | 6116 |
| IN | 1854 |
| KS | 835 |
| KY | 1267 |
| LA | 1782 |
| MA | 3137 |
| MD | 5126 |
| ME | 603 |
| MI | 3974 |
| MN | 1889 |
| MO | 2147 |
| MS | 866 |
| MT | 261 |
| NC | 4805 |
| ND | 151 |
| NE | 524 |
| NH | 661 |
| NJ | 6617 |
| NM | 849 |
| NV | 2295 |
| NY | 11525 |
| OH | 5365 |
| OK | 1153 |
| OR | 2056 |
| PA | 6185 |
| RI | 521 |
| SC | 2322 |
| SD | 230 |
| TN | 2780 |
| TX | 13270 |
| UT | 893 |
| VA | 5487 |
| VI | 51 |
| VT | 276 |
| WA | 3520 |
| WI | 1810 |
| WV | 453 |
| WY | 160 |

Table4 shows the complaint volume by states in 2014.

The following SQL queries used to get the result shown in TABLE4.

*SELECT Consumer\_Complaints.state, Count(\*) AS NumberComplaints2014*

*FROM Consumer\_Complaints*

*WHERE Consumer\_Complaints.DateReceived < #1/1/2015# AND Consumer\_Complaints.DateReceived >= #1/1/2014#*

*GROUP BY Consumer\_Complaints.state;*

| **Table4** | |
| --- | --- |
| **state** | **NumberComplaints2014** |
| AK | 180 |
| AL | 1549 |
| AR | 682 |
| AZ | 3198 |
| CA | 21246 |
| CO | 2646 |
| CT | 1717 |
| DC | 861 |
| DE | 839 |
| FL | 14584 |
| GA | 6196 |
| HI | 636 |
| IA | 667 |
| ID | 480 |
| IL | 5320 |
| IN | 1792 |
| KS | 748 |
| KY | 1111 |
| LA | 1575 |
| MA | 2840 |
| MD | 4656 |
| ME | 474 |
| MI | 3789 |
| MN | 1650 |
| MO | 2079 |
| MS | 760 |
| MT | 264 |
| NC | 4222 |
| ND | 151 |
| NE | 492 |
| NH | 688 |
| NJ | 6154 |
| NM | 773 |
| NV | 1906 |
| NY | 10012 |
| OH | 4704 |
| OK | 1116 |
| OR | 1824 |
| PA | 5487 |
| PR | 369 |
| RI | 607 |
| SC | 1949 |
| SD | 237 |
| TN | 2282 |
| TX | 13035 |
| UT | 888 |
| VA | 5218 |
| VI | 35 |
| VT | 252 |
| WA | 3173 |
| WI | 1721 |
| WV | 403 |
| WY | 177 |

**3. Third report: Complaint Volume by top 10 companies by products**

Table5 shows the complaint volume by top 10 companies by products .

The following SQL queries used to get the result shown in TABLE5.

topcompony:

*SELECT TOP 10 Consumer\_Complaints.company, Count(\*) AS NumberComplaints*

*FROM Consumer\_Complaints*

*GROUP BY Consumer\_Complaints.company*

*ORDER BY Count(\*) DESC;*

*SELECT Consumer\_Complaints.company, product, count(\*) AS NumberComplaints*

*FROM Consumer\_Complaints INNER JOIN topcompany ON Consumer\_Complaints.Company = topcompany.company*

*group by Consumer\_Complaints.company, product;*

| **Table5** | | |
| --- | --- | --- |
| **company** | **product** | *NumberComplaints* |
| Bank of America | Bank account or service | 10014 |
| Bank of America | Consumer Loan | 524 |
| Bank of America | Credit card | 6966 |
| Bank of America | Credit reporting | 37 |
| Bank of America | Debt collection | 1093 |
| Bank of America | Money transfers | 193 |
| Bank of America | Mortgage | 35606 |
| Bank of America | Other financial service | 39 |
| Bank of America | Payday loan | 8 |
| Bank of America | Prepaid card | 31 |
| Bank of America | Student loan | 69 |
| Capital One | Bank account or service | 1760 |
| Capital One | Consumer Loan | 878 |
| Capital One | Credit card | 9953 |
| Capital One | Credit reporting | 176 |
| Capital One | Debt collection | 1466 |
| Capital One | Money transfers | 15 |
| Capital One | Mortgage | 800 |
| Capital One | Other financial service | 6 |
| Capital One | Payday loan | 2 |
| Capital One | Prepaid card | 13 |
| Capital One | Student loan | 2 |
| Citibank | Bank account or service | 1949 |
| Citibank | Consumer Loan | 652 |
| Citibank | Credit card | 11665 |
| Citibank | Credit reporting | 136 |
| Citibank | Debt collection | 1939 |
| Citibank | Money transfers | 70 |
| Citibank | Mortgage | 7457 |
| Citibank | Other financial service | 19 |
| Citibank | Payday loan | 16 |
| Citibank | Prepaid card | 122 |
| Citibank | Student loan | 498 |
| Equifax | Bank account or service | 11 |
| Equifax | Consumer Loan | 23 |
| Equifax | Credit card | 29 |
| Equifax | Credit reporting | 29334 |
| Equifax | Debt collection | 24 |
| Equifax | Mortgage | 23 |
| Equifax | Other financial service | 2 |
| Equifax | Student loan | 3 |
| Experian | Bank account or service | 13 |
| Experian | Consumer Loan | 12 |
| Experian | Credit card | 35 |
| Experian | Credit reporting | 28671 |
| Experian | Debt collection | 34 |
| Experian | Mortgage | 22 |
| Experian | Other financial service | 2 |
| Experian | Payday loan | 1 |
| Experian | Student loan | 4 |
| JPMorgan Chase & Co. | Bank account or service | 6782 |
| JPMorgan Chase & Co. | Consumer Loan | 690 |
| JPMorgan Chase & Co. | Credit card | 7477 |
| JPMorgan Chase & Co. | Credit reporting | 75 |
| JPMorgan Chase & Co. | Debt collection | 1178 |
| JPMorgan Chase & Co. | Money transfers | 153 |
| JPMorgan Chase & Co. | Mortgage | 15527 |
| JPMorgan Chase & Co. | Other financial service | 39 |
| JPMorgan Chase & Co. | Payday loan | 2 |
| JPMorgan Chase & Co. | Prepaid card | 21 |
| JPMorgan Chase & Co. | Student loan | 697 |
| Nationstar Mortgage | Bank account or service | 20 |
| Nationstar Mortgage | Consumer Loan | 9 |
| Nationstar Mortgage | Credit reporting | 9 |
| Nationstar Mortgage | Debt collection | 229 |
| Nationstar Mortgage | Mortgage | 12408 |
| Nationstar Mortgage | Other financial service | 1 |
| Ocwen | Bank account or service | 59 |
| Ocwen | Consumer Loan | 28 |
| Ocwen | Credit card | 6 |
| Ocwen | Credit reporting | 33 |
| Ocwen | Debt collection | 417 |
| Ocwen | Money transfers | 1 |
| Ocwen | Mortgage | 19842 |
| Ocwen | Other financial service | 2 |
| TransUnion Intermediate Holdings, Inc. | Bank account or service | 6 |
| TransUnion Intermediate Holdings, Inc. | Consumer Loan | 7 |
| TransUnion Intermediate Holdings, Inc. | Credit card | 10 |
| TransUnion Intermediate Holdings, Inc. | Credit reporting | 23649 |
| TransUnion Intermediate Holdings, Inc. | Debt collection | 28 |
| TransUnion Intermediate Holdings, Inc. | Mortgage | 12 |
| TransUnion Intermediate Holdings, Inc. | Payday loan | 1 |
| TransUnion Intermediate Holdings, Inc. | Student loan | 4 |
| Wells Fargo & Company | Bank account or service | 9652 |
| Wells Fargo & Company | Consumer Loan | 1706 |
| Wells Fargo & Company | Credit card | 2821 |
| Wells Fargo & Company | Credit reporting | 90 |
| Wells Fargo & Company | Debt collection | 875 |
| Wells Fargo & Company | Money transfers | 167 |
| Wells Fargo & Company | Mortgage | 24307 |
| Wells Fargo & Company | Other financial service | 30 |
| Wells Fargo & Company | Payday loan | 15 |
| Wells Fargo & Company | Prepaid card | 17 |
| Wells Fargo & Company | Student loan | 958 |

**4. Forth report: Complaint Volume by top 10 companies by products** **in 2015 and 2014**

Table6 shows the complaint volume by top 10 companies by products in 2014.

The following SQL queries used to get the result shown in TABLE6.

*SELECT Consumer\_Complaints.company, Count(\*) AS NumberComplaints2015*

*FROM Consumer\_Complaints*

*WHERE Consumer\_Complaints.DateReceived < #1/1/2016# AND Consumer\_Complaints.DateReceived >= #1/1/2015#*

*GROUP BY Consumer\_Complaints.company;*

*SELECT Consumer\_Complaints.company, count(\*)AS NumberComplaints2014*

*FROM Consumer\_Complaints INNER JOIN topcompany ON Consumer\_Complaints.Company = topcompany.company*

*where Consumer\_Complaints.DateReceived < #1/1/2015# AND Consumer\_Complaints.DateReceived >= #1/1/2014#*

*group by Consumer\_Complaints.company;*

| **TAble6** | |
| --- | --- |
| **company** | **NumberComplaints2014** |
| Bank of America | 10295 |
| Capital One | 3344 |
| Citibank | 5771 |
| Equifax | 9966 |
| Experian | 10246 |
| JPMorgan Chase & Co. | 7742 |
| Nationstar Mortgage | 4121 |
| Ocwen | 6279 |
| TransUnion Intermediate Holdings, Inc. | 8040 |
| Wells Fargo & Company | 9174 |

Table7 shows the complaint volume by top 10 companies by products in 2015.

The following SQL queries used to get the result shown in TABLE7.

*SELECT Consumer\_Complaints.company, count(\*) AS NumberComplaints2015*

*FROM Consumer\_Complaints INNER JOIN topcompany ON Consumer\_Complaints.Company = topcompany.company*

*where Consumer\_Complaints.DateReceived < #1/1/2016# AND Consumer\_Complaints.DateReceived >= #1/1/2015#*

*group by Consumer\_Complaints.company;*

| **Table7** | |
| --- | --- |
| **company** | **NumberComplaints2015** |
| Bank of America | 9833 |
| Capital One | 3690 |
| Citibank | 6202 |
| Equifax | 12003 |
| Experian | 10828 |
| JPMorgan Chase & Co. | 7971 |
| Nationstar Mortgage | 4039 |
| Ocwen | 4907 |
| TransUnion Intermediate Holdings, Inc. | 10167 |
| Wells Fargo & Company | 9284 |

**5. Fifth report: Complaint Volume by Products**

Table8 shows the complaint volume by products .

The following SQL queries used to get the result shown in TABLE8.

*SELECT Consumer\_Complaints.product, count(\*) AS NumberComplaints*

*FROM Consumer\_Complaints*

*group by Consumer\_Complaints.product;*

| **Table8** | |
| --- | --- |
| **product** | **NumberComplaints** |
| Bank account or service | 60108 |
| Consumer Loan | 19688 |
| Credit card | 63727 |
| Credit reporting | 85305 |
| Debt collection | 95249 |
| Money transfers | 3586 |
| Mortgage | 180153 |
| Other financial service | 484 |
| Payday loan | 3683 |
| Prepaid card | 2278 |
| Student loan | 15203 |

**6. 6th report: Complaint Volume by products in VA and MD**

Table9 shows the complaint volume by products in VA .

The following SQL queries used to get the result shown in TABLE9.

*SELECT Consumer\_Complaints.product, count(\*) AS NumberComplaints*

*FROM Consumer\_Complaints*

*where state='VA'*

*group by Consumer\_Complaints.product;*

| **Table9** | |
| --- | --- |
| **product** | **NumberComplaints** |
| Bank account or service | 1751 |
| Consumer Loan | 686 |
| Credit card | 2182 |
| Credit reporting | 3187 |
| Debt collection | 2920 |
| Money transfers | 133 |
| Mortgage | 5603 |
| Other financial service | 16 |
| Payday loan | 127 |
| Prepaid card | 69 |
| Student loan | 483 |

Table10 shows the complaint volume by products in MD .

The following SQL queries used to get the result shown in TABLE10.

*SELECT Consumer\_Complaints.product, count(\*) AS NumberComplaints*

*FROM Consumer\_Complaints*

*where state='MD'*

*group by Consumer\_Complaints.product;*

| **TAble10** | |
| --- | --- |
| **product** | **NumberComplaints** |
| Bank account or service | 1919 |
| Consumer Loan | 673 |
| Credit card | 1930 |
| Credit reporting | 2316 |
| Debt collection | 2450 |
| Money transfers | 113 |
| Mortgage | 6765 |
| Other financial service | 8 |
| Payday loan | 89 |
| Prepaid card | 59 |
| Student loan | 471 |

**7. 7th report: Complaint Volume by 5 states by population**

Table11 shows the complaint volume by products in VA .

**Table11.**

|  | **state** | **NumberComplaints** | **population(100k)** | **(NumberComplaints per population(100k))** |
| --- | --- | --- | --- | --- |
| 1 | NY | 36302 | 84 | 432.167 |
| 2 | NJ | 21299 | 89 | 239.315 |
| 3 | MD | 16793 | 59 | 284.627 |
| 4 | VA | 17157 | 83 | 206.711 |
| 5 | CA | 77444 | 383 | 202.204 |

**8. 8th report: Complaint Volume by products**

This report uses the data loaded directly (not using database) to google spreadsheet to determine the complaint volume by products for first 2000 records ( we can not load the whole data due to limit size by Google)