

# Jhirc21

February 17, 2024

```
[1]: import warnings
warnings.filterwarnings('ignore')
```

## 1 Lab 4 - Data (ETL)

```
[2]: %matplotlib inline
```

### 1.1 General Instructions

In this course, Labs are the chance to applying concepts and methods discussed in the module. They are a low stakes (pass/fail) opportunity for you to try your hand at *doing*. Please make sure you follow the general Lab instructions, described in the Syllabus. The summary is:

- Discussions should start as students work through the material, first Wednesday at the start of the new Module week.
- Labs are due by Sunday.
- Lab solutions are released Monday.
- Post Self Evaluation and Lab to Lab Group on Blackboard and Lab to Module on Blackboard on Monday.

The last part is important because the Problem Sets will require you to perform the same or similar tasks without guidance. Problem Sets are your opportunity to demonstrate that you understand how to apply the concepts and methods discussed in the relevant Modules and Labs.

### 1.2 Specific Instructions

1. For Blackboard submissions, if there are no accompanying files, you should submit *only* your notebook and it should be named using *only* your JHED id: fsmith79.ipynb for example if your JHED id were “fsmith79”. If the assignment requires additional files, you should name the *folder/directory* your JHED id and put all items in that folder/directory, ZIP it up (only ZIP...no other compression), and submit it to Blackboard.
  - do **not** use absolute paths in your notebooks. All resources should be located in the same directory as the rest of your assignments.
  - the directory **must** be named your JHED id and **only** your JHED id.
  - do **not** return files provided by us (data files, .py files)
2. Data Science is as much about what you write (communicating) as the code you execute (researching). In many places, you will be required to execute code and discuss both the

purpose and the result. Additionally, Data Science is about reproducibility and transparency. This includes good communication with your team and possibly with yourself. Therefore, you must show **all** work.

3. Avail yourself of the Markdown/Codecell nature of the notebook. If you don't know about Markdown, look it up. Your notebooks should not look like ransom notes. Don't make everything bold. Clearly indicate what question you are answering.
4. Submit a cleanly executed notebook. The first code cell should say `In [1]` and each successive code cell should increase by 1 throughout the notebook.

**Note** This assignment will have multiple files. Follow those instructions.

### 1.3 Lab

**Reid's** is a small breakfast stand that sells drinks (coffee, tea, sodas) and food (egg & sausage, oatmeal) in a commercial downtown area, Monday through Friday, from 8a until 11am. Although their menu is small, they do try to cater to a wide variety of diets and thus provide both vegan and keto options for most of their meals. They started using Ordr as their Point of Sale (POS) system about two months ago and are on the Basic Plan.

Under the Basic Plan, they are able to use the Ordr API to access orders. This order information comes in the form of a denormalized JSON document. In order to make any sense of things, you need to normalize it in the Datawarehouse.

1. You are not actually going to access an external API. Use the provided JSON file as the data that the API would return.
2. **You are doing “ETL in the Large” in this assignment.** You are going to build a datawarehouse in SQLite, *not* an application database. This difference is substantial. Refer to the draft chapter of Fundamentals for some of the differences.

**Note** We sometimes get strange questions about the use of SQLite like, “do you really use SQLite in production?”. We use SQLite for this Lab for the following reasons:

1. SQLite is a real RDBMS.
2. SQLite uses real SQL. SQL may be the most important skill you can have as a Data Scientist doing Data Science.
3. Most importantly, the database itself is a standalone file that you can submit to us.

That being said, under some and somewhat weird circumstances, I have used SQLite on real projects before. However, the learning objective is not SQLite, SQLite is tool.

**Note**

You may need to install `sqlite`. It is normally on MacOS and may be on Linux already.

**Note** We assume you know the basics of RDBMS and SQL DDL in this course (It is in the course prerequisites!). That you understand what “normalized” and “denormalized” data means and that you know about primary and foreign keys. This [article](#) does talk about the major points. Additionally, we assume you know SQL and DDL. If you do not, this Lab will be more challenging than usual and you should start early.

**Important - You must not use Pandas for any part of this assignment.** Why not? Because you should know how to do these things without relying on Pandas.

## 1.4 Part 1

### 1.4.1 Learning Objectives

- investigate the structure of data acquired from a 3rd party.
- convert denormalized data into normalized data, according to common data warehouse practices.
- design a data warehouse to store production data acquired from a 3rd party.
- write data to a data warehouse.

This assignment is not about tools *per se* but about broader skills and concepts.

You will be creating the following files:

1. **reids.sql** - this file will create the database structure using DDL. Make sure you review the data and sketch out your design.
2. **reids.db** - this is the actual database, our data warehouse.

```
> sqlite3 reids.db < reids.sql
```

will create the database and all the tables. The database will be empty at this point.

**Note**

`<p><tt></tt></p>` represents the command line. Your sqlite executable may have a different name.

3. **reids.py** - this program will parse the JSON file and fill the database.

```
> python reids.py
```

Unfortunately, the documentations for the Ordr API is sparse, here is an example of one order:

```
{'items': [  
  {'name': 'coffee', 'price': 2.75},  
  {'name': 'flavor shot', 'price': 1.0}  
],  
'charges': {  
  'date': '01/04/21 10:22',  
  'subtotal': 3.75,  
  'taxes': 0.26,  
  'total': 4.01},  
'payment': {  
  'card_type': 'visa',  
  'last_4_card_number': '0465',  
  'zip': '21217',  
  'cardholder': 'Christina Sampson',  
  'method': 'credit_card'}}
```

**The date format is Month/Day/Year**

Make sure you look through the data to see what values are possible for each of the fields. The standards of normalization/denormalization for datawarehouses are slightly different or can be different than regular production RDMBS systems. For example, we might be tempted to create a `menu_items` table:

id	name	price
----	------	-------

1	coffee	2.75
2	flavor shot	1.00
3	egg salad sandwich	4.50

An issue arises if we change the name to “Kona Coffee” because it will change it *for past purchases*. That is, customers in the past bought based on the name “Coffee” and not “Kona Coffee”. This might be important. Even worse, if we change the price to \ \$3.00, it changes it for all past purchases and that is clearly wrong.

In a production RDMBS we often want the data to change everywhere it is used. If “Steve” changes his name to “Sam”, we want that to be reflected in any query and report. For datawarehousing, though, we want to preserve the historical fidelity of the data. This means we have a tendency to normalize *less* than we would otherwise do. It’s worth noting that there is a trend to preserve the historical fidelity in production databases as well by things like soft deletes.

This means the main issue for the `Ordr` data is storing the three main entities and creating primary/secondary keys. You will need to create these.

All of this “parsing and massaging” work will be done in the `reids.py` file. It will contain the code to parse the JSON file and fill the database, performing whatever normalization and standardization is required as well as creating whatever primary and foreign key relationships seem reasonable.

You must create the following tables in the database:

1. `items`
2. `charges`
3. `payments`

but you can add additional tables as necessary (it is not uncommon to include tables in datawarehouses that support analytics such as information about business dates).

**Note** Feel free to develop `reids.py` as a Notebook and then generate the `.py` from the `.ipynb` file...just make sure you only include the `.py` file and that it will run from the command line as specified above and you have commented out any debug/chatter.

**Important** There are some “gotchas”. 1. When inserting data into the database, don’t forget to the commit. 2. If you must reconstruct your database, make sure you “free” all references to it. If you use a script to change it but it’s open your notebook, the open version in the notebook won’t necessarily see those changes. You’ll need to get a new connection.

When you are done with this part, you should be able to proceed to Part 2.

**Everything having to do with parsing the JSON file from `Ordr` and setting up the “data warehouse” should be done in the three files described above and not in this Notebook.**

## 1.5 Part 2

### 1.5.1 Learning Objectives

You almost never start out with a Notebook and start pulling data. The idea that you launch Jupyter Notebook and load a readily available CSV is an incredibly artificial artifact of school (if you had to pull data The Real Way(tm) for every assignment, we’d never get anything done).

Instead, you are more likely to start out with a database and you run queries directly against the database, finding out where and what everything is, answering some initial questions.

- Run queries against an RDBMS to answer basic business questions.

Some data science projects are literally just this: someone asks a question, you investigate the data, you run a query using something like [MySQL Workbench](#), [Toad](#) (Windows Only) or [Postico](#) (MacOS Only). There are also generic SQL clients. For example, [VSCode](#) has SQL extensions.

You will mimic that experience here by using only the [sqlite3](#) Python library (included in the base installation, link is to documentation). As with Part 1, you may *not* use Pandas for this part. Additionally, you *must* not print out native Python data structures. [Tabulate](#) has been provided in the environment.yml for your use.

For Part 2, everything should be done here, in this notebook.

**Note** The general format is discuss/code/discuss. For the questions below, you should be able to:

1. explain what the query does (discuss)
2. execute and display the query result (code)
3. interpret the result (discuss)

All three are required for full credit on something like Problem Set so you should practice the triad here. It is permissible to use a query to get raw data (and show it in a table) and then perform a calculation with that raw data (just add a code cell). However, you should do as much as possible in SQL.

**Note**

There is a significant work/payoff imbalance here and this reflects real life. Setting up the data warehouse is 80% of the effort but only 20% of the credit. Your boss just doesn't care about your struggles with the data, they only care about answering the queries. As a result, the queries (Part 2) may be 20% of the effort but they're 80% of the grade. They're proof that you did Part 1 correctly. If you don't get to the queries, if you don't do them right, there's no proof.

Using the database `reids.db` and SQL please answer the following questions:

```
[3]: from tabulate import tabulate
import sqlite3
```

```
[6]: con = sqlite3.connect('reids.db')
crsr = con.cursor()
```

### 1.5.2 Question 1.

What were Reid's order count and gross revenue by day for the two month period?

For order count, we can simply count up the amount of charges. For gross revenue, we can sum the totals from each charge.

```
[21]: orders = crsr.execute(''SELECT count(*) FROM charges'')
orders = crsr.fetchall()
```

```
data = [[orders[0][0]]]
print(tabulate(data, headers=['Orders']))
```

```
Orders
-----
2071
```

So there were 2071 orders for this period.

Note I split up the day and time as separate columns in the database, which allows us to group by day for this query.

```
[22]: revenue = crsr.execute('''SELECT date, SUM(total) FROM charges GROUP BY date''')
revenue = crsr.fetchall()
data = []
for day in revenue:
    data.append(day)

print(tabulate(data, headers=['Date', 'Gross Revenue']))
```

Date	Gross Revenue
-----	-----
2021/04/01	188.87
2021/04/02	265.11
2021/04/05	339.77
2021/04/06	276.09
2021/04/07	188.63
2021/04/08	345.92
2021/04/09	341.58
2021/04/12	294.54
2021/04/13	167.5
2021/04/14	288.41
2021/04/15	262.69
2021/04/16	402.63
2021/04/19	276.1
2021/04/20	265.65
2021/04/21	207.62
2021/04/22	316.76
2021/04/23	408.49
2021/04/26	256.32
2021/04/27	240.78
2021/04/28	267.53
2021/04/29	259.79
2021/04/30	284.13
2021/05/03	285.47
2021/05/04	263.49
2021/05/05	188.86
2021/05/06	359.81
2021/05/07	355.28

2021/05/10	301.24
2021/05/11	171.73
2021/05/12	202.26
2021/05/13	315.68
2021/05/14	263.23
2021/05/17	170.68
2021/05/18	274.5
2021/05/19	296.44
2021/05/20	331.69
2021/05/21	333.32
2021/05/24	288.93
2021/05/25	318.1
2021/05/26	222.31
2021/05/27	255.49
2021/05/28	273.43

Here we can see the gross revenue summed by date.

### 1.5.3 Question 2.

What is Reid's average order count and gross revenue by day of the week?

```
[49]: # doesn't work
revenue = crsr.execute('''SELECT date, count(*) FROM charges
                        WHERE DATEPART(WEEKDAY, GETDATE()) = 2 ''')
revenue = crsr.fetchall()
print(revenue)
data = []
for day in revenue:
    data.append(day)
```

```
-----
OperationalError                                Traceback (most recent call last)
Cell In[49], line 1
----> 1 revenue = crsr.execute('''SELECT date, count(*) FROM charges
    2                                WHERE DATEPART(WEEKDAY, GETDATE()) = 2 ''')
    3 revenue = crsr.fetchall()
    4 print(revenue)

OperationalError: no such column: WEEKDAY
```

I'm not really sure how to approach this problem without going back into the database and adding the days to the tables, but all the documentation I could find online is how to select the weekday with manually entering the date.

### 1.5.4 Question 3.

How many cups of coffee does Reid's sell per day, on average?

```
[51]: # foreign keys?
coffee = crsr.execute('''SELECT count(*) FROM items WHERE name = 'coffee' ''')
coffee = crsr.fetchall()
print(coffee)
```

```
[(1,)]
```

This is found by linking the items table with the charges or another ordering table. I tried my best to create the tables, and they have unique ids, but I couldn't figure out how to properly set up the foreign keys to link tables to each other. This is my first time using SQL.

#### 1.5.5 Question 4.

What proportion of orders contain “up charges” like flavor shots, vegan or keto substitutions?

```
[32]: # couldn't figure out how to create order table properly -looking foward to the
      ↪solution
upcharge = crsr.execute('''SELECT count(*) FROM items WHERE name = 'flavor shot'
                        AND name = 'vegan' AND name='keto' ''')
upcharge = crsr.fetchall()
print(upcharge)
```

```
[(0,)]
```

I couldn't get the ORDER table working properly with setting up my foreign keys. I understand the principles - we want to have a table that links each order with a unique charge, and ids of items from the items table and ids from the payments table. However I could not figure out how to do this as this is my first time working with SQL. Looking forward to reviewing the solution this week.

#### 1.5.6 Question 5.

Reid's considers someone to be a “regular” if they come at least 3 out of 5 days per week. How many regulars do you estimate there are and what are their names? How many days per week do they each come on average? What are the limits of this calculation based on the available data?

```
[36]: customer = crsr.execute('''SELECT * FROM payments GROUP BY cardholder ''')
customer = crsr.fetchall()
data = []
for payment in customer:
    data.append(payment)

print(tabulate(data, headers=['cust_id', 'method', 'card', 'last_4', 'zip',
      ↪'name'])))
```

cust_id	method	card	last_4	zip	name
3	cash				
94	credit_card	mastercard	2460	21217	Aaron Bridges
276	credit_card	visa	3660	21201	Aaron Compton
553	credit_card	mastercard	1369	21226	Aaron Crane



347	credit_card	mastercard	1505	21270	Aaron Ellis
337	credit_card	mastercard	1511	21281	Abigail Carter
118	credit_card	mastercard	4229	21278	Abigail Hall
747	credit_card	visa	2280	21205	Adam Brooks
115	credit_card	mastercard	2581	21274	Adam Thompson
86	credit_card	visa	5136	21230	Adrian Herman
270	credit_card	visa	6840	21205	Adrian James
567	credit_card	visa	946	21231	Adriana Young
66	credit_card	visa	9698	21223	Alexander Atkinson
358	credit_card	mastercard	2556	21287	Alexander Nelson
215	credit_card	visa	7626	21278	Alexis Campbell
349	credit_card	visa	275	21263	Alexis Thompson
376	credit_card	mastercard	822	21214	Allison White
116	credit_card	visa	2661	21280	Allison Wright
104	credit_card	visa	1870	21274	Alyssa Carr
249	credit_card	visa	8879	21279	Alyssa Marsh MD
511	credit_card	visa	2248	21288	Amanda Alexander
589	credit_card	visa	5427	21223	Amanda Anderson
575	credit_card	visa	1669	21226	Amanda Ayala
752	credit_card	visa	2120	21264	Amanda Mccoy
541	credit_card	visa	8855	21223	Amanda McIntyre
285	credit_card	mastercard	2960	21217	Amanda Oconnor
530	credit_card	mastercard	5195	21225	Amanda Wright
675	credit_card	mastercard	9664	21270	Amanda York
384	credit_card	visa	8181	21223	Amber Rodriguez
125	credit_card	visa	6278	21283	Amy Hernandez
355	credit_card	visa	6922	21216	Amy Hogan
626	credit_card	visa	4594	21217	Amy Massey
407	credit_card	mastercard	7804	21278	Amy Norton
674	credit_card	mastercard	9057	21202	Amy Oconnor
517	credit_card	mastercard	7477	21283	Amy Robinson
334	credit_card	visa	7608	21278	Amy Warren
31	credit_card	visa	8120	21273	Andrea Baker DVM
4	credit_card	visa	9614	21216	Andrea Francis
225	credit_card	visa	5075	21226	Andrea Hall
198	credit_card	visa	4653	21298	Andrew Johnson
2	credit_card	visa	6072	21213	Andrew Luna
351	credit_card	visa	528	21201	Andrew Pena
375	credit_card	visa	685	21287	Angel Griffin
173	credit_card	visa	1820	21263	Angela Gallagher
191	credit_card	visa	7464	21280	Angela Gregory
600	credit_card	visa	8542	21279	Angela Harrison
309	credit_card	visa	9689	21223	Angela Haynes
146	credit_card	mastercard	5625	21270	Anna Cruz
305	credit_card	mastercard	5514	21233	Anna Hall
641	credit_card	mastercard	9652	21233	Anna Mcpherson
654	credit_card	visa	5308	21264	Anna Ramos
438	credit_card	visa	8757	21251	Anne Clayton

494	credit_card	visa	1287	21217	Anne Compton
735	credit_card	visa	9743	21283	Anne Miles
350	credit_card	visa	5799	21226	Anthony Hunter DDS
566	credit_card	mastercard	8875	21263	Anthony Mack
51	credit_card	visa	9801	21270	Anthony Martin
96	credit_card	visa	9591	21297	Anthony Wilson
724	credit_card	visa	7819	21218	Antonio Porter
128	credit_card	visa	6166	21226	April Figueroa
260	credit_card	visa	7541	21275	April Torres
432	credit_card	visa	6878	21225	Ashley Baker
720	credit_card	visa	1068	21298	Ashley Barnes
161	credit_card	visa	3247	21203	Ashley Brown
456	credit_card	mastercard	5538	21263	Ashley Cardenas
152	credit_card	mastercard	5557	21279	Ashley Hughes
324	credit_card	visa	1268	21297	Ashley Schaefer
232	credit_card	visa	7843	21290	Audrey Hall
246	credit_card	visa	351	21211	Austin Harrell
734	credit_card	visa	7126	21289	Autumn Fuller
32	credit_card	visa	2808	21226	Barbara Greene
413	credit_card	mastercard	4431	21202	Barbara Jacobs
606	credit_card	visa	3573	21283	Barbara Rodriguez
502	credit_card	mastercard	9942	21298	Barbara Solomon
251	credit_card	visa	8109	21265	Benjamin Buck
149	credit_card	visa	1415	21201	Benjamin Cox
545	credit_card	visa	7389	21283	Benjamin Fields
448	credit_card	mastercard	8349	21278	Benjamin Gray
393	credit_card	visa	7480	21226	Beth Gomez DDS
342	credit_card	visa	5000	21290	Beth Turner
323	credit_card	visa	3666	21279	Betty Wilcox
583	credit_card	visa	66	21265	Billy Mills
527	credit_card	mastercard	274	21216	Bobby Mills
229	credit_card	visa	2386	21283	Bonnie Fisher
160	credit_card	visa	3652	21270	Bradley Williams
168	credit_card	visa	6983	21231	Brady Clark
183	credit_card	visa	7931	21201	Brandi Jones
671	credit_card	visa	4713	21289	Brandon Love DVM
167	credit_card	mastercard	2134	21205	Brandon Simon
624	credit_card	visa	4243	21216	Brandy Hernandez
272	credit_card	mastercard	7706	21214	Breanna Johnson
707	credit_card	visa	7954	21211	Brenda Gomez
712	credit_card	visa	2550	21274	Brenda Hammond
1	credit_card	mastercard	5056	21274	Brent Morgan
206	credit_card	visa	6857	21211	Brett Parker
109	credit_card	mastercard	9677	21233	Brian Allen
677	credit_card	visa	9818	21231	Brian Hawkins
257	credit_card	mastercard	7165	21223	Brian Holmes
277	credit_card	visa	5253	21201	Brian Jensen
108	credit_card	mastercard	8245	21205	Brian Macdonald

660	credit_card	visa	1070	21297	Brian Sanders
339	credit_card	visa	6920	21289	Brian Shaw
148	credit_card	mastercard	4954	21289	Brian Whitaker
119	credit_card	visa	1425	21226	Brianna Woodard
245	credit_card	visa	4742	21278	Brittany Decker
254	credit_card	mastercard	903	21201	Brittany Howard DDS
593	credit_card	visa	4004	21218	Brittany Huynh MD
652	credit_card	mastercard	835	21288	Brittany Johnson
396	credit_card	visa	4582	21265	Brittany Rowe
551	credit_card	mastercard	5662	21274	Bruce Fitzgerald
491	credit_card	visa	7905	21274	Bryan Reed
462	credit_card	visa	9793	21225	Caitlin Castillo
698	credit_card	visa	2064	21225	Caitlin Cook
629	credit_card	visa	2035	21265	Caitlin Cooper
444	credit_card	mastercard	6963	21283	Caitlin Keller
520	credit_card	visa	7543	21214	Caitlin Sutton
296	credit_card	mastercard	8718	21214	Caleb Taylor
12	credit_card	mastercard	4362	21201	Calvin Jones
374	credit_card	visa	1108	21280	Cameron Rodriguez
72	credit_card	visa	6472	21288	Carmen Miller
243	credit_card	mastercard	4650	21201	Caroline Jones
271	credit_card	mastercard	429	21213	Carolyn Acosta
306	credit_card	mastercard	6452	21283	Carolyn Jones
557	credit_card	visa	6062	21281	Carrie Gutierrez
480	credit_card	visa	4362	21275	Cassandra Bennett
10	credit_card	visa	302	21297	Cassandra Francis
110	credit_card	mastercard	6776	21233	Catherine Byrd
528	credit_card	visa	8363	21283	Catherine Church
250	credit_card	mastercard	6477	21213	Catherine Coleman
205	credit_card	visa	6000	21273	Catherine French
316	credit_card	visa	7341	21263	Cathy Schaefer
689	credit_card	mastercard	2436	21233	Cesar Hernandez
23	credit_card	visa	5658	21226	Chad Arias
369	credit_card	visa	4017	21203	Chad Collins
268	credit_card	visa	3534	21203	Chad Gilbert
643	credit_card	visa	5848	21203	Charles Herrera
154	credit_card	visa	6021	21264	Charles Newman
635	credit_card	mastercard	7428	21218	Charles Patterson
114	credit_card	mastercard	9832	21279	Chase Chang
201	credit_card	mastercard	8642	21283	Chase Hall
341	credit_card	mastercard	5871	21298	Chase Serrano
126	credit_card	visa	7024	21290	Chelsea Hanna
93	credit_card	visa	3378	21270	Chelsea Richardson
7	credit_card	visa	3516	21290	Cheryl Zamora
356	credit_card	mastercard	3541	21233	Christina Lucas
363	credit_card	visa	5569	21290	Christine Berger
730	credit_card	visa	267	21275	Christine Castro
719	credit_card	mastercard	6227	21274	Christine Gray

622	credit_card	visa	7553	21215	Christopher Beard
130	credit_card	visa	9667	21290	Christopher Chandler
521	credit_card	visa	3640	21214	Christopher Hardin
35	credit_card	mastercard	4792	21216	Christopher Herrera
410	credit_card	visa	4446	21231	Christopher Ibarra
65	credit_card	mastercard	3908	21283	Christopher Kaufman
420	credit_card	visa	2037	21287	Christopher Lynch
263	credit_card	visa	8821	21233	Christopher Wilson
525	credit_card	mastercard	9709	21251	Cody Lane
475	credit_card	visa	7011	21201	Cody Patel
176	credit_card	visa	8598	21273	Cody Watts
200	credit_card	mastercard	4109	21287	Corey Ashley
631	credit_card	visa	8041	21281	Corey Jenkins
46	credit_card	visa	6132	21225	Cory Martin
744	credit_card	visa	2627	21275	Courtney Miller
13	credit_card	visa	6423	21298	Craig Armstrong
19	credit_card	visa	7763	21263	Craig Chase
755	credit_card	visa	5706	21287	Craig Hall
252	credit_card	mastercard	6207	21223	Crystal Mcgee
235	credit_card	visa	4891	21297	Crystal Tapia
38	credit_card	visa	1532	21279	Curtis Lynn
590	credit_card	visa	252	21280	Curtis Smith
422	credit_card	visa	1069	21216	Dakota Smith
220	credit_card	mastercard	9422	21290	Dana Chavez
436	credit_card	visa	6939	21225	Daniel Butler
310	credit_card	visa	8519	21218	Daniel Deleon
370	credit_card	visa	9742	21203	Daniel Downs
431	credit_card	visa	3582	21215	Daniel Gonzalez
97	credit_card	visa	118	21281	Daniel Hall DVM
43	credit_card	visa	3593	21233	Daniel Hays
29	credit_card	visa	2275	21297	Daniel Long
92	credit_card	visa	3681	21283	Daniel Rodriguez
319	credit_card	visa	9665	21265	Daniel Silva
704	credit_card	visa	3108	21281	Daniel Steele
163	credit_card	mastercard	4518	21223	Daniel Vargas
211	credit_card	visa	9502	21264	Daniel Waters
88	credit_card	visa	7275	21233	Danielle Cisneros
623	credit_card	mastercard	5624	21280	Danielle Nichols
386	credit_card	mastercard	6028	21223	Darius Ochoa
569	credit_card	visa	4450	21213	Darren Harrison
492	credit_card	visa	4862	21205	Darren Newman
262	credit_card	visa	8161	21223	Daryl Jones
524	credit_card	visa	3881	21223	David Adams
231	credit_card	mastercard	8229	21230	David Black
199	credit_card	visa	8042	21203	David Burns
164	credit_card	visa	1634	21231	David Garza
226	credit_card	visa	9889	21264	David Gomez
515	credit_card	mastercard	7523	21287	David Johnson

11	credit_card	visa	8354	21297	David Jordan
122	credit_card	mastercard	2996	21274	David Parker
668	credit_card	visa	768	21205	David Schultz
352	credit_card	mastercard	3341	21278	David Valdez
186	credit_card	visa	6747	21287	Dawn Hernandez
385	credit_card	mastercard	4399	21251	Deanna Hahn
269	credit_card	visa	6180	21279	Deanna Smith
507	credit_card	mastercard	7742	21251	Debbie Summers
645	credit_card	visa	7991	21263	Deborah Freeman
223	credit_card	visa	9839	21223	Deborah Johnson
357	credit_card	visa	5939	21280	Deborah Murillo
332	credit_card	visa	9998	21283	Deborah Reynolds
514	credit_card	visa	7830	21218	Debra Cortez
169	credit_card	visa	8908	21280	Debra Hudson
534	credit_card	visa	6808	21218	Denise Gomez
247	credit_card	visa	1395	21265	Denise Parker
333	credit_card	mastercard	922	21297	Dennis Atkins
474	credit_card	visa	8389	21288	Derrick Kim
658	credit_card	visa	6047	21263	Derrick Wilson
613	credit_card	visa	4230	21278	Desiree Morrow
612	credit_card	visa	6961	21201	Diana Jacobs
710	credit_card	visa	2964	21230	Don Macias
754	credit_card	mastercard	3961	21280	Donald Ramsey
304	credit_card	mastercard	8525	21279	Donald Salazar
57	credit_card	mastercard	3240	21275	Donald White
473	credit_card	mastercard	1069	21230	Donna Miller
290	credit_card	visa	5658	21216	Donna Williams
265	credit_card	mastercard	9572	21288	Dorothy Roberts
162	credit_card	mastercard	5816	21270	Douglas Cobb
39	credit_card	visa	9363	21233	Dr. Dawn Watkins
264	credit_card	visa	4550	21279	Dr. Isaiah Gibbs
627	credit_card	visa	3504	21283	Dr. Joanna Freeman
633	credit_card	visa	4861	21263	Dr. Tara Erickson
132	credit_card	visa	8420	21278	Dylan Garcia
170	credit_card	visa	9345	21205	Eddie Hall
36	credit_card	visa	3018	21279	Eddie Myers
193	credit_card	mastercard	5904	21280	Edgar Keith
440	credit_card	visa	4950	21273	Edward Fisher
512	credit_card	mastercard	906	21273	Elaine Harris
123	credit_card	visa	5837	21279	Elijah Carrillo
465	credit_card	visa	2395	21230	Elizabeth Collier
642	credit_card	visa	277	21205	Elizabeth Frank
59	credit_card	visa	5938	21274	Elizabeth Shaw
320	credit_card	visa	7677	21288	Emily Brown
21	credit_card	visa	8789	21270	Emily Dennis
501	credit_card	mastercard	707	21279	Emily Duarte
172	credit_card	visa	6814	21226	Emily Little
453	credit_card	visa	194	21280	Emily Vance

685	credit_card	visa	9825	21218	Emily Wilson
5	credit_card	visa	3715	21230	Eric Bruce
155	credit_card	visa	240	21217	Eric Ford
510	credit_card	mastercard	2739	21230	Eric Martin
667	credit_card	visa	6190	21290	Erica Frazier
751	credit_card	mastercard	3992	21216	Erika Jones
427	credit_card	visa	6990	21274	Erin Barnes
657	credit_card	mastercard	6389	21211	Erin Schmidt
82	credit_card	visa	441	21230	Ethan Alvarez
207	credit_card	mastercard	4963	21297	Ethan Schmidt
571	credit_card	mastercard	6640	21278	Eugene Murphy
706	credit_card	visa	9532	21233	Evan Ramirez
498	credit_card	visa	6564	21251	Felicia Gonzalez
620	credit_card	visa	8970	21203	Felicia Sutton
134	credit_card	visa	3404	21279	Frank Franco
605	credit_card	visa	4022	21202	Frank Rhodes
699	credit_card	visa	2053	21202	Frank Washington
138	credit_card	visa	9755	21264	Franklin Lyons
602	credit_card	visa	4852	21230	Fred Smith
484	credit_card	visa	4757	21217	Gabriel Gaines
95	credit_card	visa	7058	21201	Gabriela Davis
464	credit_card	mastercard	2645	21223	Gabrielle Walters
185	credit_card	visa	4126	21280	Gabrielle Young
449	credit_card	visa	7047	21298	Garrett Huffman
129	credit_card	visa	8519	21290	Garrett Newton
425	credit_card	visa	1347	21264	Gavin Andrews
493	credit_card	visa	5471	21213	Geoffrey Nelson
102	credit_card	visa	8830	21202	George Johnson
98	credit_card	visa	3795	21223	Gerald Sanchez
238	credit_card	visa	8569	21215	Gina Evans
49	credit_card	mastercard	3658	21263	Gina Green
625	credit_card	visa	3593	21214	Gloria Galloway
423	credit_card	visa	7029	21263	Gregg Wilson
74	credit_card	mastercard	388	21297	Gregory Carr
8	credit_card	visa	4242	21265	Gregory Jones
558	credit_card	mastercard	266	21283	Gregory Le
750	credit_card	visa	8701	21215	Gregory Zamora
283	credit_card	mastercard	8630	21283	Hailey Russell
648	credit_card	visa	5431	21216	Haley Pierce
311	credit_card	visa	6469	21287	Harold Prince
64	credit_card	visa	1538	21287	Heather Aguilar
509	credit_card	mastercard	5957	21298	Heather Clark
638	credit_card	visa	8004	21297	Heather Fernandez
458	credit_card	visa	9284	21289	Heather Harris
451	credit_card	visa	2828	21288	Holly Mason
692	credit_card	visa	2832	21216	Isabel Rhodes
404	credit_card	visa	1957	21218	Jaclyn Ford
506	credit_card	visa	8850	21217	Jacob Clark

322	credit_card	visa	6726	21251	Jacob Dickson
580	credit_card	visa	5048	21273	Jacob Finley
681	credit_card	mastercard	264	21218	Jacob Murphy
83	credit_card	visa	9762	21280	Jacob Wiggins
24	credit_card	visa	5572	21283	Jacob Wood
348	credit_card	mastercard	8089	21273	Jacqueline Davis
37	credit_card	visa	6199	21298	Jacqueline Harper DDS
684	credit_card	mastercard	6964	21205	Jacqueline Lynch
447	credit_card	visa	4214	21297	James Daniels
547	credit_card	visa	3854	21217	James Hoover
47	credit_card	visa	3471	21281	James Lewis
294	credit_card	visa	4718	21215	James Mcknight
663	credit_card	visa	5979	21218	James Moreno
157	credit_card	visa	2634	21287	James Phillips
596	credit_card	visa	1966	21251	James Reid
716	credit_card	visa	4841	21211	James Santos
388	credit_card	mastercard	4145	21223	James Wilcox
67	credit_card	visa	7722	21216	Jamie Johnston
237	credit_card	visa	561	21298	Jamie Ramos
282	credit_card	mastercard	8031	21278	Jamie Rivera
20	credit_card	mastercard	9215	21265	Jamie Smith
62	credit_card	mastercard	1279	21278	Jane Sanchez
426	credit_card	visa	7349	21217	Jasmine Miller
14	credit_card	visa	1798	21274	Jason Barker
153	credit_card	visa	2288	21213	Jason Johnson MD
529	credit_card	mastercard	1298	21283	Jason Ortega
639	credit_card	mastercard	3516	21279	Jason Thomas
52	credit_card	mastercard	8607	21251	Jason Weeks
604	credit_card	visa	8200	21225	Jay Conner
371	credit_card	visa	7111	21289	Jay Martinez
331	credit_card	visa	167	21275	Jay Molina
248	credit_card	visa	7260	21280	Jay Powers
394	credit_card	visa	8055	21205	Jeanne Sullivan
471	credit_card	visa	660	21202	Jeff Miller
611	credit_card	visa	270	21274	Jeffery Porter
682	credit_card	mastercard	4004	21223	Jeffery Williams
499	credit_card	mastercard	6106	21270	Jeffrey Anderson
292	credit_card	visa	5893	21216	Jeffrey Cooper
543	credit_card	visa	1432	21298	Jeffrey Davis
587	credit_card	visa	6797	21230	Jeffrey Edwards
522	credit_card	visa	5694	21265	Jeffrey Hansen
526	credit_card	visa	1391	21281	Jeffrey Jacobson
508	credit_card	mastercard	4443	21225	Jeffrey Keller
573	credit_card	visa	7043	21203	Jeffrey Patterson
189	credit_card	visa	1312	21251	Jeffrey Roberson
418	credit_card	visa	3377	21288	Jeffrey Wilson
450	credit_card	visa	9509	21205	Jennifer Fitzgerald
628	credit_card	visa	9349	21264	Jennifer Owens

378	credit_card	mastercard	8704	21297	Jennifer Smith
585	credit_card	visa	8251	21288	Jennifer Ware
312	credit_card	visa	1581	21217	Jennifer Williams
488	credit_card	visa	3201	21264	Jennifer Zhang
588	credit_card	visa	2677	21281	Jeremy Clark
284	credit_card	visa	9148	21281	Jeremy Ray
562	credit_card	visa	3110	21226	Jerry Green
700	credit_card	mastercard	8880	21270	Jesse Horne
230	credit_card	visa	2344	21283	Jessica Hall
519	credit_card	visa	1574	21203	Jessica Lee
399	credit_card	visa	4683	21214	Jessica Little
433	credit_card	mastercard	3779	21202	Jessica Ramsey
58	credit_card	visa	7551	21273	Jessica Williams
726	credit_card	visa	6894	21298	Jill Proctor
733	credit_card	visa	4348	21230	Joel Colon
77	credit_card	visa	3505	21202	John Armstrong
619	credit_card	visa	985	21273	John Davis
142	credit_card	visa	4134	21280	John Paul
487	credit_card	visa	9833	21233	John Perez
695	credit_card	visa	5329	21216	John Simpson
343	credit_card	visa	8854	21205	John Smith
255	credit_card	mastercard	518	21283	John Walls
372	credit_card	visa	8007	21287	John Williams
44	credit_card	visa	6644	21214	John Wood
721	credit_card	visa	1339	21263	Jon Fields
28	credit_card	visa	7866	21231	Jonathan Harris
586	credit_card	mastercard	5156	21218	Jonathan Hodges
683	credit_card	visa	4393	21265	Jorge Cook
570	credit_card	visa	1139	21214	Jose Gonzalez
693	credit_card	mastercard	8052	21264	Jose Morris
389	credit_card	mastercard	6069	21226	Joseph Brown
563	credit_card	visa	1366	21289	Joseph Dougherty
688	credit_card	visa	9832	21215	Joseph Gomez
738	credit_card	visa	2019	21278	Joseph Long
538	credit_card	visa	3424	21214	Joseph Sanford
133	credit_card	visa	7689	21231	Joseph Ward
552	credit_card	mastercard	6755	21223	Joshua Castillo
466	credit_card	visa	4729	21223	Joshua Hines
338	credit_card	visa	4708	21281	Joshua Marks
182	credit_card	visa	8177	21279	Joshua Taylor
274	credit_card	visa	206	21201	Joshua Watkins
678	credit_card	visa	5507	21297	Joshua Williams
106	credit_card	mastercard	343	21287	Joyce Craig
559	credit_card	visa	6642	21251	Julie Blankenship
209	credit_card	visa	5970	21287	Julie Clayton
190	credit_card	visa	8945	21225	Julie Hicks
446	credit_card	visa	5941	21230	Justin Ford
503	credit_card	mastercard	7510	21287	Karen Berger



459	credit_card	visa	6620	21275	Karen Cook
303	credit_card	visa	5735	21214	Karen Johnson
664	credit_card	mastercard	6093	21217	Karen Nash
50	credit_card	visa	3860	21231	Karen Sutton
380	credit_card	visa	4210	21217	Karen Thomas
659	credit_card	visa	4509	21273	Karen Wade
218	credit_card	visa	9563	21270	Katherine Bishop
516	credit_card	visa	5694	21233	Katherine Mcdonald
105	credit_card	visa	4094	21223	Kathleen Martinez
607	credit_card	visa	1994	21290	Kathryn Fox
412	credit_card	visa	3543	21215	Kathy Johnson
61	credit_card	visa	1964	21223	Kathy King
441	credit_card	visa	6605	21214	Katie Peterson
41	credit_card	mastercard	3223	21289	Katie Wise
299	credit_card	visa	2400	21274	Katrina Garcia
78	credit_card	visa	6272	21233	Katrina Matthews
478	credit_card	visa	2542	21215	Kayla Jefferson
540	credit_card	visa	4300	21230	Kelly Hill
476	credit_card	visa	9867	21297	Kelly Miller
179	credit_card	visa	9814	21251	Kelly Prince
756	credit_card	visa	9558	21226	Kenneth Blair
725	credit_card	visa	3725	21279	Kenneth Gibson
728	credit_card	visa	2875	21281	Kenneth Williams
497	credit_card	visa	1773	21202	Kenneth Young
151	credit_card	visa	5304	21213	Kevin Marshall
445	credit_card	visa	3863	21203	Kevin Mccarty
702	credit_card	visa	7445	21203	Kevin Simmons
560	credit_card	visa	764	21211	Kevin Taylor
715	credit_card	mastercard	8039	21289	Kim Bennett
490	credit_card	mastercard	8871	21280	Kimberly Gilmore
632	credit_card	visa	4198	21287	Kimberly Guerrero
603	credit_card	visa	5983	21279	Kimberly Hall
646	credit_card	visa	2923	21290	Kimberly Lee
288	credit_card	visa	8061	21217	Kristen Calhoun
346	credit_card	visa	2485	21274	Kristen Williams
666	credit_card	visa	9732	21278	Kristin Johnson
34	credit_card	visa	4553	21274	Kristin Whitaker
402	credit_card	visa	6212	21263	Kristine Garrison
467	credit_card	mastercard	5268	21275	Kyle Cole
227	credit_card	visa	7071	21214	Kyle Hunt
217	credit_card	visa	7353	21217	Kylie Richardson DDS
286	credit_card	visa	7937	21216	Lance Stevens DDS
644	credit_card	visa	3253	21290	Larry Webb MD
544	credit_card	visa	5319	21279	Latasha Smith
550	credit_card	visa	320	21226	Laura Beck
601	credit_card	visa	1128	21280	Laura Lopez
175	credit_card	mastercard	9330	21211	Laura Martin
275	credit_card	mastercard	1937	21298	Lauren Burns

287	credit_card	visa	2972	21230	Lauren May
415	credit_card	mastercard	612	21201	Leah Carter
256	credit_card	visa	9831	21202	Lee Fischer
584	credit_card	visa	4300	21264	Leonard Walsh
500	credit_card	visa	525	21215	Leslie Keller
70	credit_card	mastercard	9807	21270	Linda Fowler
336	credit_card	visa	4171	21275	Linda Mendez
317	credit_card	visa	8311	21211	Linda Nielsen
9	credit_card	visa	3859	21298	Lindsey Hammond
18	credit_card	visa	9965	21218	Lisa Aguilar
219	credit_card	visa	5230	21203	Lisa Booker
745	credit_card	visa	6145	21218	Lisa Hall
598	credit_card	mastercard	3742	21275	Lisa Moore
391	credit_card	visa	3373	21274	Lisa Rodriguez
91	credit_card	visa	6250	21281	Lisa Wagner
297	credit_card	visa	4865	21264	Lori Phelps
383	credit_card	visa	4273	21217	Lori Turner
308	credit_card	mastercard	4025	21290	Louis Hobbs
295	credit_card	visa	8042	21213	Lucas Williams
76	credit_card	visa	7281	21211	Luis Goodman
327	credit_card	visa	264	21217	Lynn Johnson
301	credit_card	visa	2162	21288	Madison Williams
300	credit_card	visa	7966	21214	Marc Delgado
554	credit_card	visa	6908	21290	Marcia Sanchez
22	credit_card	visa	1522	21265	Margaret Brown
135	credit_card	visa	2071	21216	Margaret Cummings
180	credit_card	visa	7015	21202	Margaret Roberts
80	credit_card	visa	9082	21202	Maria Phillips
25	credit_card	mastercard	6372	21226	Marilyn Benton
75	credit_card	visa	4828	21278	Mario Curry
240	credit_card	visa	7660	21280	Mark Bonilla
495	credit_card	visa	8927	21205	Mark Flores
289	credit_card	visa	8238	21290	Mark Guzman
701	credit_card	visa	6605	21281	Mark Nunez
461	credit_card	mastercard	3872	21231	Mark Rogers
147	credit_card	visa	4517	21216	Martha Griffin
703	credit_card	visa	1287	21231	Mary Adams
578	credit_card	mastercard	3020	21288	Mary Hale
17	credit_card	visa	4285	21230	Mary Jones
504	credit_card	visa	360	21279	Mary Moreno
222	credit_card	visa	464	21265	Mary Shepherd
582	credit_card	visa	9184	21201	Mary Smith
577	credit_card	visa	6955	21203	Mary Thomas
314	credit_card	visa	8025	21226	Mary Wade
454	credit_card	visa	7303	21225	Mary Young
42	credit_card	visa	1638	21213	Matthew Griffin
565	credit_card	visa	8684	21265	Matthew Harrison
139	credit_card	visa	5688	21225	Matthew Hughes

33	credit_card	visa	7031	21213	Matthew Lewis
696	credit_card	visa	1716	21274	Matthew Martin
365	credit_card	visa	3975	21203	Matthew Moore
53	credit_card	mastercard	6168	21287	Matthew Rice
574	credit_card	visa	2707	21251	Matthew Wu
258	credit_card	visa	9448	21283	Megan Bowers
656	credit_card	visa	6064	21275	Megan Taylor
216	credit_card	visa	3458	21288	Megan Wolf
56	credit_card	visa	4998	21287	Meghan Smith
673	credit_card	visa	7373	21265	Melanie Burton
242	credit_card	visa	6036	21205	Melanie Edwards
572	credit_card	mastercard	7031	21287	Melanie Ellison
637	credit_card	visa	2811	21280	Melinda Wheeler
591	credit_card	visa	77	21202	Melissa Cooper
714	credit_card	visa	9930	21288	Melissa Gonzalez
55	credit_card	visa	2562	21264	Melissa Hartman
313	credit_card	mastercard	3052	21202	Michael Bowers
731	credit_card	visa	3199	21217	Michael Chambers
434	credit_card	visa	463	21251	Michael Cole
344	credit_card	visa	222	21265	Michael Cook
615	credit_card	mastercard	6186	21298	Michael Crawford
718	credit_card	mastercard	3400	21278	Michael Delacruz PhD
443	credit_card	mastercard	8818	21263	Michael Elliott
325	credit_card	visa	7074	21280	Michael French
345	credit_card	visa	3112	21283	Michael Grant
281	credit_card	visa	9385	21290	Michael Huff
408	credit_card	mastercard	6088	21270	Michael Lopez
259	credit_card	visa	536	21280	Michael Martinez
691	credit_card	visa	1643	21226	Michael Munoz
713	credit_card	visa	6877	21273	Michael Ray
204	credit_card	mastercard	3728	21205	Michael Serrano
392	credit_card	visa	529	21226	Michael Tucker
749	credit_card	visa	8948	21290	Michael Vazquez
203	credit_card	visa	8257	21251	Michael Washington
630	credit_card	visa	7588	21287	Michael Wheeler
136	credit_card	mastercard	9411	21230	Michael White
739	credit_card	visa	4730	21203	Michele Nelson
224	credit_card	visa	8563	21223	Michelle Anderson
608	credit_card	visa	1467	21288	Michelle Casey
650	credit_card	visa	4276	21287	Mike Clay
481	credit_card	visa	7585	21263	Mike Glover
381	credit_card	visa	5956	21280	Miranda Allison
208	credit_card	mastercard	4972	21280	Miranda Pacheco
609	credit_card	mastercard	464	21274	Miss Tara Carter
533	credit_card	visa	5319	21280	Mitchell Smith
73	credit_card	mastercard	4502	21289	Molly Marshall
144	credit_card	mastercard	1648	21270	Monica Wilson
428	credit_card	mastercard	4368	21287	Monique Fuentes

30	credit_card	visa	4808	21290	Monique Wall
293	credit_card	mastercard	2781	21225	Mr. Brandon Chen
411	credit_card	visa	5538	21213	Mr. David Alvarez DDS
141	credit_card	visa	9419	21264	Mr. Eric Gonzalez DDS
387	credit_card	visa	3485	21290	Mr. Gary Davis MD
401	credit_card	visa	46	21287	Mr. Jonathan Wilson
279	credit_card	visa	2276	21203	Mr. Juan Montoya Jr.
361	credit_card	visa	7506	21287	Mr. Nicholas Gutierrez
513	credit_card	visa	756	21201	Mr. Richard Sanchez
377	credit_card	visa	1729	21273	Mrs. Elizabeth Romero
315	credit_card	mastercard	2321	21233	Mrs. Jillian James
107	credit_card	visa	5352	21264	Ms. Nancy Beck MD
679	credit_card	mastercard	9349	21287	Nancy Carter
127	credit_card	visa	1678	21290	Nancy Peterson
455	credit_card	visa	5183	21273	Nathan Burns
737	credit_card	visa	3633	21211	Nathan Clark
579	credit_card	visa	372	21231	Nathan Erickson
112	credit_card	visa	5165	21226	Nathan Scott
421	credit_card	visa	5542	21202	Nicholas Fleming
177	credit_card	visa	1593	21290	Nicholas Hoover
640	credit_card	visa	2094	21215	Nicholas Rodriguez
398	credit_card	visa	3108	21231	Nichole Conley
435	credit_card	visa	8266	21213	Nicolas Williams
278	credit_card	mastercard	3686	21213	Nicole Atkins
548	credit_card	visa	3934	21203	Nicole Grimes
353	credit_card	visa	4876	21233	Nicole Martin
621	credit_card	visa	1710	21265	Nicole Smith
117	credit_card	visa	7981	21290	Nina Wilson
379	credit_card	visa	3029	21223	Norma Allen
165	credit_card	visa	1980	21216	Oscar Braun
99	credit_card	visa	3077	21217	Paige Dickson
536	credit_card	visa	4551	21217	Patricia Booth
479	credit_card	mastercard	1029	21274	Patricia Knight
690	credit_card	visa	8402	21273	Patricia Nichols
87	credit_card	mastercard	6812	21265	Patrick Harris
150	credit_card	mastercard	3692	21273	Patty Gates
184	credit_card	visa	5490	21218	Paul Campbell
228	credit_card	visa	4720	21275	Paul Spencer
197	credit_card	mastercard	4942	21274	Paula Avila
595	credit_card	visa	5460	21203	Paula Frye
424	credit_card	visa	9853	21213	Paula Green DDS
291	credit_card	visa	8968	21213	Paula Wu
694	credit_card	visa	3154	21273	Pedro Adams
665	credit_card	visa	768	21230	Peter Bryant
414	credit_card	mastercard	8185	21265	Peter Greene
210	credit_card	mastercard	8606	21223	Peter McGuire
655	credit_card	visa	4898	21218	Phillip Phillips
564	credit_card	visa	270	21297	Phillip Rodgers

69	credit_card	mastercard	6568	21213	Phyllis Goodman
236	credit_card	visa	1856	21275	Rachael Bauer
711	credit_card	visa	517	21298	Rachael Yang
653	credit_card	visa	8920	21213	Rachel Conley
395	credit_card	visa	4638	21216	Rachel Elliott
651	credit_card	visa	2976	21201	Rachel Jones
470	credit_card	visa	4641	21280	Rachel Kaiser
469	credit_card	visa	8196	21216	Ralph Harvey
45	credit_card	visa	484	21216	Randy Underwood
120	credit_card	mastercard	196	21223	Raymond Schneider
100	credit_card	visa	5406	21213	Raymond Stevenson
486	credit_card	visa	3329	21203	Raymond Washington
195	credit_card	mastercard	9206	21214	Rebecca Brock
753	credit_card	mastercard	5216	21203	Rebecca Coleman
417	credit_card	mastercard	8419	21280	Rebecca Ferguson
15	credit_card	visa	3898	21279	Rebecca Garza
187	credit_card	visa	9382	21280	Rebecca Gonzalez
634	credit_card	visa	4777	21216	Rebecca Goodman
174	credit_card	mastercard	868	21290	Rebecca Pitts
636	credit_card	visa	1256	21213	Rebekah Oconnell
409	credit_card	visa	4954	21233	Reginald Schroeder
722	credit_card	visa	4925	21226	Renee Lopez
463	credit_card	mastercard	9707	21290	Rhonda Velez
328	credit_card	visa	8995	21290	Richard Massey
335	credit_card	visa	3085	21251	Richard Mayo
214	credit_card	visa	5191	21289	Richard Robles
192	credit_card	mastercard	7244	21270	Richard Sanford
581	credit_card	visa	3544	21226	Richard Sims
63	credit_card	visa	944	21230	Richard Walker
48	credit_card	visa	850	21289	Richard Young
546	credit_card	visa	6267	21226	Ricky Terry
518	credit_card	visa	295	21265	Robert Butler
202	credit_card	visa	7137	21233	Robert Harris
697	credit_card	visa	2540	21251	Robert Jackson
740	credit_card	mastercard	3170	21264	Robert Jones
505	credit_card	mastercard	8445	21278	Robert Miller
485	credit_card	visa	9367	21289	Robert Smith
145	credit_card	visa	9137	21275	Robert Thomas
368	credit_card	visa	9517	21290	Robert Torres
472	credit_card	visa	9362	21290	Robert Wilson
131	credit_card	visa	7391	21230	Robert Wright
212	credit_card	visa	6951	21297	Roberta Hernandez
326	credit_card	mastercard	1454	21205	Robin Lawrence
103	credit_card	visa	6821	21288	Robin Lindsey
71	credit_card	visa	7570	21275	Robin Ortiz
676	credit_card	mastercard	1271	21298	Ronald Ball
90	credit_card	mastercard	1711	21288	Ronnie Griffith
649	credit_card	visa	1807	21226	Roy Cherry

442	credit_card	visa	3194	21279	Roy Cox
188	credit_card	mastercard	442	21217	Roy White
439	credit_card	visa	1149	21263	Ryan Cardenas
68	credit_card	mastercard	99	21279	Ryan Dean
662	credit_card	mastercard	827	21278	Sabrina Martinez
85	credit_card	visa	7561	21283	Samantha Gonzales
468	credit_card	visa	1182	21297	Samantha Sutton
592	credit_card	visa	8026	21274	Samantha Terrell
113	credit_card	mastercard	9043	21230	Samantha Walsh
686	credit_card	visa	8958	21216	Samuel Bean
400	credit_card	visa	2903	21275	Samuel Elliott
555	credit_card	mastercard	925	21273	Samuel Hall
307	credit_card	mastercard	9543	21273	Samuel Wagner
708	credit_card	visa	7108	21201	Sandra Charles
452	credit_card	visa	5591	21202	Sara Walters MD
158	credit_card	visa	8424	21226	Sarah Berry
539	credit_card	visa	9986	21217	Sarah Jones
757	credit_card	visa	8766	21215	Sarah Roberts
221	credit_card	visa	9432	21215	Sarah Ross
618	credit_card	visa	3942	21274	Scott Branch
330	credit_card	mastercard	4485	21298	Scott Greer
732	credit_card	visa	7811	21205	Scott Watson
362	credit_card	visa	5676	21263	Scott Wood
670	credit_card	visa	5594	21215	Sergio Mcdowell
532	credit_card	visa	7585	21289	Seth Garza
556	credit_card	visa	2087	21226	Seth Phillips
661	credit_card	visa	7655	21275	Shane Mitchell
416	credit_card	visa	3850	21216	Shannon Fleming
364	credit_card	visa	5131	21231	Shannon Mejia
89	credit_card	mastercard	5371	21273	Shawn Peterson
727	credit_card	visa	6391	21230	Sheila Mccarty
746	credit_card	visa	6296	21274	Shelley Reed
79	credit_card	visa	7414	21218	Sherry Hayden
40	credit_card	visa	2122	21231	Sherry Vaughn
614	credit_card	mastercard	3436	21263	Shirley Richmond
705	credit_card	visa	7849	21274	Stacy Cameron
672	credit_card	visa	4594	21217	Stacy Herring
280	credit_card	visa	6065	21283	Stephanie Pineda
489	credit_card	visa	3366	21297	Stephen Brooks
234	credit_card	visa	2829	21280	Stephen Davidson
709	credit_card	visa	6764	21265	Stephen Henderson
373	credit_card	visa	9721	21297	Stephen Obrien
429	credit_card	visa	5306	21225	Stephen Ramos
741	credit_card	mastercard	1196	21211	Steven Brown
156	credit_card	mastercard	6428	21289	Steven Jones
244	credit_card	visa	3455	21281	Steven Logan
743	credit_card	visa	5724	21263	Susan Burns
329	credit_card	visa	808	21265	Susan Caldwell

531	credit_card	mastercard	6768	21287	Susan Lee
359	credit_card	visa	7895	21298	Susan Smith
419	credit_card	visa	8079	21274	Tabitha Conway
617	credit_card	visa	8389	21290	Tabitha Fleming
647	credit_card	visa	2782	21211	Tammy Tucker
437	credit_card	visa	6457	21217	Tanya Bonilla
729	credit_card	visa	9306	21251	Tanya Nelson
81	credit_card	mastercard	7714	21216	Tanya Vega DVM
261	credit_card	mastercard	9976	21289	Taylor Forbes
542	credit_card	visa	7438	21214	Taylor Hughes
26	credit_card	visa	5205	21264	Taylor Kirby
196	credit_card	visa	2297	21233	Taylor Morris
241	credit_card	visa	2694	21289	Teresa Baker DDS
298	credit_card	mastercard	9860	21203	Teresa David
599	credit_card	visa	6151	21211	Teresa Davies
496	credit_card	visa	8557	21205	Teresa Marshall
27	credit_card	mastercard	5242	21203	Terry Reed
84	credit_card	mastercard	1458	21278	Theresa Barajas MD
382	credit_card	mastercard	5078	21211	Theresa Russo
166	credit_card	visa	110	21283	Thomas Contreras
397	credit_card	visa	1380	21215	Thomas Erickson
597	credit_card	mastercard	5233	21217	Thomas Fisher
748	credit_card	visa	4927	21226	Thomas Hayes
406	credit_card	visa	6809	21281	Thomas Kelly
723	credit_card	visa	3035	21278	Thomas Lynn
159	credit_card	visa	1047	21281	Thomas Simpson
321	credit_card	visa	3063	21280	Tiffany Black
367	credit_card	mastercard	9786	21278	Tiffany Rodriguez
233	credit_card	visa	3752	21280	Timothy Alvarez
537	credit_card	visa	8809	21273	Timothy Craig
140	credit_card	visa	397	21223	Timothy Owens
549	credit_card	visa	2331	21275	Timothy Rivera
430	credit_card	mastercard	1756	21251	Timothy Scott
680	credit_card	visa	8448	21230	Timothy Valdez
457	credit_card	visa	2454	21278	Tina Banks
171	credit_card	visa	5978	21278	Tina Jackson
194	credit_card	visa	7797	21279	Tina Robinson
302	credit_card	visa	6802	21225	Todd Hudson
273	credit_card	visa	8930	21265	Todd Johnson
366	credit_card	visa	4979	21218	Tom Kim
477	credit_card	visa	4875	21202	Tony Wolf
267	credit_card	visa	3012	21281	Tonya Phillips
213	credit_card	visa	7238	21288	Tonya Powell
266	credit_card	visa	5252	21225	Tracey Contreras
717	credit_card	visa	8973	21225	Travis Simmons
568	credit_card	visa	5418	21230	Trevor Hogan
239	credit_card	visa	7379	21226	Troy Anderson
60	credit_card	visa	196	21226	Tyler Martin

253	credit_card	visa	1448	21281	Tyler Smith
523	credit_card	visa	539	21273	Tyler Vance
405	credit_card	visa	2280	21270	Veronica Garza
535	credit_card	visa	372	21231	Veronica Howard
178	credit_card	visa	9696	21288	Veronica Pratt
318	credit_card	visa	3766	21213	Veronica Sheppard
482	credit_card	mastercard	1765	21225	Veronica Wells
687	credit_card	visa	7680	21287	Victoria Carpenter
121	credit_card	visa	4137	21290	Victoria Martinez
354	credit_card	mastercard	307	21223	Vincent Lee
576	credit_card	visa	8774	21201	Virginia Dunn
390	credit_card	mastercard	8667	21279	Wendy Le
16	credit_card	visa	7038	21223	Wesley Garcia
111	credit_card	visa	921	21226	Whitney Robinson DVM
6	credit_card	mastercard	2084	21213	William Dunlap
594	credit_card	visa	3044	21205	William Gonzalez
137	credit_card	visa	2694	21201	William Johnson
124	credit_card	visa	3683	21211	William Krueger
561	credit_card	visa	3385	21275	William Martin
54	credit_card	visa	2644	21251	William Quinn
101	credit_card	visa	6886	21201	William Watson
736	credit_card	mastercard	5534	21214	Willie Thomas
143	credit_card	visa	1311	21217	Willie Wells
360	credit_card	visa	1189	21288	Wyatt Thomas
483	credit_card	visa	9375	21251	Yesenia Rivers
181	credit_card	visa	9337	21251	Yvette Harris
403	credit_card	visa	9384	21287	Zachary Sweeney
460	credit_card	mastercard	7368	21263	Zoe Elliott

Again I couldn't quite figure this out because it relies on foreign keys in order to link the charges with the cardholders/payments ids. But essentially what we would do is select the order based on cardholder name and figure out which days they come in per week.

I'm going to review the lab solution once we get it on how to set up foreign keys, as it seems like that is most important for these questions. I know most of my tables should be set up correctly except for the foreign keys. Thank you.