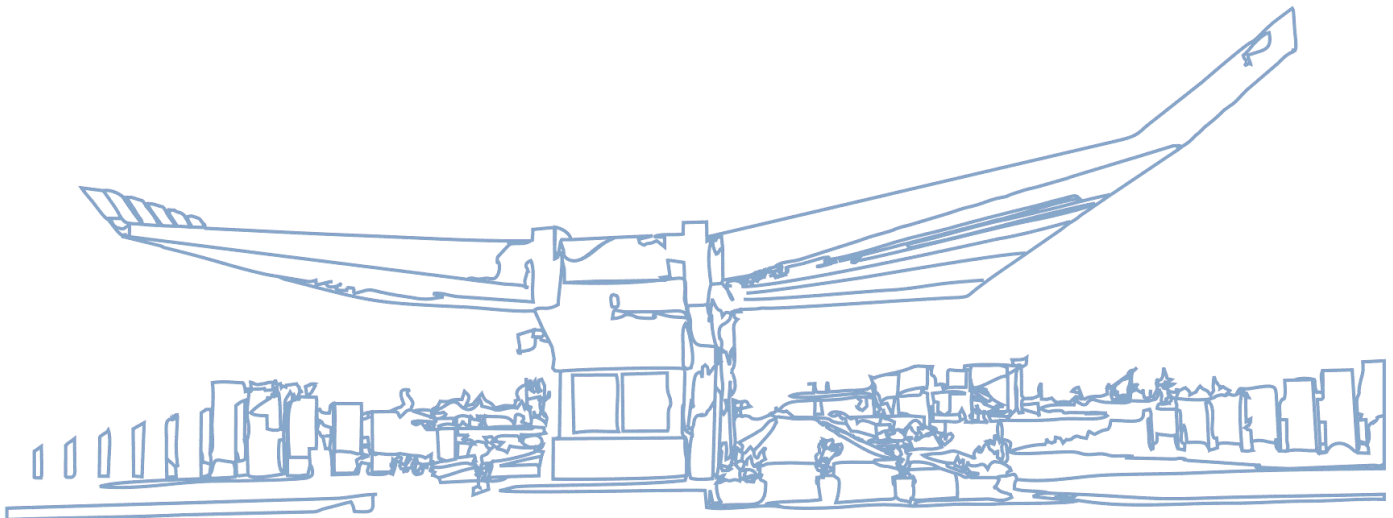# CEN 571 – Data Mining

Assignment 5: Hive and HiveSQL

PREPARED:

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Exercise 1: Files 'CustomerDetails.txt' and 'LatePayments.txt' contain the full data set about customers of the commercial bank and their payment transactions. Download the file, study the structure, and perform the following functions.

1. Download the files and upload them in HDFS under the HV/Exercise1/input' directory.

File were uploaded successfully.

2. Create a database named 'exercise1' and create tables 'customers' and 'payments'.

```
Logging initialized using configuration in file:/etc/hive/conf.dist/hive-log4j2.properties Async: true
hive> CREATE DATABASE exercise1;
OK
Time taken: 0.589 seconds
hive> show databases;
OK
default
exercise1
Time taken: 0.108 seconds, Fetched: 2 row(s)
hive> CREATE EXTERNAL TABLE IF NOT EXISTS exercise1.customers(c_ID int, c_name String, c_street String, c_city String, c_state String, c_zip Str
ing, c_date_of_birth String, c_gender String, c_credit_card String, c_internet String , c_mobile String ) ROW FORMAT DELIMITED FIELDS TERMINATED
 BY '\t' LINES TERMINATED BY '\n' STORED AS TEXTFILE LOCATION '/user/hive/warehouse/exercise1/customers';
OK
Time taken: 0.473 seconds
hive> CREATE TABLE IF NOT EXISTS exercise1.payments(p_ID int, p_transaction_ID String, p_transaction_DATE String, p_late String) ROW FORMAT DELI
MITED FIELDS TERMINATED BY '\t' STORED AS TEXTFILE;
OK
Time taken: 0.186 seconds
```

```
OK
Time taken: 0.473 seconds
hive> CREATE TABLE IF NOT EXISTS exercise1.payments(p_ID int, p_transaction_ID String, p_transaction_DATE String, p_late String) ROW FORMAT DELI
MITED FIELDS TERMINATED BY '\t' STORED AS TEXTFILE;
OK
Time taken: 0.186 seconds
hive> use exercise1;
OK
Time taken: 0.01 seconds
hive> show tables;
OK
customers
payments
Time taken: 0.027 seconds, Fetched: 2 row(s)
hive> describe customers;
OK
c_id                    int
c_name                  string
c_street                string
c_city                  string
c_state                 string
c_zip                   string
c_date_of_birth         string
c_gender                string
c_credit_card           string
c_internet              string
c_mobile                string
Time taken: 0.07 seconds, Fetched: 11 row(s)
hive> describe payments;
OK
p_id                    int
p_transaction_id        string
p_transaction_date      string
p_late                  string
Time taken: 0.03 seconds, Fetched: 4 row(s)
hive>
    > ;
hive>
```

3. Load the data from HDFS into each table respectively.

```
hive> LOAD DATA  LOCAL INPATH './customer_details.txt' OVERWRITE INTO TABLE customers;
Loading data to table exercise1.customers
OK
Time taken: 0.935 seconds
hive> LOAD DATA  LOCAL INPATH './late_payments.txt' OVERWRITE INTO TABLE payments;
Loading data to table exercise1.payments
OK
Time taken: 1.135 seconds
hive>
```

4. Display the ID, name, and year of birth, zip code, for all customers from the state of New York.

```
hive> SELECT c_ID, c_name, c_date_of_birth, c_zip FROM customers WHERE c_state = 'New York';
OK
31      Beverly Hall     29-08-1956       71158-1776
42      Christine Romero          13-10-1976       63093-8409
52      Timothy Black    17-04-1962       96389
58      Gloria Harrison 26-02-1990        86190-0452
78      Matthew West     19-06-1975       81501-0784
88      Pamela Daniels   05-01-1984       12931
106     Paul Clark       26-11-2009       618
107     William Ross     13-02-1992       08120-0174
147     Brenda Brooks    15-07-1956       43340
149     Mildred Ryan     21-04-1967       94163
154     Norma Carroll    17-11-1981       16395-5939
156     Timothy Shaw     01-04-1977       66225
166     Sandra Black     12-08-1971       11326
170     Heather Mills    21-01-1989       20003
177     Daniel Carter    10-09-1992       14350-9344
191     Joshua Watson    16-10-2001       90933
```

5. Display the total number of customers who have occurred late payments for each zip code.

```
> ;
hive> SELECT c_zip , COUNT(c_ID) AS total FROM customers JOIN payments ON c_ID = p_ID WHERE p_late = 'TRUE' GROUP BY c_zip;
Query ID = hadoop_20200509153321_867ab794-a818-4a68-977a-48b10b44de88
Total jobs = 1
Launching Job 1 out of 1
Tez session was closed. Reopening...
Session re-established.
Status: Running (Executing on YARN cluster with App id application_1589037740563_0002)

----------------------------------------------------------------------------------------
        VERTICES        MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
----------------------------------------------------------------------------------------
Map 1 ......... container    SUCCEEDED     1         1         0        0        0       0
Map 3 ......... container    SUCCEEDED     1         1         0        0        0       0
Reducer 2 ...... container   SUCCEEDED     1         1         0        0        0       0
----------------------------------------------------------------------------------------
VERTICES: 03/03  [==========================>>] 100%  ELAPSED TIME: 6.76 s
----------------------------------------------------------------------------------------
OK
00079-5661      9
00688-3484      19
00767-9960      12
00970-3826      19
01048-8772      12
01054-0524      16
01470-8811      22
01866-6001      14
01932-6113      14
02185-6021      15
02280-3985      9
02282-4797      13
02363-5505      12
02403-1991      12
02477-6867      10
```

```
07135-0214        12
07143-4577        20
07668-0327        12
07758-5854        17
08120-0174        17
08126-2501        15
08564-6204        21
08704-3091        17
08723-1298        15
09020-5046        19
09269-6124        13
09392-9166        11
09792-6187         9
09935-9403        17
10001      7
10224     18
10297-5881         9
10345     10
10564     13
10630     16
10796     10
10938-8638        12
11089     13
11274-7392        17
11472-5630        15
115       10
11611-1029        15
11691     21
11763     14
11769-6085        23
```

6. Display the customers who have any late transactions and the date of each late transaction for the customers born before 1985.


```
hive>
    > SELECT c_ID, c_name, c_street, c_city, c_state, c_zip, c_date_of_birth, c_gender  FROM customers JOIN payments ON c_ID = p_ID WHERE p_late = 'TRUE' AND to_d
ate(from_unixtime(UNIX_TIMESTAMP(c_date_of_birth,'dd-MM-yyyy'))) < 1985 GROUP BY c_ID, c_name, c_street, c_city, c_state, c_zip, c_date_of_birth, c_gender;
Query ID = hadoop_20200509153650_5800fa2d-97aa-45f7-8d3a-cb167b23625c
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1589037740563_0002)

--------------------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------------------
Map 1 .......... container    SUCCEEDED     1         1        0        0       0       0
Map 2 .......... container    SUCCEEDED     1         1        0        0       0       0
Reducer 3 ...... container    SUCCEEDED     1         1        0        0       0       0
--------------------------------------------------------------------------------------------
VERTICES: 03/03  [=========================>>] 100%  ELAPSED TIME: 7.51 s
--------------------------------------------------------------------------------------------
OK
32      Bonnie Cox      671 Merry Trail CA      California      69224-6813      29-02-1964      F
33      Samuel Oliver   52 Swallow Plaza      IN      Indiana 36867-2654      11-10-1962      M
66      Terry Taylor    709 Boyd Alley  OH      Ohio    41640-6487      23-08-1954      M
68      Virginia Marshall      306 Susan Terrace      MA      Massachusetts   13442-6546      17-06-1978      F
70      Andrew White    55 Hooker Plaza IL      Illinois        36610   03-04-1972      M
72      Peter Fisher    2 Rowland Drive MN      Minnesota       31408-1732      23-04-1964      M
76      Melissa Griffin 40325 Stuart Circle     NJ      New Jersey      66018-0390      22-04-1971      F
```

```
32      Bonnie Cox       671 Merry Trail CA     California      69224-6813      29-02-1964      F
33      Samuel Oliver    52 Swallow Plaza       IN     Indiana 36867-2654      11-10-1962      M
66      Terry Taylor     709 Boyd Alley  OH     Ohio    41640-6487     23-08-1954     M
68      Virginia Marshall    306 Susan Terrace      MA     Massachusetts  13442-6546      17-06-1978    F
70      Andrew White     55 Hooker Plaza IL     Illinois       36610  03-04-1972     M
72      Peter Fisher     2 Rowland Drive MN     Minnesota      31408-1732     23-04-1964     M
76      Melissa Griffin 40325 Stuart Circle     NJ     New Jersey     66018-0390      22-04-1971      F
78      Matthew West     60791 Rusk Pass NY     New York       81501-0784     19-06-1975     M
79      Pamela Dean      52798 Morning Way      IL     Illinois       14082-7694      02-12-1953      F
80      Kenneth Lawrence     664 Victoria Terrace      TX     Texas   51615  27-07-1979     M
81      Stephen Banks    0903 Mendota Lane      MA     Massachusetts  54274-2091      23-11-1980      M
82      Jeremy Lynch     752 Melody Street      MI     Michigan       35992  18-10-1971     M
84      Sarah Johnson    2575 Redwing Parkway   CA     California     74315-7626      04-05-1983      F
88      Pamela Daniels   3 Northland Street     NY     New York       12931  05-01-1984     F
89      Andrew Howard    76 Lake View Hill      CA     California     35672  30-06-1966     M
91      Julia James      4271 Morning Drive     IN     Indiana 21666  27-01-1957     F
93      Jerry Hunt       9 Lerdahl Way   MI     Michigan       87242  29-08-1982     M
94      Randy Alexander 1439 Walton Junction    MN     Minnesota      12183  10-10-1963     M
96      Jennifer Carpenter      0 Bowman Park   CT     Connecticut    28308-5239      21-06-1966      F
97      William Sullivan        3122 Grasskamp Street   TX     Texas   10938-8638      26-12-1972      M
98      Russell Wagner   78 Dahle Hill   NC     North Carolina  28360  26-06-1975     M
99      Rachel Cooper    587 Loftsgordon Road   NJ     New Jersey     17495-9311      23-01-1984      F
104     Raymond Long     36 Sutteridge Parkway  NJ     New Jersey     90801-8180      29-06-1961      M
108     Roy West         6 Mallory Pass  NH     New Hampshire   70791-0596      10-09-1975      M
109     Joe Taylor       199 Daystar Parkway    NJ     New Jersey     82974-5347      14-07-1956      M
```

7. Display the cities and the number of customers who do not have a credit card for each city sorted by the number of customers.

```
hive> SELECT c_city AS city , COUNT(c_ID) as total FROM customers JOIN payments ON c_ID = p_ID WHERE c_credit_card = 'FALSE' GROUP BY c_city  SORT BY total ASC;
Query ID = hadoop_20200509153910_0d38ecd9-4241-432a-9d11-5fc6a167c8e6
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1589037740563_0002)

----------------------------------------------------------------------------------------------
        VERTICES       MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
----------------------------------------------------------------------------------------------
Map 1 .......... container    SUCCEEDED      1          1        0        0       0       0
Map 2 .......... container    SUCCEEDED      1          1        0        0       0       0
Reducer 3 ...... container    SUCCEEDED      1          1        0        0       0       0
Reducer 4 ...... container    SUCCEEDED      1          1        0        0       0       0
----------------------------------------------------------------------------------------------
VERTICES: 04/04  [==========================>>] 100%  ELAPSED TIME: 5.94 s
----------------------------------------------------------------------------------------------
OK
ND      30
WV      58
NE      83
PA      120
ME      122
CO      136
NC      144
NH      148
```

```
Map 2 .......... container      SUCCEEDED      1         1        0
Reducer 3 ...... container      SUCCEEDED      1         1        0
Reducer 4 ...... container      SUCCEEDED      1         1        0
------------------------------------------------------------------------
VERTICES: 04/04  [==============================>>] 100%  ELAPSED TIME: 5.94 s
------------------------------------------------------------------------
OK
ND        30
WV        58
NE        83
PA        120
ME        122
CO        136
NC        144
NH        148
AR        190
AL        202
IA        227
IN        228
OK        256
VA        271
MN        324
FL        359
MI        367
CT        514
OH        545
MA        656
TX        754
NJ        864
IL        941
CA        1043
NY        1117
Time taken: 6.402 seconds, Fetched: 25 row(s)
hive>
```

8. Display the state and number of customers who have late payments and use mobile banking in each state

```
hive> SELECT c_state AS state , COUNT(c_ID) as total FROM customers JOIN payments ON c_ID = p_ID WHERE p_late = 'TRUE' AND c_mobile = 'TRUE' GROUP BY c_state;
Query ID = hadoop_20200509155212_882d4e2d-76f5-4f0b-bfc6-1ac3ce7622b1
Total jobs = 1
Launching Job 1 out of 1
Tez session was closed. Reopening...
Session re-established.
Status: Running (Executing on YARN cluster with App id application_1589037740563_0003)

------------------------------------------------------------------------------------------
        VERTICES       MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
------------------------------------------------------------------------------------------
Map 1 ......... container    SUCCEEDED      1        1          0        0        0       0
Map 2 ......... container    SUCCEEDED      1        1          0        0        0       0
Reducer 3 ..... container    SUCCEEDED      1        1          0        0        0       0
------------------------------------------------------------------------------------------
VERTICES: 03/03  [==========================>>] 100%  ELAPSED TIME: 5.91 s
------------------------------------------------------------------------------------------
OK
Alabama 58
Arkansas     52
California   542
Colorado     94
Connecticut  208
Delaware     12
Florida 219
Illinois     412
Indiana 115
```

```
--------------------------------------------------
VERTICES: 03/03   [============================>>] 100%
--------------------------------------------------
OK
Alabama 58
Arkansas          52
California        542
Colorado          94
Connecticut       208
Delaware          12
Florida 219
Illinois          412
Indiana 115
Iowa      84
Maine     42
Massachusetts     485
Michigan          246
Minnesota         250
Nebraska          66
New Hampshire     39
New Jersey        430
New York          512
North Carolina    119
North Dakota      34
Ohio      388
Oklahoma          43
Pennsylvania      61
Rhode Island      17
Texas     410
Virginia          129
Time taken: 11.824 seconds, Fetched: 26 row(s)
hive>
```

9. Display all customers who do not have a mobile phone.

```
>
>
>
>
> ;
hive> SELECT c_ID, c_name, c_street, c_city, c_state, c_zip, c_date_of_birth, c_gender, c_credit_card, c_internet, c_mobile FROM customers WHERE c_mobile = 'FALSE
';
```

```
9968    Matthew Ramos   1643 Waxwing Terrace    NJ      New Jersey      55333-6029      17-04-1969      M       FALSE   FALSE   FALSE
9970    Marilyn Williamson      35760 Almo Park CA      California      32237   11-07-1971      F       TRUE    TRUE    FALSE
9971    Bonnie Lewis    83 Monica Avenue        FL      Florida 78927   28-06-1968      F       TRUE    TRUE    FALSE
9972    Wayne Arnold    86 Melrose Court        RI      Rhode Island    39515-1259      25-07-1977      M       TRUE    FALSE   FALSE
9973    Thomas Gordon   1 Nelson Avenue IL      Illinois        82477   16-05-1985      M       TRUE    TRUE    FALSE
9975    Earl Perez      5 Hayes Point   OK      Oklahoma        81165   30-03-1991      M       FALSE   FALSE   FALSE
9976    Benjamin Chavez 70 Bonner Way   TX      Texas   84743-9089      28-10-1975      M       FALSE   TRUE    FALSE
9978    Johnny Ray      26 Onsgard Plaza        DE      Delaware        31466-7646      19-11-1995      M       FALSE   FALSE   FALSE
9979    Tammy Powell    14 Logan Trail  AL      Alabama 39312-2285      10-05-1974      F       FALSE   FALSE   FALSE
9981    Marilyn Nichols 98 Buena Vista Avenue   MA      Massachusetts   94858   13-04-1957      F       TRUE    TRUE    FALSE
9984    Anna Ryan       81590 Arapahoe Lane     NC      North Carolina  66036   06-10-1963      F       FALSE   FALSE   FALSE
9986    Jennifer Wright 2 Dapin Street  CA      California      38659-2692      25-01-1991      F       FALSE   FALSE   FALSE
9987    Arthur Elliott  914 Golden Leaf Place   CA      California      48528   13-05-1992      M       TRUE    FALSE   FALSE
9990    Frank Hayes     3 Little Fleur Trail    CA      California      78523   22-08-2007      M       TRUE    FALSE   FALSE
9991    Elizabeth Baker 11 Raven Place  MI      Michigan        50420   09-03-1970      F       FALSE   TRUE    FALSE
9992    Alan Riley      372 8th Point   IL      Illinois        28024-4557      21-03-1975      M       TRUE    TRUE    FALSE
9993    Beverly Stanley 4611 Washington Junction        CA      California      06387-1654      06-12-1956      F       TRUE    TRUE    FALSE
9995    Stephen Hernandez       680 Fairview Alley      MN      Minnesota       41049   03-11-2007      M       FALSE   TRUE    FALSE
9999    Stephen Gordon  93408 8th Alley MA      Massachusetts   22514-1265      26-05-1986      M       TRUE    FALSE   FALSE
Time taken: 0.083 seconds, Fetched: 5020 row(s)
hive>
```

10. Display all customers who have late payments and the number of late payments sorted by the number of late payments.

```
   > ;
hive> SELECT c_ID, c_name,c_city,c_state, COUNT(c_ID) as total FROM customers JOIN payments ON c_ID = p_ID WHERE p_late = 'TRUE' GROUP BY c_ID,c_name, c_city , c_
state  SORT BY total ASC;
Query ID = hadoop_20200509155806_2cb5a45d-ad81-4e7c-a593-ae4b2e86dd03
Total jobs = 1
Launching Job 1 out of 1
Tez session was closed. Reopening...
Session re-established.
Status: Running (Executing on YARN cluster with App id application_1589037740563_0004)

----------------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
----------------------------------------------------------------------------------------
Map 1 ......... container    SUCCEEDED     1       1         0        0       0       0
Map 2 ......... container    SUCCEEDED     1       1         0        0       0       0
Reducer 3 ...... container   SUCCEEDED     1       1         0        0       0       0
Reducer 4 ...... container   SUCCEEDED     1       1         0        0       0       0
----------------------------------------------------------------------------------------
VERTICES: 04/04  [==========================>>] 100%  ELAPSED TIME: 6.35 s
----------------------------------------------------------------------------------------
OK
1003    Ashley Ford    VA    Virginia      5
1004    Brandon Snyder NJ    New Jersey    6
3738    Joshua Jenkins OH    Ohio    6
3707    Kimberly Knight NE   Nebraska      6
```

```
OK
1003     Ashley Ford      VA      Virginia       5
1004     Brandon Snyder   NJ      New Jersey     6
3738     Joshua Jenkins   OH      Ohio    6
3707     Kimberly Knight  NE      Nebraska       6
3618     Michael Adams    TX      Texas   6
3768     Jane Sanchez     VA      Virginia       7
4073     Patricia Wells   IN      Indiana 7
3616     Nicole Ryan      CA      California     7
3824     Terry Perez      PA      Pennsylvania   7
3681     Diana Watkins    CA      California     7
3860     Julie Hunter     CT      Connecticut    7
3648     Norma Morris     TX      Texas   7
4022     Jennifer Williams        NC         North Carolina  8
3874     Catherine Mitchell       NY         New York        8
3826     Gregory West     VA      Virginia       8
3823     Cheryl Peterson  TX      Texas   8
4051     Phillip Green    MN      Minnesota      8
3950     Johnny Ray       NY      New York       8
3929     Joshua Rice      IL      Illinois       8
3789     Angela Cook      VA      Virginia       8
61       Christine Mills  MA      Massachusetts  8
3967     Juan Gibson      NY      New York       8
3937     Ruby Anderson    ME      Maine   8
```

11. Display customers (id, name, city, state) who have no late payments and the total number of on-time payments. Order the output by the number of on-time payments.

```
hive> SELECT c_ID, c_name,c_city,c_state, COUNT(c_ID) as total FROM customers JOIN payments ON c_ID = p_ID WHERE p_late = 'FALSE' GROUP BY c_ID, c_name,c_city,c_s
tate;
Query ID = hadoop_20200509155954_e5c5014e-6f1d-44d6-95b8-eb2fb4c7cd78
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1589037740563_0004)

----------------------------------------------------------------------------------------
        VERTICES      MODE        STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
----------------------------------------------------------------------------------------
Map 1 ......... container    SUCCEEDED     1       1         0        0       0       0
Map 2 ......... container    SUCCEEDED     1       1         0        0       0       0
Reducer 3 ...... container   SUCCEEDED     1       1         0        0       0       0
----------------------------------------------------------------------------------------
VERTICES: 03/03  [==========================>>] 100%  ELAPSED TIME: 5.63 s
----------------------------------------------------------------------------------------
OK
2       Heather Burns   FL      Florida 19
3       Jessica White   IL      Illinois       14
32      Bonnie Cox      CA      California     15
33      Samuel Oliver   IN      Indiana 17
```

```
Reducer 3 ...... container    SUCCEEDED    1         1      0      0      0      0
------------------------------------------------------------------------------------
VERTICES: 03/03 [==========================>>] 100%  ELAPSED TIME: 5.63 s
------------------------------------------------------------------------------------
OK
2        Heather Burns    FL      Florida 19
3        Jessica White    IL      Illinois        14
32       Bonnie Cox       CA      California      15
33       Samuel Oliver    IN      Indiana 17
34       Wanda Rice       CT      Connecticut     12
60       Chris Jacobs     MN      Minnesota       12
61       Christine Mills MA       Massachusetts   10
62       Bonnie Oliver    OH      Ohio    16
63       Amanda Hansen    IL      Illinois        10
64       Patricia Morrison        OK      Oklahoma        8
65       David Cruz       MI      Michigan        18
66       Terry Taylor     OH      Ohio    17
67       Ralph Carter     CA      California      13
68       Virginia Marshall        MA      Massachusetts   11
69       Martin Peters    IA      Iowa    16
70       Andrew White     IL      Illinois        16
71       Deborah Armstrong        CT      Connecticut     9
72       Peter Fisher     MN      Minnesota       9
73       Carlos Bishop    CO      Colorado        14
74       Bonnie Frazier   OH      Ohio    18
75       Kathy Johnston   IL      Illinois        13
76       Melissa Griffin NJ       New Jersey      9
77       Christine Olson IL       Illinois        17
```

12. Display customers (id, name, city, state) who have no late payments and use the Internet for banking.

```
hive> SELECT c_ID, c_name, c_street, c_city, c_state FROM customers JOIN payments ON c_ID = p_ID  WHERE p_late = 'FALSE' AND c_internet = 'TRUE' GROUP BY c_ID, c_
name, c_street, c_city, c_state;
Query ID = hadoop_20200509160059_56fc9ebb-1b5e-4e4a-9b3b-5cc04880b7aa
Total jobs = 1
Launching Job 1 out of 1
Status: Running (Executing on YARN cluster with App id application_1589037740563_0004)

--------------------------------------------------------------------------------------
        VERTICES      MODE       STATUS  TOTAL  COMPLETED  RUNNING  PENDING  FAILED  KILLED
--------------------------------------------------------------------------------------
Map 1 ......... container    SUCCEEDED    1        1        0        0        0        0
Map 2 ......... container    SUCCEEDED    1        1        0        0        0        0
Reducer 3 ...... container    SUCCEEDED    1        1        0        0        0        0
--------------------------------------------------------------------------------------
VERTICES: 03/03 [==========================>>] 100%  ELAPSED TIME: 5.55 s
--------------------------------------------------------------------------------------
OK
2       Heather Burns    6 Arrowood Court      FL      Florida
3       Jessica White    7534 Glendale Junction IL     Illinois
32      Bonnie Cox       671 Merry Trail CA    California
34      Wanda Rice       9 New Castle Avenue   CT      Connecticut
62      Bonnie Oliver    20 Pearson Hill OH    Ohio
63      Amanda Hansen    61 Magdeline Terrace  IL      Illinois
64      Patricia Morrison        3174 Texas Alley      OK      Oklahoma
65      David Cruz       81 Comanche Way MI    Michigan
68      Virginia Marshall        306 Susan Terrace     MA      Massachusetts
72      Peter Fisher     2 Rowland Drive MN    Minnesota
73      Carlos Bishop    21011 Nelson Plaza    CO      Colorado
75      Kathy Johnston   37 Jackson Avenue     IL      Illinois
```

```
OK
--------------------------------------------------------------------
2       Heather Burns    6 Arrowood Court        FL      Florida
3       Jessica White    7534 Glendale Junction  IL      Illinois
32      Bonnie Cox       671 Merry Trail CA      California
34      Wanda Rice       9 New Castle Avenue     CT      Connecticut
62      Bonnie Oliver    20 Pearson Hill OH      Ohio
63      Amanda Hansen    61 Magdeline Terrace    IL      Illinois
64      Patricia Morrison    3174 Texas Alley        OK      Oklahoma
65      David Cruz       81 Comanche Way MI      Michigan
68      Virginia Marshall    306 Susan Terrace       MA      Massachusetts
72      Peter Fisher     2 Rowland Drive MN      Minnesota
73      Carlos Bishop    21011 Nelson Plaza      CO      Colorado
75      Kathy Johnston   37 Jackson Avenue       IL      Illinois
76      Melissa Griffin 40325 Stuart Circle      NJ      New Jersey
77      Christine Olson 8872 Charing Cross Pass IL       Illinois
78      Matthew West     60791 Rusk Pass NY      New York
79      Pamela Dean      52798 Morning Way       IL      Illinois
81      Stephen Banks    0903 Mendota Lane       MA      Massachusetts
82      Jeremy Lynch     752 Melody Street       MI      Michigan
86      Maria Bowman     0 Lunder Court  FL      Florida
87      Earl Wallace     87 Del Mar Avenue       IL      Illinois
88      Pamela Daniels  3 Northland Street       NY      New York
89      Andrew Howard    76 Lake View Hill       CA      California
90      Joshua Freeman  30 Pennsylvania Terrace TX       Texas
91      Julia James      4271 Morning Drive      IN      Indiana
92      Ryan Howard      567 Spaight Pass        MN      Minnesota
99      Rachel Cooper    587 Loftsgordon Road    NJ      New Jersey
100     Rose Boyd        01 Arizona Terrace      TX      Texas
102     Virginia Hawkins     4 Mayfield Circle       MA      Massachusetts
104     Raymond Long     36 Sutteridge Parkway   NJ      New Jersey
106     Paul Clark       3758 John Wall Street   NY      New York
110     Cynthia Meyer    83247 Oak Valley Center FL      Florida
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Note: With this homework are included also a List of commands 'CommandsToExecute_HW5.txt' and a total log file 'TOT_LOG_HW5.txt' of the PuTTy terminal inputs and outputs, the output of some table was to bigger so it erased all the entire terminal, which forced me to copy it with fractions which sometimes it might not correspond with the exercises, to do this just copy and search the query into the log file, if the two files are not included or found , please follow the following google drive link
https://drive.google.com/drive/folders/1RNbc8e175SDFY57P0cw2FQQyItvmREOr?usp=sharing .