

CONSUMER COMPLAINT DATABASE PROJECT



Consumer Financial
Protection Bureau

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Objective

The Consumer Financial Protection Bureau (CFPB)¹ is a federal agency that “helps consumer finance markets work by making rules more effective, by consistently and fairly enforcing those rules, and by empowering consumers to take more control over their economic lives.” One way the CFPB carries out this stated mission is by providing a forum for disgruntled consumers to register their complaints against financial service companies by whom they may have been wronged. The agency will then forward those complaints to the offending company, allowing the company to right their wrong or respond with their side of the story. Additionally, the CFPB makes much of this valuable information public through the upkeep an excellent data set of all the complaints it receives from consumers. This data set is consistently updated and offers many details about the complaints filed as well as the way companies respond to those complaints.

The members of this project team, as consumers of financial products ourselves, know that finding objective information about the customer service performance of financial product providers is very difficult. While the public is constantly exposed to the heavily curated marketing efforts of banks and lending institutions large and small, there simply isn’t an easy way to predict exactly how satisfactory one’s experience might be as a customer of these companies. And while the CFPB makes their information available to all, it doesn’t come in an aggregated form that would make for a quick view of other consumers’ financial experiences.

Given this problem, our team sought to design and implement a database that would store all the complaint information provided by the CFPB along with other demographic data that would combine with what’s provided with each complaint to reveal objective insights. We wanted, for example, to be able to tally the number of complaints against specific companies, see which companies have the most complaints registered against them, and calculate rates of complaints for geographic and demographic portions of the country. And while the initial questions we wanted to answer would be most useful to consumers, it was easy to see that we could also provide insights that would be useful to financial service companies. They could benefit from knowing such facts as which products gave consumers the most problems industrywide or whether the number of complaints correlated with the average level of income in a geographic area.

The following sections of this report will cover the methodology used to create this database as well as the answers and accompanying questions that querying the database provides.

Data Gathered

We relied on two main sources for the data that would be inputted into the database –

- The full data file from the Consumer Complaint Database section of the CFPB website², available in Comma Separated Value format
- Various tables (in CSV format) from the United States Census Bureau’s American Fact Finder website³, which provides a Guided Search function to assist in sifting through the mountains of available data

Additionally, we used individual Google searches to find contact information for some of the large public companies referenced in the Consumer Complaint Data file.

¹ <http://www.consumerfinance.gov/>

² <http://www.consumerfinance.gov/data-research/consumer-complaints/>

³ <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

Database Design

The data from the CFPB comes in a flat CSV file. There is one complaint per row, each assigned an identification number, with additional attributes of the following types –

- ***What the complaint is about***
 - Product, Sub-product, Issue, Sub-issue, Company
- ***Who submitted it***
 - For privacy reasons, only the consumer's State and Zip Code, as well as their method of submission
- ***The company's response***
 - When complaint was submitted to the company, whether the company responded in a timely fashion, a categorized marker of the nature of the response including whether relief (monetary or non-monetary) was provided, any public remarks the company wished to make, and whether the consumer disputed the company's response

Our team sought to add the following demographic information for the populations in the given consumer states and zip codes –

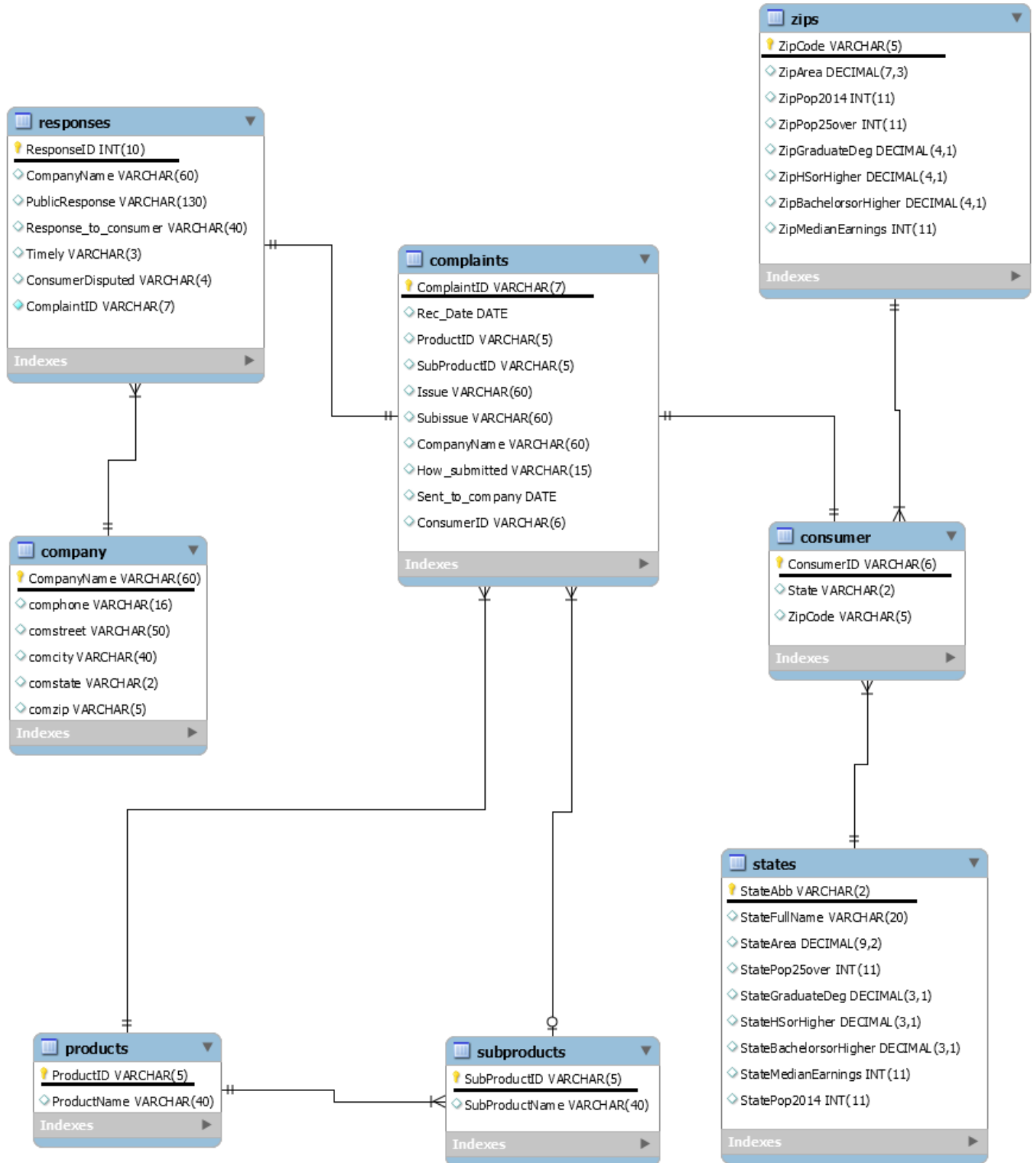
- Population levels from the last census as well as updated estimates
- Educational attainment
- Average income level

Our team decided to treat each of those groups of complaint attributes as separate entities. Additionally, though the CFPB must limit the amount of information they release about consumers who submit complaints, we wished to model our database as if we had more information about the consumers. We thus chose to create a consumer entity with the attributes of state and zip code given by the CFPB data as well as assign each complaint to a unique consumer (with assigned identification number), despite the fact that in reality each complaint doesn't necessarily come from a unique consumer. This somewhat flawed assumption is necessary because there would otherwise be no other way to link the complaints with the consumer zip code and state in our queries, and the given data provides no other identifying information about the consumer for each complaint.

The eight entities we selected for our relational model were Complaint, Response, Company, Product, SubProduct, Consumer, State, and Zip Code. As explained in the previous paragraph, we assume a one-to-one relationship between Consumers and Complaints. Consumers are in a one-to-many relationship with both States and Zip Codes – each consumer has one state and zip code, but each state and zip code has many consumers in it. Each Complaint has one Response, and each Response is to one Complaint. A Company can be mentioned in many Complaints, but each Complaint is in regard to one Company, and similarly between Responses and Companies. The one-to-one relationship between Complaint and Response is derived from the system the CFPB has set up with its complaint database. After a complaint is submitted by a consumer, it's sent to the company and they have one opportunity to make a response to the consumer as well as a public response for the database (this can all be seen in the attributes of the Response table). The consumer then may dispute this response and optionally make their narrative public, but no further discourse is provided for by the system and forum the CFPB has set up.

Products and Subproducts are each in a one-to-many relationship with Complaints – each complaint has one Product and optionally one Subproduct, and Products and Subproducts appear in many Complaints – and Products and Subproducts are additionally related to one another in a one-to-many relationship.

The ER Diagram for the database from the MySQL Workbench software is on the following page.



Logical Tables & Normalization

The complaint data downloaded from the CFPB comes in a flat table in second normal form, with all the non-key attributes determined by the **ComplaintID**. Because we wished to add more data, such as company contact information, we began by splitting the table attributes into individual tables to match our designated ER structure.

For reasons discussed previously, **ConsumerIDs** were added, and the functionally dependent **State** and **Zip Code** values were sent to the **Consumer** table (as foreign keys referencing the **State** and **Zip** tables). **CompanyName** was split away to the **Company** table, and since the values for **CompanyName** were unique and uniform in the data, this was chosen to be the primary key for the table. Contact attributes were added as well. And attributes pertaining to company responses were split off into the **Response** table. To avoid having a composite primary key of both **ComplaintID** and **CompanyName** for this table, **ResponseID** was created as primary key, with **ComplaintID** and **CompanyName** remaining as foreign keys.

We chose to assign **ID** numbers to both the 12 products and 48 subproducts present in the complaint data for several reasons. The string values for these attributes can be lengthy, so an **ID** number prevents entry errors and mismatches. Also, providing the names in a separate table allows for easy future additions and modifications to the range of products/subproducts and prevents deletion anomalies in the **Complaint** table.

One thing our team noticed was that many of the zip codes reported for complaints only contained the first three digits followed by an 'XX' string. Because of this (and also in order to avoid 'overgranularizing' our geographic data), we realized we would need to group zip codes by their first three digits, which correspond to distinct geographic areas. This would become tedious when scripting queries, so we elected to create and store a 'Zip3' dependent attribute for both the **Zips** and **Consumer** tables. Storing this value would improve performance and ease query writing.

No further normalization was required, as this structure meant each table was in third normal form, free of partial and transitive dependencies. We have provided the structure of our related tables on the following page.

Table Creation & Data Entry

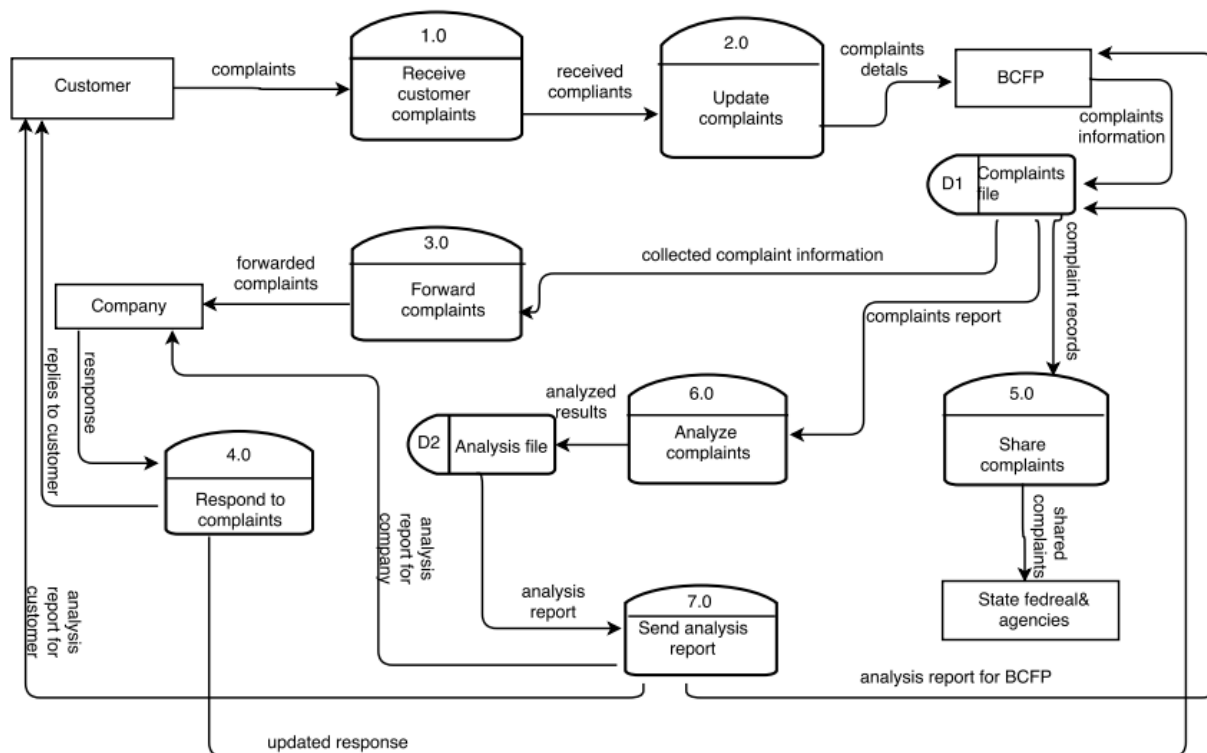
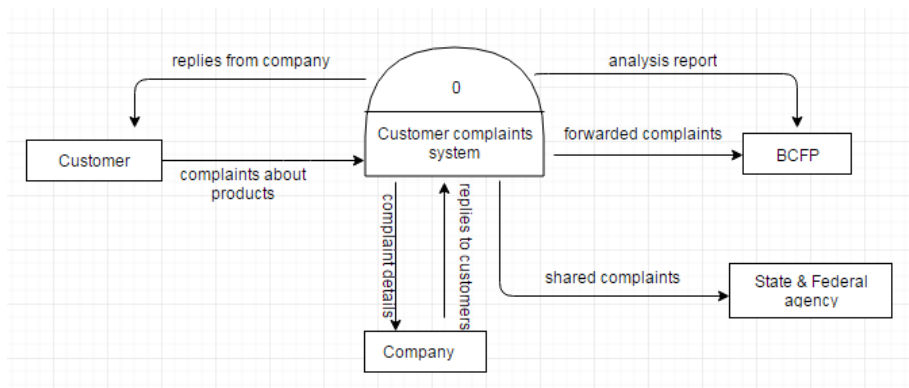
The script written to create the physical tables of the database can be found in the Appendix at the end of this report. Data types for each attribute were selected based on a quick look through the possible values in the CSV files as well as the descriptions given on the CFPB website for each piece of data they share⁴.

The flat CSV complaint file was split into separate CSV files, one for each table. The CSV files from the American Fact Finder website required some cleaning to remove extraneous data, but similarly existed with one for each table, **Zips** and **States**. The 'LOAD DATA INFILE' command was used to enter the data from the CSV files. Our team learned that this command is very efficient at quickly loading data into a MySQL database from CSV files, making quick work of 600,000+ rows of complaints.

⁴ <http://www.consumerfinance.gov/complaint/data-use/>

Data Flow

Though our main concern in this project was not with modeling the entry of new data into the database, the Consumer Finance Protection Bureau has a clear procedure. The agency makes available web, telephone, and postal based interfaces (as seen from the final query in the next section) for the public to submit their complaints. We have created the context-level and level-0 data flow diagrams below to model the system through which the CFPB obtains and processes new complaints. Their processing involves dealings with the company who the complaint is against (“Company” external entity below) and analysis from which the agency submits reports to other government entities.



Queries

In this section, we pose the questions for which the constructed database can provide answers. Queries, outputs, and some additional analysis are included.

Which states have the highest and lowest rate of complaints?

```

1. SELECT a.StateAbb,
2.       (a.TotComplaint/b.statepop25over)*1000
3.       as ComplaintsPer1000
4. FROM
5.     (SELECT cn.StateAbb,
6.            count(cm.complaintid) as TotComplaint
7.      FROM complaints cm, consumer cn
8.     WHERE cm.consumerid = cn.consumerid
9.     GROUP BY cn.stateabb) a
10. LEFT JOIN
11.     (SELECT StatePop25over, StateAbb FROM states) b
12. ON a.StateAbb = b.StateAbb
13. ORDER BY ComplaintsPer1000 DESC LIMIT 10;

```

StateAbb	ComplaintsPer1000
DC	8.7775
DE	5.4938
MD	5.2688
FL	4.7193
GA	4.6908
NV	4.4288
NJ	4.3920
VA	3.9074
CA	3.8787
NH	3.4765

```

1. SELECT a.StateAbb,
2.       (a.TotComplaint/b.statepop25over)*1000
3.       as ComplaintsPer1000
4. FROM
5.     (SELECT cn.StateAbb,
6.            count(cm.complaintid) as TotComplaint
7.      FROM complaints cm, consumer cn
8.     WHERE cm.consumerid = cn.consumerid
9.     GROUP BY cn.stateabb) a
10. LEFT JOIN
11.     (SELECT StatePop25over, StateAbb FROM states) b
12. ON a.StateAbb = b.StateAbb
13. ORDER BY ComplaintsPer1000 LIMIT 10;

```

StateAbb	ComplaintsPer1000
ND	1.2322
WV	1.3183
IA	1.3836
AR	1.4564
MT	1.5615
MS	1.5952
KY	1.6097
SD	1.6526
AK	1.6597
NE	1.6943

We have queried for the total number of complaints in each state divided by the population of adults 25 and over. Multiplying by 1,000 scales the result to a digestible number.

The District of Columbia has by far the highest rate of complaints against financial companies. It's neighbors, Delaware and Maryland come next. Including Virginia, we see that the Mid-Atlantic region proves to be problematic for consumers' interactions with financial products.

The states with the lowest rate of complaints are mostly in the upper Midwest and south along the Mississippi River, as well as Appalachian neighbors Kentucky and West Virginia. These results seem fairly regionalized as well.

Which companies received the most complaints overall?

```

1. SELECT count(cpl.ComplaintID) as NumComplaints,
2.     cpl.CompanyName, cpy.ComPhone, cpy.ComStreet,
3.     cpy.ComCity, cpy.ComState, cpy.ComZip
4. FROM complaints cpl, company cpy
5. WHERE cpl.CompanyName = cpy.CompanyName
6. GROUP BY cpl.CompanyName
7. ORDER BY NumComplaints DESC
8. LIMIT 30;

```

These are the top 30 companies in number of complaints received. Our database has contact information for these companies, which make up a large majority of all complaints received.

NumComplaints	CompanyName	ComPhone	ComStreet	ComCity	ComState	ComZip
60560	Bank of America	704-386-5681	100 North Tryon Street	Charlotte	NC	28255
47561	Wells Fargo & Company	866-249-3302	420 Montgomery St.	San Francisco	CA	94104
40719	Equifax	404-885-8000	1550 Peachtree Street NE	Atlanta	GA	30309
38547	Experian	1 714 830 7000	475 Anton Blvd.	Costa Mesa	CA	92626
38111	JPMorgan Chase & Co.	1-212-270-6000	270 Park Ave	New York	NY	10017
32785	TransUnion Intermediate Holdings, Inc.	312-985-2000	555 West Adams Street	Chicago	IL	60661
30442	Citibank	1-800-285-3000	399 Park Ave.	New York	NY	10043
22669	Ocwen	(800) 746-2936	12001 Science Drive, Ste. 110	Orlando	FL	32826
17701	Capital One	1-877-383-4802	1680 Capital One Drive	McLean	VA	22102
14772	Nationstar Mortgage	1-888-708-4043	8950 Cypress Waters Blvd.	Coppell	TX	75019
11027	Synchrony Financial	1 (866) 226-5638	200 Crossing Blvd Suite 101	Bridgewater	NJ	08807
10894	U.S. Bancorp	1.800.934.6802	111 Fillmore Avenue East	St Paul	MN	55107
10302	Ditech Financial LLC	(800) 700-9212	1100 Virginia Dr #100a	Fort Washington	PA	19034
10005	Navient Solutions, Inc.	(703) 810-3000	2001 Edmund Halley Dr	Reston	VA	20191
7789	PNC Bank N.A.	(888) 762-2265	222 Delaware Avenue	Wilmington	DE	19899
7077	Amex	1 (800) 528-4800	200 Vesey Street.	New York	NY	10285
6981	Encore Capital Group	(877) 445-4581	3111 Camino Del Rio N #103	San Diego	CA	92108
6668	HSBC North America Holdings Inc.	212 525 5000	452 5th Avenue	New York	NY	10018
5555	Discover	1-800-347-2683	502 E. Market Street	Greenwood	DE	19950
5515	SunTrust Banks, Inc.	(404) 588-7711	303 Peachtree Street Northeast	Atlanta	GA	30308
5220	TD Bank US Holding Company	888-751-9000	1701 Route 70 East	Cherry Hill	NJ	08034
5082	Select Portfolio Servicing, Inc	(801) 293-1883	3217 Decker Lake Dr	Salt Lake City	UT	84119
4162	Portfolio Recovery Associates, Inc.	(731) 984-7680	4829 US-45	Jackson	TN	38305
3563	Citizens Financial Group, Inc.	(401) 456-7000	1 Citizens Plaza	Providence	RI	02903
3392	Barclays PLC	1 212 526 7000	745 7th Avenue	New York	NY	10019
3304	Seterus, Inc.	(866) 570-5277	14523 SW Millikan Way	Beaverton	OR	97005
3251	Fifth Third Financial Corporation	(800) 972-3030	38 Fountain Square Plaza	Cincinnati	OH	45263
3170	ERC	(256) 430-3080	308 Voyager Way	Huntsville	AL	35806
2951	BB&T Financial	800-226-5228	200 West Second Street	Winston-Salem	NC	27101

Just how many of the total complaints are lodged against the top 30? →

Percentage of All Complaints

0.7024

```

1. SELECT sum(a.NumComplaints)/b.Tot as 'Percentage of All Complaints'
2. FROM
3.     (SELECT count(cpl.ComplaintID) as NumComplaints
4.     FROM complaints cpl, company cpy
5.     WHERE cpl.CompanyName = cpy.CompanyName
6.     GROUP BY cpl.CompanyName ORDER BY NumComplaints DESC LIMIT 30) a,
7.     (SELECT count(ComplaintID) as Tot FROM complaints) b;

```

Does the level of educational attainment for an area correlate with the number of complaints from that area?

```

1. select co.Zip3, zi.Bach/zi.Zip3Pop as 'Bach+',
2.        zi.Grad/zi.Zip3Pop as 'Grad+',
3.        zi.NoHS/zi.zip3pop as LessThanHS,
4.        (count(c.complaintid)/zi.Zip3Pop)*1000 as ComplaintsPerThousand
5. from complaints c, consumer co, (SELECT Zip3,
6.                                     sum(ZipPop25over) as Zip3Pop,
7.                                     sum(zipbachelorsorhigher*zippop25over) as Bach,
8.                                     sum(zipgraduatedeg*zippop25over) as Grad,
9.                                     sum((100-zipHSorHigher)*zippop25over) as NoHS
10.                                FROM zips GROUP BY zip3) zi
11. where c.consumerid=co.consumerid and co.zip3 = zi.zip3
12. group by co.zip3;

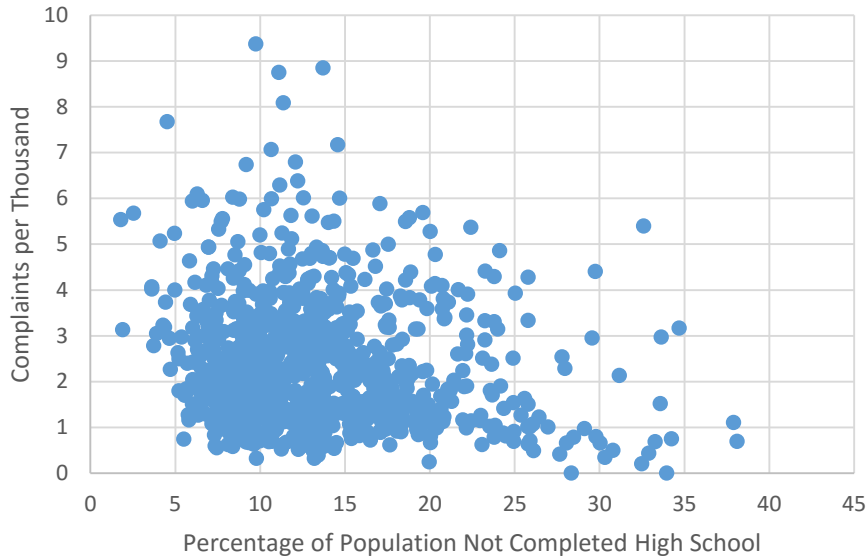
```

The query returns weighted averages for the percentage of people in each of the 893 3-digit zip code areas who have

- Earned at least a bachelor degree
- Earned a graduate degree
- Not completed high school

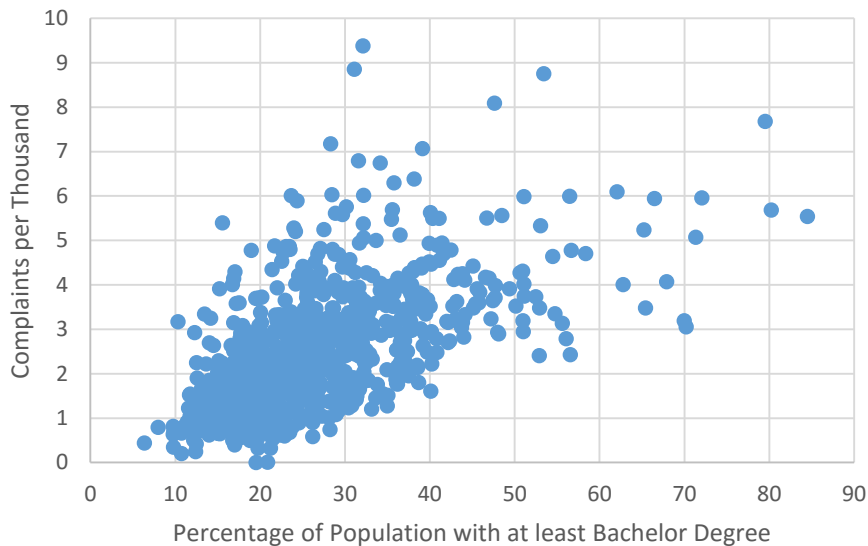
	Zip3	Bach+	Grad+	LessThanHS	ComplaintsPerThousand
	006	19.50389	4.68469	33.94746	0.0038
	007	20.88859	5.31292	28.33468	0.0079
	010	32.12606	14.01326	10.57461	2.3366
	011	22.75505	9.85302	22.15941	3.0209
	012	31.33679	13.68136	9.40895	1.4183
	013	29.72366	12.92065	9.21700	2.0402
	014	30.73714	11.19520	10.73098	2.4942
	015	38.49663	15.04733	7.77709	2.1946
	016	30.59928	11.70592	15.38264	2.5716
	017	56.54080	26.50294	6.10081	2.4297
	018	37.02469	15.28692	10.99954	2.9063
	019	38.91933	15.43472	8.90571	3.0153
	020	51.02368	20.17213	4.64412	2.9513
	021	43.04129	19.41301	13.18860	3.1986
	022	80.24469	45.18915	2.53296	5.6848
	023	30.40039	10.19990	9.01653	3.3726
	024	69.99672	40.87119	4.37067	3.1905
	025	37.94749	15.60632	5.90074	3.6870
	026	39.19891	16.30919	5.16014	2.6348
	027	24.41326	8.65828	18.35804	2.3482
	028	33.09347	13.09362	12.09422	2.9151
	029	28.15137	11.62850	19.30319	3.1541
	030	36.21807	12.93464	7.17692	4.1479

Further analysis is required to visualize the results of this query. Results follow on the next page.



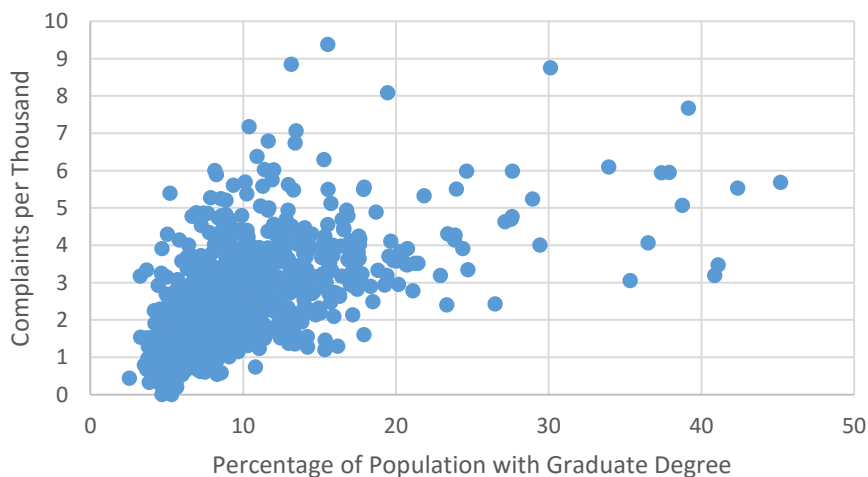
Graphs plot the rate of complaints against measures of educational attainment in each 3-digit zip code area.

The first chart indicates a very slight negative correlation between the percentage of population not completing high school and the rate of complaints. This relationship does not appear to be as strong as that seen in the last two plots.



The second and third charts show similar relationships, with a higher percentage of an area's population having college degrees correlating with a higher rate of complaints against financial companies.

Further statistical analysis would be required to make more conclusions, but the simple visualizations seem to indicate that those with higher educational attainment are responsible for more of the complaints filed in the database.



Does the average income of an area correlate with the number of complaints made from it?

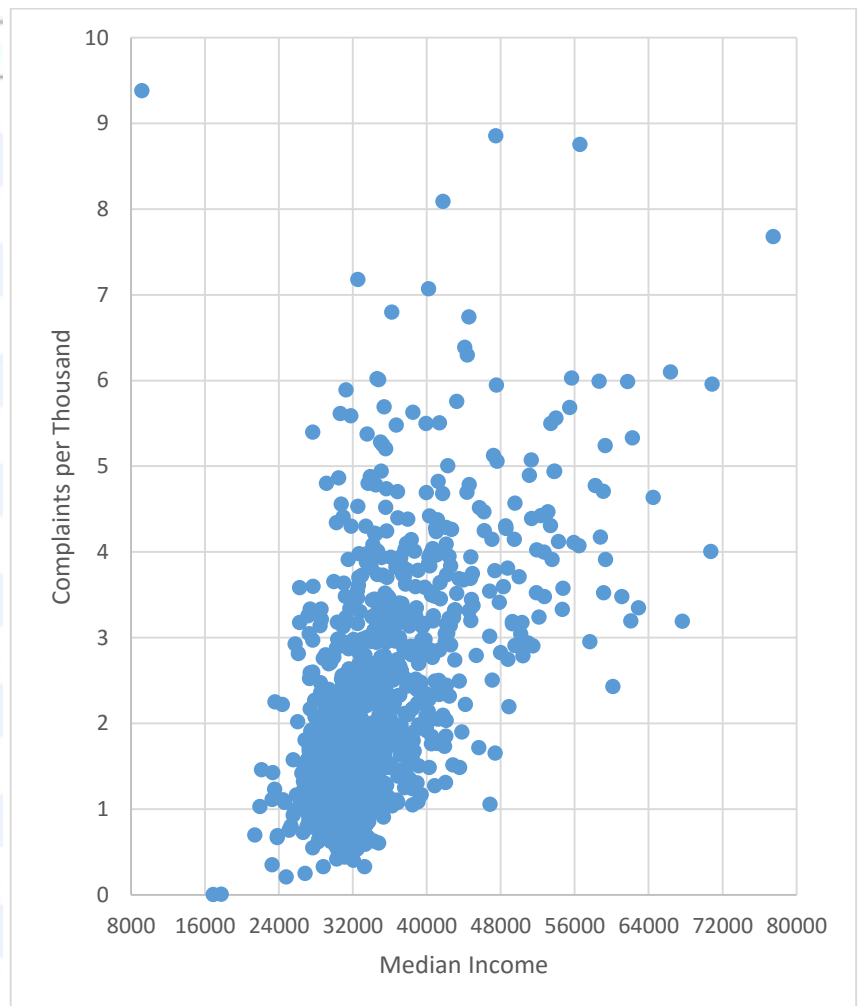
```

1. SELECT co.zip3,
2.        zi.TotEarn/zi.TotPop as 'Median Income',
3.        (COUNT(c.complaintid)/zi.TotPop)*1000 AS ComplaintsPer1000
4. FROM
5.        complaints c, consumer co,
6.        (SELECT Zip3,
7.             sum(ZipMedianEarnings*ZipPop25over) AS TotEarn,
8.             sum(ZipPop25over) as TotPop
9.        FROM zips GROUP BY zip3) zi
10. WHERE c.consumerid = co.consumerid AND co.zip3 = zi.zip3
11. GROUP BY co.zip3;

```

The query has taken a population-weighted average of median income in each zip code of all 893 3-digit zip code areas, and has also returned rate of complaints from each 3-digit zip area. We will again have to provide further analysis to reveal useful insight.

zip3	Median Income	ComplaintsPer 1000
006	16908.8466	0.0038
007	17767.3920	0.0079
010	41353.8476	2.3366
011	34581.7255	3.0209
012	34547.2300	1.4183
013	36106.8502	2.0402
014	43526.7003	2.4942
015	48899.1709	2.1946
016	36978.7141	2.5716
017	60152.9567	2.4297
018	49531.3491	2.9063
019	46817.8635	3.0153
020	57647.6313	2.9513
021	44771.9122	3.1986
022	55453.1234	5.6848
023	45004.5120	3.3726
024	67665.4847	3.1905



Plotting the rate of complaints against each 3-digit zip area's average median income, we actually see a positive correlation between income and rate of complaints.

Do certain companies have more complaints in areas with higher or lower population density?

The database includes the area of each zip code, so we can calculate population density. The query returns the company with the most complaints in each 3-digit zip code area, and is then ordered by that area's population density.

```

1. SELECT a.Zip3, z.Density, a.CompanyName, a.NumComplaints
2. FROM (SELECT DISTINCT Zip3, CompanyName,
3.      count(cm.CompanyName) as NumComplaints
4.      FROM complaints cm, consumer cn
5.      WHERE cm.consumerID = cn.consumerID
6.      GROUP BY cn.Zip3, cm.CompanyName
7.      ORDER BY NumComplaints DESC) as a,
8.      (SELECT Zip3, sum(ZipPop2014)/sum(ZipArea) as Density
9.      FROM zips GROUP BY Zip3) as z
10. WHERE a.Zip3 = z.Zip3
11. GROUP BY a.Zip3
12. ORDER BY z.Density DESC, a.NumComplaints DESC
13. LIMIT 15;

```

Zip3	Density	CompanyName	NumComplaints
101	103074.4337	Citibank	35
100	74504.5514	JPMorgan Chase & Co.	688
102	71456.3107	Bank of America	8
112	38197.9882	JPMorgan Chase & Co.	670
104	34983.4294	JPMorgan Chase & Co.	276
111	28950.6993	Citibank	67
113	24455.5407	Citibank	280
114	18673.2426	JPMorgan Chase & Co.	211
073	17315.4435	Bank of America	91
941	16770.7680	Wells Fargo & Company	263
022	14772.9852	Citibank	7
116	13545.8948	Bank of America	30
903	12965.1585	Bank of America	55
606	12151.2918	JPMorgan Chase & Co.	637
071	11747.1648	Bank of America	119

The top 3-digit zip areas in the US are mostly New York City and its boroughs, which are those beginning with 1 in this table as well as those beginning with 07 (New Jersey). We also see 941 (San Francisco), 903 (Los Angeles), 022 (Boston), and 6060 (Chicago). The megabanks easily dominate the complaints in these densely populated areas.

```

1. SELECT a.Zip3, z.Density, a.CompanyName, a.NumComplaints
2. FROM (SELECT DISTINCT Zip3, CompanyName,
3.      count(cm.CompanyName) as NumComplaints
4.      FROM complaints cm, consumer cn
5.      WHERE cm.consumerID = cn.consumerID
6.      GROUP BY cn.Zip3, cm.CompanyName
7.      ORDER BY NumComplaints DESC) as a,
8.      (SELECT Zip3, sum(ZipPop2014)/sum(ZipArea) as Density
9.      FROM zips GROUP BY Zip3) as z
10. WHERE a.Zip3 = z.Zip3
11. AND z.Density != 0
12. AND a.NumComplaints >= 10
13. GROUP BY a.Zip3
14. ORDER BY z.Density ASC, a.NumComplaints DESC
15. LIMIT 15;

```

Zip3	Density	CompanyName	NumComplaints
997	1.3581	Experian	19
996	3.5885	Wells Fargo & Company	33
898	4.9886	Wells Fargo & Company	13
594	6.0042	Wells Fargo & Company	12
995	6.3230	Wells Fargo & Company	56
828	7.2503	Bank of America	11
588	7.7560	Equifax	10
860	9.7028	Bank of America	30
991	9.8956	JPMorgan Chase & Co.	17
816	9.9305	Bank of America	27
978	10.0577	Bank of America	16
597	10.8064	Wells Fargo & Company	24
832	11.1267	Experian	12
577	11.2572	Wells Fargo & Company	30
808	11.4118	Bank of America	19

This list of sparsely populated US 3-digit zip areas doesn't seem to reveal any particularly great insights. The companies receiving the most complaints in these areas mostly mirror the list of companies receiving the most complaints overall. Many of these areas are in the western portion of the country, and thus we see Wells Fargo earning more complaints. Areas represented in this table are Alaska (996/997/995), Elko, Nevada (898), Great Falls, Montana (594), and Sheridan, Wyoming (828).

Do certain products have more complaints than others?

```

1. SELECT b.ProductName, a.TC as 'Total Complaints'
2. FROM (SELECT c.ProductID, count(c.ProductID) as TC
3.       FROM complaints c
4.       GROUP BY c.ProductID) as a
5. INNER JOIN
6.   (SELECT p.ProductID, p.ProductName FROM products p) as b
7. ON a.ProductID = b.ProductID
8. ORDER BY a.TC DESC;

```

ProductName	Total Complaints
Mortgage	206664
Debt collection	121398
Credit reporting	116120
Credit card	77014
Bank account or service	73416
Consumer loan	25871
Student loan	21057
Payday loan	4685
Money transfers	4452
Prepaid card	3085
Other financial service	767
Virtual currency	12

Mortgages have garnered the highest number of complaints, followed by Debt Collection and Credit Reporting. Considering the difficulties presented by payday loans, such as high interest rates and predatory business practices, one might be surprised to find the relatively small number of complaints lodged against this product.

Which companies have the highest number of complaints for specific products appearing most frequently in the database?

```

1. SELECT c.CompanyName, p.ProductName, count(c.ProductID) as NumComplaints
2. FROM complaints c, products p
3.
4. WHERE c.ProductID=p.ProductID
5. AND p.ProductName='Mortgage'
6. GROUP BY c.CompanyName
7. ORDER BY NumComplaints DESC
8. LIMIT 5;

```

CompanyName	ProductName	NumComplaints
Bank of America	Mortgage	38016
Wells Fargo & Company	Mortgage	27891
Ocwen	Mortgage	21982
JPMorgan Chase & Co.	Mortgage	17225
Nationstar Mortgage	Mortgage	14432

```

1. SELECT c.CompanyName, p.ProductName, count(c.ProductID) as NumComplaints
2. FROM complaints c, products p
3. WHERE c.ProductID=p.ProductID
4. AND p.ProductName='Debt collection'
5. GROUP BY c.CompanyName
6. ORDER BY NumComplaints DESC
7. LIMIT 5;

```

CompanyName	ProductName	NumComplaints
Encore Capital Group	Debt collection	6647
Portfolio Recovery Associates, Inc.	Debt collection	3978
ERC	Debt collection	3113
Citibank	Debt collection	2456
Synchrony Financial	Debt collection	1965

```

1. SELECT c.CompanyName, p.ProductName, count(c.ProductID) as NumComplaints
2. FROM complaints c, products p
3. WHERE c.ProductID=p.ProductID
4. AND p.ProductName='Credit reporting'
5. GROUP BY c.CompanyName
6. ORDER BY NumComplaints DESC
7. LIMIT 5;

```

CompanyName	ProductName	NumComplaints
Equifax	Credit reporting	40522
Experian	Credit reporting	38361
TransUnion Intermediate Holdings, Inc.	Credit reporting	32662
Fidelity National Information Services, Inc. (FNIS)	Credit reporting	724
Credit Karma, Inc.	Credit reporting	327

How do rates of timely response to complaints differ among the companies?

```

1. SELECT a.CompanyName, b.YesCount/a.Total as TimelyRate
2. FROM
3.     (SELECT CompanyName, count(ComplaintID) as Total
4.     FROM responses
5.     GROUP BY companyname
6.     HAVING count(ComplaintID) > 100) a,
7.     (SELECT CompanyName, count(ComplaintID) as YesCount
8.     FROM responses WHERE Timely = 'Yes'
9.     GROUP BY CompanyName
10.    HAVING count(ComplaintID) > 100) b
11. WHERE a.CompanyName = b.CompanyName
12. ORDER BY TimelyRate
13. LIMIT 25;

```

Of those companies that have at least 100 complaints against them in the database, this is the list of those with the worst rate of timely responses. Consumers should beware not receiving any response if they file a complaint against one of these companies.

CompanyName	TimelyRate
Harvard Collections, LLC	0.6069
Trident Asset Management, L.L.C.	0.6119
Southwest Credit Systems, L.P.	0.6142
Aargon Agency, Inc.	0.7048
Rash Curtis and Associates	0.7081
Platinum Holdings Group, LLC	0.7082
FTC	0.7258
NRA Group, LLC	0.7623
Optimum Outcomes, Inc.	0.7826
Residential Credit Solutions	0.7833
Real Time Resolutions	0.7883
Enhanced Acquisitions, LLC	0.7946
Medical Data Systems, Inc.	0.8041
NCC Business Services, Inc.	0.8046
Fidelity Capital Holdings, Inc.	0.8054
E*Trade Bank	0.8077
Solidus Group LLC.	0.8143
Tenet HealthCare Corporation	0.8154
Focus Holding Company	0.8229
Statebridge Company	0.8250
Halsted Financial Services, LLC.	0.8280
Risecredit, LLC	0.8534
GVA Holdings, LLC	0.8535
First Data Corporation	0.8569
MNE Services, Inc	0.8593

```

1. SELECT count(a.CompanyName)
2. FROM
3.     (SELECT CompanyName, count(ComplaintID) as Total
4.     FROM responses
5.     GROUP BY companyname
6.     HAVING count(ComplaintID) > 100) a,
7.     (SELECT CompanyName, count(ComplaintID) as YesCount
8.     FROM responses WHERE Timely = 'Yes'
9.     GROUP BY CompanyName
10.    HAVING count(ComplaintID) > 100) b
11. WHERE a.CompanyName = b.CompanyName
12. AND b.YesCount/a.Total = 1;

```

count(a.CompanyName)
70

On the other hand, of those companies with at least 100 complaints, 70 have a perfect record of timely responses.

```

1. SELECT a.CompanyName, b.YesCount/a.Total as TimelyRate
2. FROM
3.     (SELECT CompanyName, count(ComplaintID) as Total
4.     FROM responses
5.     GROUP BY companyname
6.     HAVING count(ComplaintID) > 500) a,
7.     (SELECT CompanyName, count(ComplaintID) as YesCount
8.     FROM responses WHERE Timely = 'Yes'
9.     GROUP BY CompanyName
10.    HAVING count(ComplaintID) > 500) b
11. WHERE a.CompanyName = b.CompanyName
12. ORDER BY TimelyRate DESC
13. LIMIT 25;

```

The best performers from those companies appearing frequently in the data (at least 500 complaints) appear to the right. All these companies have a 99.9% response rate or better. Good job! We see the three major credit bureaus here as well as some large banks and lenders like BBVA, SunTrust, Barclays, and Sallie Mae.

CompanyName	TimelyRate
Toyota Motor Credit Corporation	1.0000
Afni, Inc.	1.0000
Cavalry Investments, LLC	1.0000
Transworld Systems Inc.	1.0000
The CBE Group, Inc.	1.0000
Portfolio Recovery Associates, Inc.	1.0000
TransUnion Intermediate Holdings, Inc.	1.0000
BBVA Compass	1.0000
Equifax	1.0000
Flagstar Bank	1.0000
Navient Solutions, Inc.	0.9999
Experian	0.9998
Amex	0.9997
AES/PHEAA	0.9997
Santander Consumer USA Holdings Inc	0.9996
Ally Financial Inc.	0.9996
Citizens Financial Group, Inc.	0.9994
SunTrust Banks, Inc.	0.9993
OneMain Financial Holdings, LLC	0.9990
Sallie Mae	0.9990
Expert Global Solutions, Inc.	0.9988
Pinnacle Credit Services, LLC	0.9988
Barclays PLC	0.9988
Convergent Resources, Inc.	0.9987
TD Bank US Holding Company	0.9987

How does the rate of consumer dispute of company responses differ among companies?

```

1. SELECT a.CompanyName, b.NoCount/a.Total as NotDisputedRate
2. FROM
3.   (SELECT CompanyName, count(ComplaintID) as Total
4.   FROM responses
5.   GROUP BY companyname
6.   HAVING count(ComplaintID) > 100) a,
7.   (SELECT CompanyName, count(ComplaintID) as NoCount
8.   FROM responses WHERE ConsumerDisputed = 'No'
9.   GROUP BY CompanyName
10.  HAVING count(ComplaintID) > 100) b
11. WHERE a.CompanyName = b.CompanyName
12. ORDER BY NotDisputedRate DESC
13. LIMIT 25;

```

Of the companies that have at least 100 complaints in the database, we have the list of those with the best rates of avoiding dispute from the consumers they respond to. Consumers are happiest with the responses they receive from this list of companies.

CompanyName	NotDisputedRate
Premier Recovery Group	0.9578
Empowerment Ventures, LLC	0.9409
MNE Services, Inc	0.9185
Enhanced Acquisitions, LLC	0.9107
Integrity Solution Services, Inc.	0.9091
Expert Global Solutions, Inc.	0.8996
Oxford Law, LLC	0.8986
EZCORP, Inc.	0.8898
North Shore Agency, LLC	0.8873
Credit Protection Association, L.P.	0.8837
Credit Bureau Collection Services...	0.8824
First National Collection Bureau, I...	0.8810
MoneyGram	0.8783
Security Finance	0.8775
Turning Point Solutions LLC	0.8770
Focus Holding Company	0.8753
Vital Solutions, Inc.	0.8740
Allied Interstate LLC	0.8717
ConServe	0.8711
Van Ru Credit Corporation	0.8693
Northland Group, Inc.	0.8626
MRS BPO, L.L.C.	0.8612
The CMI Group, Inc.	0.8609
Cottonwood Financial Ltd.	0.8609
Regional Management Corp.	0.8591

```

1. SELECT a.CompanyName, b.NoCount/a.Total as NotDisputedRate
2. FROM
3.   (SELECT CompanyName, count(ComplaintID) as Total
4.   FROM responses
5.   GROUP BY companyname
6.   HAVING count(ComplaintID) > 500) a,
7.   (SELECT CompanyName, count(ComplaintID) as NoCount
8.   FROM responses WHERE ConsumerDisputed = 'No'
9.   GROUP BY CompanyName
10.  HAVING count(ComplaintID) > 500) b
11. WHERE a.CompanyName = b.CompanyName
12. ORDER BY NotDisputedRate
13. LIMIT 25;

```

On the other end of the spectrum, we have the rates of dispute of larger companies that appear at least 500 times in the data, with the poorest rate first. These companies often receive dispute to their responses.

CompanyName	NotDisputedRate
Commonwealth Financial Systems, Inc.	0.6000
Pinnacle Credit Services, LLC	0.6476
Santander Consumer USA Holdings Inc	0.6503
AES/PHEAA	0.6612
Shellpoint Partners, LLC	0.6624
Bayview Loan Servicing, LLC	0.6689
National Credit Systems, Inc.	0.6701
Amex	0.6716
Fidelity National Information Services, Inc. (FNIS)	0.6833
Navy FCU	0.6860
Select Portfolio Servicing, Inc	0.7029
Specialized Loan Servicing LLC	0.7044
CashCall, Inc.	0.7046
Selene Finance	0.7050
Freedom Mortgage	0.7076
OneMain Financial Holdings, LLC	0.7089
BMO Harris	0.7093
Caliber Home Loans, Inc	0.7102
Rushmore Loan Management Services LLC	0.7117
BBVA Compass	0.7145
BB&T Financial	0.7184
Equifax	0.7192
Seterus, Inc.	0.7206
Wells Fargo & Company	0.7209
Quicken Loans	0.7217

What are the most common responses by companies to complaints?

```

1. SELECT r1.Response_to_consumer,
2.     count(r1.ResponseID) as NumResponses,
3.     count(r1.ResponseID)/r3.Tot as Percentage
4. FROM responses r1,
5.     (SELECT count(ResponseID) as Tot
6.      FROM responses r2) r3
7. GROUP BY Response_to_consumer
8. ORDER BY NumResponses DESC;

```

Response_to_consumer	NumResponses	Percentage
Closed with explanation	481539	0.7357
Closed with non-monetary relief	82832	0.1265
Closed with monetary relief	44075	0.0673
Closed without relief	17719	0.0271
Closed	15132	0.0231
Closed with relief	5238	0.0080
In progress	4663	0.0071
Untimely response	3343	0.0051

Almost three-quarters of consumers are simply given an explanation in response to their complaint. Only about one in five are closed with relief, monetary or non-monetary, provided.

What are the types of issues consumers complain about for each product?

```

1. SELECT p.ProductName, c.Issue, count(c.ComplaintID) as NumComplaints
2. FROM complaints c, products p
3. WHERE c.ProductID=p.ProductID
4. GROUP BY c.ProductID, c.Issue
5. ORDER BY p.ProductName, NumComplaints DESC;

```

This query returns the complete list of Issues and the Product each issue corresponded with on the complaints. A formatted table of the results is below.

ProductName	Issue	NumComplaints	ProductName	Issue	NumComplaints	ProductName	Issue	NumComp
Credit card	Billing disputes	12803	Bank account or service	Account opening, closing, or management	32056	Money transfers	Fraud or scam	1621
Credit card	Other	7853	Bank account or service	Deposits and withdrawals	19626	Money transfers	Other transaction issues	1228
Credit card	Identity theft / Fraud / Embezzlement	7159	Bank account or service	Problems caused by my funds being low	10382	Money transfers	Money was not available when promised	798
Credit card	Closing/Cancelling account	5492	Bank account or service	Making/receiving payments, sending money	6211	Money transfers	Other service issues	415
Credit card	APR or interest rate	5029	Bank account or service	Using a debit or ATM card	5141	Money transfers	Wrong amount charged or received	221
Credit card	Late fee	3217	Consumer Loan	Managing the loan or lease	12379	Money transfers	Incorrect/missing disclosures or info	169
Credit card	Customer service / Customer relations	2995	Consumer Loan	Problems when you are unable to pay	6294	Mortgage	Loan modification, collection, foreclosure	104726
Credit card	Delinquent account	2734	Consumer Loan	Taking out the loan or lease	3541	Mortgage	Loan servicing, payments, escrow account	68870
Credit card	Credit determination	2672	Consumer Loan	Shopping for a loan or lease	1702	Mortgage	Application, originator, mortgage broker	15239
Credit card	Advertising and marketing	2574	Consumer Loan	Managing the line of credit	709	Mortgage	Settlement process and costs	7923
Credit card	Rewards	2476	Consumer Loan	Account terms and changes	464	Mortgage	Credit decision / Underwriting	5040
Credit card	Credit card protection / Debt protection	2321	Consumer Loan	Shopping for a line of credit	277	Mortgage	Other	4866
Credit card	Billing statement	2284	Consumer Loan	Charged fees or interest I didn't expect	245	Other financial service	Fraud or scam	252
Credit card	Transaction issue	2259	Consumer Loan	Can't contact lender	66	Other financial service	Customer service/Customer relations	212
Credit card	Payoff process	2027	Consumer Loan	Lender repossessed or sold the vehicle	65	Other financial service	Unexpected/Other fees	83
Credit card	Credit line increase/decrease	1933	Consumer Loan	Payment to acct not credited	59	Other financial service	Excessive fees	79
Credit card	Other fee	1909	Consumer Loan	Applied for loan/did not receive money	26	Other financial service	Disclosures	35
Credit card	Credit reporting	1669	Consumer Loan	Received a loan I didn't apply for	21	Other financial service	Lost or stolen check	34
Credit card	Unsolicited issuance of credit card	1471	Consumer Loan	Can't stop charges to bank account	7	Other financial service	Lost or stolen money order	32
Credit card	Collection practices	991	Consumer Loan	Lender damaged or destroyed vehicle	6	Other financial service	Advertising and marketing	25
Credit card	Balance transfer	982	Consumer Loan	Charged bank acct wrong day or amt	5	Other financial service	Incorrect exchange rate	15
Credit card	Collection debt dispute	884	Consumer Loan	Lender sold the property	4	Payday loan	Charged fees or interest I didn't expect	2103
Credit card	Forbearance / Workout plans	491	Consumer Loan	Lender damaged or destroyed property	1	Payday loan	Can't contact lender	836
Credit card	Privacy	435	Credit reporting	Incorrect information on credit report	84618	Payday loan	Received a loan I didn't apply for	493
Credit card	Application processing delay	433	Credit reporting	Credit reporting company's investigation	13628	Payday loan	Can't stop charges to bank account	421
Credit card	Bankruptcy	410	Credit reporting	Unable to get credit report/credit score	9519	Payday loan	Payment to acct not credited	309
Credit card	Sale of account	299	Credit reporting	Improper use of my credit report	4623	Payday loan	Applied for loan/did not receive money	283
Credit card	Arbitration	298	Credit reporting	Credit monitoring or identity protection	3732	Payday loan	Charged bank acct wrong day or amt	240
Credit card	Cash advance	220	Debt collection	Cont'd attempts collect debt not owed	50370	Prepaid card	Unauthorized transactions/trans. issues	1008
Credit card	Overlimit fee	196	Debt collection	Disclosure verification of debt	23871	Prepaid card	Managing, opening, or closing account	1003
Credit card	Balance transfer fee	192	Debt collection	Communication tactics	20936	Prepaid card	Fraud or scam	591
Credit card	Cash advance fee	177	Debt collection	False statements or representation	9859	Prepaid card	Fees	197
Credit card	Convenience checks	129	Debt collection	Improper contact or sharing of info	8668	Prepaid card	Adding money	177
Student loan	Dealing with my lender or servicer	9839	Debt collection	Taking/threatening an illegal action	7694	Prepaid card	Advertising, marketing or disclosures	63
Student loan	Can't repay my loan	5184	Virtual currency	Other service issues	5	Prepaid card	Overdraft, savings or rewards features	45
Student loan	Repaying your loan	3786	Virtual currency	Fraud or scam	4	Prepaid card	Other	1
Student loan	Problems when you are unable to pay	1676	Virtual currency	Other transaction issues	2			
Student loan	Getting a loan	572	Virtual currency	Money was not available when promised	1			

Consider a fictional consumer who lives in Atlanta (30303) and is interested in acquiring a checking account from a bank. What companies have received the most complaints in regards to checking accounts in her area?

```
1. SELECT cm.CompanyName, count(cm.ComplaintID) as NumComplaints
2. FROM complaints cm, consumer cn
3. WHERE cm.consumerID=cn.consumerID
4. AND cm.SubProductID='80880'
5. AND cn.Zip3=303
6. GROUP BY cm.CompanyName
7. ORDER BY NumComplaints DESC;
```

In order to make a decision on what institutions to avoid, this list of the companies that have received the most complaints in the same 3-digit zip area would be useful. There are also a handful of companies with one complaint returned by this query.

CompanyName	NumComplaints
Wells Fargo & Company	115
Bank of America	99
SunTrust Banks, Inc.	71
JPMorgan Chase & Co.	41
Citibank	24
Regions Financial Corporation	22
BB&T Financial	13
PNC Bank N.A.	13
U.S. Bancorp	6
USAA Savings	5
Synchrony Financial	5
Fifth Third Financial Corporat...	5
Ally Financial Inc.	4
Amex	4
Navy FCU	3
BBVA Compass	3
First Citizens	2
PayPal Holdings, Inc.	2
IBERIABANK	2
Synovus Bank	2
M&T Bank Corporation	2
Capital One	2

What is the preferred method of submitting complaints to the CFPB?

```
1 select co.how_submitted as MediumfSubmittingComplaint, count(co.how_submitted) as
2 NumberofComplaintsReceived from complaints.complaints co
3 group by (co.how_submitted) order by count(co.how_submitted) desc;
```

MediumfSubmittingComplaint	NumberofComplaintsReceived
Web	436927
Referral	119899
Phone	45552
Postal mail	42539
Fax	9325
Email	299

The large majority of consumers prefer to use the web-based form to submit their complaints.

Appendix - Data Entry Script

```

1. CREATE TABLE products(ProductName VARCHAR(40),
2.                           ProductID INT(2),
3.                           PRIMARY KEY (ProductID));
4. LOAD DATA LOCAL INFILE 'C:/Users/Steven Spangler/OneDrive - Georgia State University/CIS 8040/Project/finaltables/product.csv'
5. INTO TABLE products
6. FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
7. LINES TERMINATED BY '\n'
8. IGNORE 1 LINES;
9.
10. CREATE TABLE subproducts(SubProductName VARCHAR(40),
11.                             SubProductID VARCHAR(5),
12.                             PRIMARY KEY (SubProductID));
13. LOAD DATA LOCAL INFILE 'C:/Users/Steven Spangler/OneDrive -
14.   Georgia State University/CIS 8040/Project/finaltables/subproduct.csv'
15. INTO TABLE subproducts
16. FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
17. LINES TERMINATED BY '\n'
18. IGNORE 1 LINES;
19.
20. CREATE TABLE company(CompanyName VARCHAR(60) PRIMARY KEY,
21.                         comphone VARCHAR(16),
22.                         comstreet VARCHAR(50),
23.                         comcity VARCHAR(40),
24.                         comstate VARCHAR(2),
25.                         comzip VARCHAR(5));
26. LOAD DATA LOCAL INFILE 'C:/Users/Steven Spangler/OneDrive - Georgia State University/CIS 8040/Project/finaltables/company.csv'
27. INTO TABLE company
28. FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
29. LINES TERMINATED BY '\n'
30. IGNORE 1 lines
31. (CompanyName,comphone,comstreet,comcity,comstate,@comzip)
32. SET comzip = nullif(@comzip,00000);
33.
34. CREATE TABLE States(StateName VARCHAR(20),
35.                       StateAbb VARCHAR(2) PRIMARY KEY,
36.                       StateArea DECIMAL(9,2),
37.                       StatePop25over INT,
38.                       StateGraduateDeg DECIMAL (3,1),
39.                       StateHSorHigher DECIMAL(3,1),
40.                       StateBachelorsorHigher DECIMAL (3,1),
41.                       StateMedianEarnings INT,
42.                       StatePop2010 INT,
43.                       StatePop2011 INT,
44.                       StatePop2012 INT,
45.                       StatePop2013 INT,
46.                       StatePop2014 INT,
47.                       StatePop2015 INT);
48. LOAD DATA LOCAL INFILE 'C:/Users/Steven Spangler/OneDrive - Georgia State University/CIS 8040/Project/finaltables/states.csv'
49. INTO TABLE states
50. FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
51. LINES TERMINATED BY '\n'
52. IGNORE 1 LINES;
53.
54. CREATE TABLE zips(ZipCode VARCHAR(5) PRIMARY KEY,
55.                     ZipArea DECIMAL(7,3),
56.                     ZipPop2010 INT,
57.                     ZipPop2011 INT,
58.                     ZipPop2012 INT,

```

```

58.                ZipPop2013 INT,
59.                ZipPop2014 INT,
60.                ZipPop25over INT,
61.                ZipGraduateDeg DECIMAL (4,1),
62.                ZipHSorHigher DECIMAL (4,1),
63.                ZipBachelorsorHigher DECIMAL (4,1),
64.                ZipMedianEarnings INT);
65. LOAD DATA LOCAL INFILE 'C:/Users/Steven Spangler/OneDrive - Georgia State University/CIS 8040/Project/finaltables/zips.csv'
66. INTO TABLE zips
67. FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
68. LINES TERMINATED BY '\n'
69. IGNORE 1 LINES;
70.
71. CREATE TABLE consumer(StateAbb VARCHAR(2) REFERENCES states,
72.                ZipCode VARCHAR(5) REFERENCES zips,
73.                ConsumerID VARCHAR(6) PRIMARY KEY);
74. LOAD DATA LOCAL INFILE 'C:/Users/Steven Spangler/OneDrive - Georgia State University/CIS 8040/Project/finaltables/consumers.csv'
75. INTO TABLE consumer
76. FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
77. LINES TERMINATED BY '\n'
78. IGNORE 1 LINES;
79.
80. CREATE TABLE complaints(Rec_Date DATE,
81.                ProductID VARCHAR(5) REFERENCES products,
82.                SubProductID VARCHAR(5) REFERENCES subproducts,
83.                Issue VARCHAR(60),
84.                Subissue VARCHAR(60),
85.                CompanyName VARCHAR(60) REFERENCES company,
86.                How_submitted VARCHAR(15),
87.                Sent_to_company DATE,
88.                ComplaintID VARCHAR(7) PRIMARY KEY,
89.                ConsumerID VARCHAR(6) REFERENCES consumer
90.                ResponseID INT(7) UNSIGNED PRIMARY KEY AUTO_INCREMENT);
91. LOAD DATA LOCAL INFILE 'C:/Users/Steven Spangler/OneDrive -
92.                Georgia State University/CIS 8040/Project/finaltables/complaints.csv'
93. INTO TABLE complaints
94. FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
95. LINES TERMINATED BY '\n'
96. IGNORE 1 LINES
97. (@Rec_Date, ProductID, SubProductID, Issue, Subissue, CompanyName, How_submitted, @Sent_to_company, ComplaintID, ConsumerID)
98. SET Rec_Date = str_to_date(@Rec_Date, '%c/%e/%Y'),
99. Sent_to_company = str_to_date(@Sent_to_company, '%c/%e/%Y');
100.
101. CREATE TABLE responses(CompanyName VARCHAR(60) REFERENCES company,
102.                PublicResponse VARCHAR(130),
103.                Response_to_consumer VARCHAR(40),
104.                Timely VARCHAR(3),
105.                ConsumerDisputed VARCHAR(4),
106.                ComplaintID VARCHAR(7) REFERENCES complaints);
107. LOAD DATA LOCAL INFILE 'C:/Users/Steven Spangler/OneDrive - Georgia State University/CIS 8040/Project/finaltables/responses.csv'
108. INTO TABLE responses
109. FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'
110. LINES TERMINATED BY '\n'
111. IGNORE 1 LINES;
112.
113. ALTER TABLE `complaints`.`zips`
114. ADD COLUMN `Zip3` VARCHAR(3) NULL AFTER `ZipMedianEarnings`;
115. UPDATE zips SET Zip3 = left(ZipCode,3);
116.
117. ALTER TABLE `complaints`.`consumer`
118. ADD COLUMN `Zip3` VARCHAR(3) NULL;
119. UPDATE consumer SET Zip3 = left(ZipCode,

```