

Create SQL dump for healthcare database

```
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysqldump --default-character-set=utf8 -u root -p --port=3308 healthcare > healthcare.sql
Enter password: *****
```

Create a healthcare database in Cloudera MySQL

```
mysql> create database healthcare
-> ;
Query OK, 1 row affected (0.00 sec)
```

Dump SQL file into healthcare DB in Cloudera

```
[cloudera@quickstart ~]$ mysql -u root -p healthcare < /home/cloudera/Desktop/healthcare.sql
Enter password: . . . . .
```

```
mysql> show tables;
+-----+
| Tables_in_healthcare |
+-----+
| address               |
| claim                 |
| contain               |
| disease               |
| insurancecompany      |
| insuranceplan         |
| keep                  |
| medicine              |
| patient               |
| person                |
| pharmacy              |
| prescription          |
| treatment             |
+-----+
13 rows in set (0.00 sec)
```

Sqoop import data into hive

```
sqoop import-all-tables --connect jdbc:mysql://localhost/healthcare --username root --password cloudera --hive-import --m 1
```

```
.logging initialized using configuration in jar:file:/usr/lib/hive/lib/hive-commo
i-1.1.0-cdh5.8.0.jar!/hive-log4j.properties
^K
time taken: 0.082 seconds
loading data to table default.pharmacy
:hgrp: changing ownership of 'hdfs://quickstart.cloudera:8020/user/hive/warehous
:/pharmacy/part-m-00000': User does not belong to supergroup
table default.pharmacy stats: [numFiles=1, totalSize=8105]
^K
time taken: 0.239 seconds
Note: /tmp/sqoop-cloudera/compile/2dd58ee96afd81ac2b90d3c2d7453d00/prescription.
.java uses or overrides a deprecated API.
Note: Recompile with -Xlint:deprecation for details.
```

```
.logging initialized using configuration in jar:file:/usr/lib/hive/lib/hive-commo
i-1.1.0-cdh5.8.0.jar!/hive-log4j.properties
^K
time taken: 0.075 seconds
loading data to table default.prescription
:hgrp: changing ownership of 'hdfs://quickstart.cloudera:8020/user/hive/warehous
:/prescription/part-m-00000': User does not belong to supergroup
table default.prescription stats: [numFiles=1, totalSize=322272]
^K
time taken: 0.459 seconds
Note: /tmp/sqoop-cloudera/compile/2dd58ee96afd81ac2b90d3c2d7453d00/treatment.jav
.java uses or overrides a deprecated API.
Note: Recompile with -Xlint:deprecation for details.
```

```
.logging initialized using configuration in jar:file:/usr/lib/hive/lib/hive-commo
i-1.1.0-cdh5.8.0.jar!/hive-log4j.properties
^K
time taken: 0.077 seconds
loading data to table default.treatment
:hgrp: changing ownership of 'hdfs://quickstart.cloudera:8020/user/hive/warehous
:/treatment/part-m-00000': User does not belong to supergroup
table default.treatment stats: [numFiles=1, totalSize=409446]
^K
time taken: 0.355 seconds
[cloudera@quickstart ~]$ █
```

1) Jimmy, from the healthcare department, has requested a report that shows how the number of treatments each age category of patients has gone through in the year 2022.

The age category is as follows, Children (00-14 years), Youth (15-24 years), Adults (25-64 years), and Seniors (65 years and over).

Assist Jimmy in generating the report.

```

SELECT c.patientID, c.age, t.date AS treatment_date,
CASE
  WHEN c.age BETWEEN 0 AND 14 THEN 'Children'
  WHEN c.age BETWEEN 15 AND 24 THEN 'Youth'
  WHEN c.age BETWEEN 25 AND 64 THEN 'Adults'
  ELSE 'Seniors'
END AS age_category
FROM (
  SELECT patientID, ssn, dob, FLOOR(DATEDIFF(FROM_UNIXTIME(UNIX_TIMESTAMP()),
dob)/365.25) AS Age
  FROM patient
) as c
JOIN treatment t ON c.patientID = t.patientID
WHERE YEAR(t.date) = 2022;

```

Create external table

create external table prb1_1 (patientID int,age string,dates date,age_category string) row format delimited fields terminated by ',' ;

```

INSERT OVERWRITE TABLE prb1_1 SELECT c.patientID, c.age, t.date AS treatment_date,
CASE
  WHEN c.age BETWEEN 0 AND 14 THEN 'Children'
  WHEN c.age BETWEEN 15 AND 24 THEN 'Youth'
  WHEN c.age BETWEEN 25 AND 64 THEN 'Adults'
  ELSE 'Seniors'
END AS age_category
FROM (
  SELECT patientID, ssn, dob, FLOOR(DATEDIFF(FROM_UNIXTIME(UNIX_TIMESTAMP()),
dob)/365.25) AS Age
  FROM patient
) as c
JOIN treatment t ON c.patientID = t.patientID
WHERE YEAR(t.date) = 2022;

```

```

Time taken: 29.388 seconds
hive> select * from prb1_1 limit 6;
OK
703275  56      2022-12-18    Adults
643936  57      2022-10-04    Adults
580404   7      2022-03-04    Children
958814  57      2022-02-03    Adults
605148  68      2022-09-19    Seniors
126581  61      2022-01-31    Adults
Time taken: 0.074 seconds, Fetched: 6 row(s)
hive> █

```

Export external table to client DB

```
sqoop export --connect jdbc:mysql://localhost/healthcare_sol --username root --password  
cloudera --table prb1_1 --export-dir /user/hive/warehouse/prb1_1 --input-fields-terminated-by ';;'
```

```
mysql> select * from prb1_1 limit 5;
```

patientID	age	dates	age_category
703275	56	2022-12-18	Adults
643936	57	2022-10-04	Adults
580404	7	2022-03-04	Children
958814	57	2022-02-03	Adults
605148	68	2022-09-19	Seniors

```
5 rows in set (0.00 sec)
```

2) Jimmy, from the healthcare department, wants to know which disease is infecting people of which gender more often. Assist Jimmy with this purpose by generating a report that shows for each disease the male-to-female ratio. Sort the data in a way that is helpful for Jimmy.

```
SELECT diseaseid,  
       SUM(CASE WHEN Gender = 'male' THEN Count END) AS male_count,  
       SUM(CASE WHEN Gender = 'female' THEN Count END) AS female_count,  
       (SUM(CASE WHEN Gender = 'male' THEN Count END) / SUM(CASE WHEN Gender =  
'female' THEN Count END)) AS ratio  
FROM (  
  SELECT d.diseaseID AS diseaseid,  
         pe.gender AS Gender,  
         COUNT(*) AS Count  
  FROM disease d  
  JOIN treatment t ON d.diseaseID = t.diseaseID  
  JOIN patient p ON p.patientID = t.patientID  
  JOIN person pe ON pe.personID = p.patientID  
  GROUP BY d.diseaseID, pe.gender  
) a  
GROUP BY diseaseid  
ORDER BY diseaseid ASC;
```

Create external table

```
CREATE EXTERNAL TABLE prb1_2 (deseaseId INT, male_count INT, female_count INT, ratio  
FLOAT) ROW FORMAT DELIMITED FIELDS TERMINATED BY ',';
```

```
INSERT OVERWRITE TABLE prb1_2 SELECT diseaseid,  
    SUM(CASE WHEN Gender = 'male' THEN Count END) AS male_count,  
    SUM(CASE WHEN Gender = 'female' THEN Count END) AS female_count,  
    (SUM(CASE WHEN Gender = 'male' THEN Count END) / SUM(CASE WHEN Gender =  
'female' THEN Count END)) AS ratio  
FROM (  
    SELECT d.diseaseID AS diseaseid,  
        pe.gender AS Gender,  
        COUNT(*) AS Count  
    FROM disease d  
    JOIN treatment t ON d.diseaseID = t.diseaseID  
    JOIN patient p ON p.patientID = t.patientID  
    JOIN person pe ON pe.personID = p.patientID  
    GROUP BY d.diseaseID, pe.gender  
) a  
GROUP BY diseaseid  
ORDER BY diseaseid ASC;
```

Export external table to client DB

```
create table prb1_2 (deseaseId int, male_count int, female_count int, ratio float(3,2));
```

```
sqoop export --connect jdbc:mysql://localhost/healthcare_sol --username root --password  
cloudera --table prb1_2 --export-dir /user/hive/warehouse/prb1_2 --input-fields-terminated-by ',';
```

```
mysql> select * from prb1_2 limit 5;
```

deseaseId	male_count	female_count	ratio
32	145	94	1.54
33	157	93	1.69
34	156	113	1.38
35	170	96	1.77
36	190	117	1.62

```
5 rows in set (0.00 sec)
```

3) Jacob, from insurance management, has noticed that insurance claims are not made for all the treatments. He also wants to figure out if the gender of the patient has any impact on the insurance claim. Assist Jacob in this situation by generating a report that finds for each gender the number of treatments, number of claims, and treatment-to-claim ratio. And notice if there is a significant difference between the treatment-to-claim ratio of male and female patients.

```
SELECT p.gender,
       COUNT(t.treatmentId) AS `Total Treatment`,
       COUNT(c.claimId) AS `Total Claims`,
       COUNT(t.treatmentId) - COUNT(c.claimId) AS `difference`,
       COUNT(c.claimId) / COUNT(t.treatmentId) AS `ratio`
FROM treatment t
LEFT JOIN claim c ON t.claimID=c.claimID
INNER JOIN person p ON p.personId=t.patientId
GROUP BY p.gender;
```

Create external table

```
CREATE EXTERNAL TABLE prb1_3 (gender STRING, Total_Treatment INT, Total_Claims INT,
difference INT, ratio DECIMAL(5,4)) ROW FORMAT DELIMITED FIELDS TERMINATED BY ',';
```

```
INSERT OVERWRITE TABLE prb1_3 SELECT p.gender,
       COUNT(t.treatmentId) AS `Total Treatment`,
       COUNT(c.claimId) AS `Total Claims`,
       COUNT(t.treatmentId) - COUNT(c.claimId) AS `difference`,
       COUNT(c.claimId) / COUNT(t.treatmentId) AS `ratio`
FROM treatment t
LEFT JOIN claim c ON t.claimID=c.claimID
INNER JOIN person p ON p.personId=t.patientId
GROUP BY p.gender;
```

```
hive> select * from prb1_3;
OK
female  4206      2676      1530      0.6362
male    6679      4287      2392      0.6419
Time taken: 0.047 seconds, Fetched: 2 row(s)
```

Export external table to client DB

create table prb1_3 (gender varchar(30), Total_Treatment INT, Total_Claims INT, difference INT, ratio DECIMAL(5,4));

sqoop export --connect jdbc:mysql://localhost/healthcare_sol --username root --password cloudera --table prb1_3 --export-dir /user/hive/warehouse/prb1_3 --input-fields-terminated-by ';;'

```
mysql> select * from prb1_3;
+-----+-----+-----+-----+-----+
| gender | Total_Treatment | Total_Claims | difference | ratio |
+-----+-----+-----+-----+-----+
| female | 4206 | 2676 | 1530 | 0.6362 |
| male | 6679 | 4287 | 2392 | 0.6419 |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

4) The Healthcare department wants a report about the inventory of pharmacies.

Generate a report on their behalf that shows how many units of medicine each pharmacy has in their inventory, the total maximum retail price of those medicines, and the total price of all the medicines after the discount.

Note: discount field in keep signifies the percentage of discount on the maximum price.

```
SELECT p.pharmacyID, p.pharmacyName, COUNT(m.medicineid) AS units,
       ROUND(SUM(m.maxPrice),3) max_retail,
       ROUND(SUM(m.maxPrice - (k.discount * 0.01)),3) AS after_discount
FROM pharmacy p
JOIN keep k
  ON p.pharmacyID = k.pharmacyID
JOIN medicine m
  ON k.medicineID = m.medicineID
GROUP BY p.pharmacyID, p.pharmacyName;
```

Create external table

CREATE EXTERNAL TABLE prb1_4 (pharmacyID INT, pharmacyName STRING, units INT, max_retail FLOAT, after_discount FLOAT) ROW FORMAT DELIMITED FIELDS TERMINATED BY ';;';

```
INSERT OVERWRITE TABLE prb1_4 SELECT p.pharmacyID, p.pharmacyName,
COUNT(m.medicineid) AS units,
  ROUND(SUM(m.maxPrice),3) max_retail,
  ROUND(SUM(m.maxPrice - (k.discount * 0.01)),3) AS after_discount
FROM pharmacy p
JOIN keep k
  ON p.pharmacyID = k.pharmacyID
```

```

JOIN medicine m
ON k.medicineID = m.medicineID
GROUP BY p.pharmacyID, p.pharmacyName;

```

```

hive> select * from prb1_4 limit 5;
OK
1008    MobiMeds          47      16448.69      16442.29
1145    Spot Rx 455         170213.62      170145.12
1149    Modern Health    104      49718.78      49703.98
1194    Foundation Care 326      145124.4      145078.5
1204    Family Drug Mart   281      236986.31      236945.4
Time taken: 0.078 seconds, Fetched: 5 row(s)

```

Export external table to client DB

```

create table prb1_4 (pharmacyID INT, pharmacyName VARCHAR(30), units INT, max_retail
FLOAT, after_discount FLOAT) ;

```

```

sqoop export --connect jdbc:mysql://localhost/healthcare_sol --username root --password
cloudera --table prb1_4 --export-dir /user/hive/warehouse/prb1_4 --input-fields-terminated-by ',';

```

```

mysql> select * from prb1_4 limit 10;
+-----+-----+-----+-----+-----+
| pharmacyID | pharmacyName | units | max_retail | after_discount |
+-----+-----+-----+-----+-----+
| 8109 | Premier Long Term Care Pharm | 404 | 155790 | 155727 |
| 8142 | RX Universal | 159 | 99044.8 | 99021.2 |
| 8173 | Innovia Drug Stores | 393 | 367147 | 367085 |
| 8184 | Apotheco | 454 | 207948 | 207877 |
| 8265 | Pharmacy Alliance | 223 | 115386 | 115351 |
| 8315 | RefillWise | 402 | 215854 | 215793 |
| 8320 | Adams Drugs | 375 | 235377 | 235319 |
| 8349 | Grand Medicine | 14 | 3833.71 | 3831.31 |
| 8404 | Atlas Drugs | 41 | 11520.2 | 11514.8 |
| 8442 | Wellman's Pharmacy | 252 | 146250 | 146213 |
+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)

```


5) The healthcare department suspects that some pharmacies prescribe more medicines than others in a single prescription, for them, generate a report that finds for each pharmacy the maximum, minimum and the average number of medicines prescribed in their prescriptions.

```
SELECT p.pharmacyName,  
       MAX(k.quantity) AS max_meds,  
       MIN(k.quantity) AS min_meds,  
       ROUND(AVG(k.quantity), 2) AS avg_meds  
FROM pharmacy p  
JOIN keep k ON p.pharmacyID = k.pharmacyID  
GROUP BY p.pharmacyName;
```

Create external table

```
CREATE EXTERNAL TABLE prb1_5 (pharmacyName STRING, max_meds INT, min_meds INT,  
avg_meds FLOAT) ROW FORMAT DELIMITED FIELDS TERMINATED BY ',';
```

```
INSERT OVERWRITE TABLE prb1_5 SELECT p.pharmacyName,  
    MAX(k.quantity) AS max_meds,  
    MIN(k.quantity) AS min_meds,  
    ROUND(AVG(k.quantity), 2) AS avg_meds  
FROM pharmacy p  
JOIN keep k ON p.pharmacyID = k.pharmacyID  
GROUP BY p.pharmacyName;
```

```
TIME TAKEN: 73.000 SECONDS  
hive> select * from prb1_5 limit 5;  
OK  
Absolute Care      9996      1      5298.34  
Acculife Drug Stores 9984     14      4972.57  
Adams Drugs        9993      3      5143.2  
Alliance Community 9997      0      5093.96  
Ally Scripts       9878     169      5053.17  
Time taken: 0.153 seconds, Fetched: 5 row(s)  
hive> █
```

Export external table to client DB

```
create table prb1_5 (pharmacyName VARCHAR(30), max_meds INT, min_meds INT,  
avg_meds FLOAT);
```

```
sqoop export --connect jdbc:mysql://localhost/healthcare_sol --username root --password  
cloudera --table prb1_5 --export-dir /user/hive/warehouse/prb1_5 --input-fields-terminated-by ',';
```

```
mysql> select * from prb1_5 limit 10;
```

pharmacyName	max_meds	min_meds	avg_meds
Express Scripts	9940	1	4818.62
Family Drug Mart	9987	53	4794.96
Family Fare	9977	5	4977.29
First Care Rx	9998	36	5114.15
First Hill Pharmacy	9998	171	4919.98
First Pharmacy	9949	183	5383.55
Fisher Pharmacy & Gifts	9989	3	5081.22
Foundation Care	9997	15	5064.79
Friends & Family Pharmacy	9898	94	5141.08
Frost Medical Pharmacy	9999	24	5185.65

10 rows in set (0.01 sec)

6) A company needs to set up 3 new pharmacies, they have come up with an idea that the pharmacy can be set up in cities where the pharmacy-to-prescription ratio is the lowest and the number of prescriptions should exceed 100. Assist the company to identify those cities where the pharmacy can be set up.

```
SELECT a.city,
       ROUND(COUNT(DISTINCT pha.pharmacyID) / COUNT(DISTINCT pre.prescriptionID),4)
AS pharmacy_prescription_ratio
FROM pharmacy pha
JOIN address a ON a.addressID = pha.addressID
JOIN prescription pre ON pha.pharmacyID = pre.pharmacyID
GROUP BY a.city
HAVING COUNT(pre.prescriptionID) > 100
ORDER BY pharmacy_prescription_ratio;
```

Create external table

```
CREATE EXTERNAL TABLE prb1_6 (city STRING, pharmacy_prescription_ratio DECIMAL
(6,4)) ROW FORMAT DELIMITED FIELDS TERMINATED BY ',';
```

```
INSERT OVERWRITE TABLE prb1_6 SELECT a.city,
       ROUND(COUNT(DISTINCT pha.pharmacyID) / COUNT(DISTINCT pre.prescriptionID),4)
AS pharmacy_prescription_ratio
FROM pharmacy pha
JOIN address a ON a.addressID = pha.addressID
JOIN prescription pre ON pha.pharmacyID = pre.pharmacyID
GROUP BY a.city
```

HAVING COUNT(pre.prescriptionID) > 100
ORDER BY pharmacy_prescription_ratio;

```
hive> select * from prb1_6 limit 10;
OK
Worcester      0.0137
Panama City Beach 0.014
Glen Burnie    0.0143
Goodlettsville 0.0147
Anchorage      0.0152
Crownsville    0.0153
Pooler 0.0153
Nashville      0.0153
Montgomery     0.0154
Washington     0.0155
Time taken: 0.109 seconds, Fetched: 10
```

Export external table to client DB

```
create table prb1_6 (city VARCHAR(30), pharmacy_prescription_ratio DECIMAL (6,4)) ;
```

```
sqoop export --connect jdbc:mysql://localhost/healthcare_sol --username root --password  
cloudera --table prb1_6 --export-dir /user/hive/warehouse/prb1_6 --input-fields-terminated-by ';;'
```

```
mysql> select * from prb1_6 limit 10;
+-----+-----+
| city          | pharmacy_prescription_ratio |
+-----+-----+
| Union City    | 0.0162 |
| Worcester     | 0.0137 |
| Panama City Beach | 0.0140 |
| Glen Burnie   | 0.0143 |
| Goodlettsville | 0.0147 |
| Anchorage     | 0.0152 |
| Crownsville   | 0.0153 |
| Panama City    | 0.0165 |
| Oklahoma City  | 0.0166 |
| Savannah      | 0.0166 |
+-----+-----+
10 rows in set (0.00 sec)
```

7) The State of Alabama (AL) is trying to manage its healthcare resources more efficiently. For each city in their state, they need to identify the disease for which the maximum number of patients have gone for treatment. Assist the state for this purpose. Note: The state of Alabama is represented as AL in Address Table.

Creating partitions on address table based on states

```
CREATE TABLE address_part (  
  addressid INT,  
  address1 STRING,  
  city STRING,  
  zip INT)  
PARTITIONED BY (state STRING) CLUSTERED BY (city) INTO 10 BUCKETS;
```

```
INSERT INTO TABLE address_part PARTITION (state)  
SELECT addressid,address1,city,zip,state FROM address;
```

Checking performance difference (used EXPLAIN) with partitioned and non partitioned table

Partitioned:

```
table:  
  input  
  output  
  serde  
  
Stage: Stage-0  
Fetch Operator  
  limit: -1  
Processor Tree:  
  ListSink  
  
Time taken: 1.599 seconds,
```

Non Partitioned:

```
Stage: Stage-0  
Fetch Operator  
  limit: -1  
Processor Tree:  
  ListSink  
  
Time taken: 4.29 seconds,
```

Create external table

```
CREATE EXTERNAL TABLE prb1_7 (city STRING, diseaseName STRING) ROW FORMAT  
DELIMITED FIELDS TERMINATED BY ',';
```

```
INSERT OVERWRITE TABLE prb1_7 SELECT city, diseaseName  
FROM (  
  SELECT city, diseaseName, counts, DENSE_RANK() OVER (PARTITION BY city ORDER BY  
counts DESC) AS ranks  
  FROM (  
    SELECT a.city, d.diseaseName, COUNT(t.patientID) AS counts  
    FROM treatment t  
    JOIN person p ON t.patientID = p.personID  
    JOIN disease d ON t.diseaseID = d.diseaseID  
    JOIN address_part a ON p.addressID = a.addressID  
    WHERE a.state = 'AL'  
    GROUP BY a.city, d.diseaseName  
  ) a  
  ) b  
WHERE ranks = 1;
```

```
hive> select * from prb1_7;  
OK  
Indian Springs Village  Diabetes mellitus type 2  
Indian Springs Village  Alzheimer's disease  
Indian Springs Village  Multiple sclerosis  
Indian Springs Village  Parkinson's disease  
Indian Springs Village  Schizophrenia  
Indian Springs Village  Bipolar disorder  
Montevallo              Schizophrenia  
Montgomery              Guillain-Barré syndrome  
Montgomery              Cancer  
Time taken: 0.14 seconds, Fetched: 9 row(s)
```

Export external table to client DB

```
create table prb1_7 (city VARCHAR(30), diseaseName VARCHAR(50));
```

```
sqoop export --connect jdbc:mysql://localhost/healthcare_sol --username root --password  
cloudera --table prb1_7 --export-dir /user/hive/warehouse/prb1_7 --input-fields-terminated-by ',';
```

```
mysql> select * from prbl_7;
```

city	diseaseName
Indian Springs Village	Diabetes mellitus type 2
Indian Springs Village	Multiple sclerosis
Indian Springs Village	Parkinson's disease
Indian Springs Village	Alzheimer's disease
Montevallo	Schizophrenia
Montgomery	Guillain-Barré syndrome
Montgomery	Cancer
Indian Springs Village	Schizophrenia
Indian Springs Village	Bipolar disorder

```
9 rows in set (0.00 sec)
```

8) The Healthcare department wants to know which disease is most likely to infect multiple people in the same household. For each disease find the number of households that has more than one patient with the same disease.

Note: 2 people are considered to be in the same household if they have the same address.

Creating BUCKETS on treatment table based on diseaseid

```
CREATE TABLE treatment_part (
  treatmentid INT,
  date DATE,
  patientid INT,
  diseaseid INT,
  claimid BIGINT
)
CLUSTERED BY (diseaseid) INTO 5 BUCKETS;
```

```
INSERT INTO TABLE treatment_part SELECT treatmentid,date,patientid,diseaseid,claimid
FROM treatment;
```

Checking performance difference (used EXPLAIN) with bucketed and non-bucketed table

Non bucketed:

```
Stage: Stage-0
Fetch Operator
  limit: -1
Processor Tree:
  ListSink
```

Time taken: 0.311 seconds,

Bucketed:

```
Stage: Stage-0
Fetch Operator
  limit: -1
Processor Tree:
  ListSink
```

Time taken: 0.248 seconds,

Create external table

```
CREATE EXTERNAL TABLE prb1_8 (diseaseName STRING, no_of_household INT) ROW
FORMAT DELIMITED FIELDS TERMINATED BY ',';
```

```
INSERT OVERWRITE TABLE prb1_8 SELECT diseaseName, COUNT(address1) AS
no_of_household
FROM (select d.diseaseName,a.address1,COUNT(t.patientID)
from disease d join treatment_part t on d.diseaseID=t.diseaseID
join person p on t.patientID=p.personID
join address a on p.addressID=a.addressID
group by d.diseasename,a.address1
having count(t.patientID)>1
order by d.diseasename desc,a.address1) a
group by diseaseName;
```

```
hive> select * from prb1_8 limit 10;
OK
Alzheimer's disease      45
Amyotrophic lateral sclerosis  46
Anorexia nervosa        52
Anxiety disorder        39
Asthma 40
Atherosclerosis 52
Attention deficit hyperactivity disorder 44
Autism 37
Autoimmune diseases 46
Bipolar disorder 46
Time taken: 0.044 seconds, Fetched: 10 row(s)
```

Export external table to client DB

```
create table prb1_8 (diseaseName VARCHAR(50), no_of_household INT);
```

```
sqoop export --connect jdbc:mysql://localhost/healthcare_sol --username root --password
cloudera --table prb1_8 --export-dir /user/hive/warehouse/prb1_8 --input-fields-terminated-by ',';
```

```
mysql> select * from prb1_8 limit 10;
+-----+-----+
| diseaseName          | no_of_household |
+-----+-----+
| Panic disorder      | 44              |
| Parkinson's disease | 38              |
| Psoriasis            | 37              |
| Rheumatoid arthritis| 41              |
| Sarcoidosis          | 56              |
| Schizophrenia        | 58              |
| Stroke               | 54              |
| Thromboangiitis obliterans | 47              |
| Tourette syndrome   | 55              |
| Vasculitis           | 53              |
+-----+-----+
10 rows in set (0.00 sec)
```

9) An Insurance company wants a state wise report of the treatments to claim ratio between 1st April 2021 and 31st March 2022 (days both included). Assist them to create such a report.

Create external table

```
CREATE EXTERNAL TABLE prb1_9 (state STRING, treatment_claim_ratio DECIMAL(3,2))
ROW FORMAT DELIMITED FIELDS TERMINATED BY ',';
```



```

INSERT OVERWRITE TABLE prb1_9 select a.state, round(count(treatmentID)/sum(if(claimID is
null,0,1)),2) as treatment_claim_ratio
from treatment_part t join person p on t.patientID=p.personID
join address_part a on a.addressID=p.addressID
where t.date between '2021-04-01' and '2022-03-31'
group by a.state;

```

```

hive> select * from prb1_9;
OK
AK      1.46
AL      1.64
AR      1.53
AZ      1.65
CA      1.47
CO      1.6
CT      1.45
DC      1.52
FL      1.68
GA      1.54
KY      1.47
MA      1.48
MD      1.52
OK      1.68
TN      1.69
VT      1.47
Time taken: 0.131 seconds, F

```

Export external table to client DB

```
create table prb1_9 (state VARCHAR(2), treatment_claim_ratio DECIMAL(3,2));
```

```

sqoop export --connect jdbc:mysql://localhost/healthcare_sol --username root --password
cloudera --table prb1_9 --export-dir /user/hive/warehouse/prb1_9 --input-fields-terminated-by ',';

```

```
mysql> select * from prb1_9;
```

state	treatment_claim_ratio
AK	1.46
AL	1.64
AR	1.53
AZ	1.65
MD	1.52
OK	1.68
TN	1.69
VT	1.47
CA	1.47
CO	1.60
CT	1.45
DC	1.52
FL	1.68
GA	1.54
KY	1.47
MA	1.48

```
16 rows in set (0.01 sec)
```

10) Jhonny, from the finance department of Arizona(AZ), has requested a report that lists the total quantity of medicine each pharmacy in his state has prescribed that falls under Tax criteria I for treatments that took place in 2021. Assist Jhonny in generating the report.

Create external table

```
CREATE EXTERNAL TABLE prb1_10 (pharmacyID INT, Total_Quantity BIGINT) ROW
FORMAT DELIMITED FIELDS TERMINATED BY ',';
```

```
INSERT OVERWRITE TABLE prb1_10 SELECT p.pharmacyID,sum(k.quantity) as
Total_Quantity FROM pharmacy p
JOIN keep k ON p.pharmacyID = k.pharmacyID
JOIN address_part a on a.`addressID`=p.`addressID`
JOIN medicine m on m.medicineID=k.medicineID
JOIN prescription pr on pr.pharmacyID = p.pharmacyID
join treatment_part t on pr.treatmentID = t.treatmentID
where a.state='AZ' and year(t.date)=2021 and taxCriteria ='I'
GROUP BY p.pharmacyID;
```

```
hive> select * from prb1_10;
OK
1478      17573685
1624      24677247
1628      8163570
2218      11489748
2301      10172277
3104      10468116
3536      25515630
3799      2750373
4938      20963730
5450      2792202
5480      12929860
8442      11520917
8829      6890212
8897      16609140
8933      10970658
9659      15568260
9681      9995295
Time taken: 0.044 seconds, Fe
hive> █
```

Export external table to client DB

```
create table prb1_10 (pharmacyID INT, Total_Quantity BIGINT);
```

```
sqoop export --connect jdbc:mysql://localhost/healthcare_sol --username root --password
cloudera --table prb1_10 --export-dir /user/hive/warehouse/prb1_10 --input-fields-terminated-by
',';
```

```
mysql> select * from prbl_10;
```

+-----+-----+	
pharmacyID	Total_Quantity
+-----+-----+	
8897	16609140
8933	10970658
9659	15568260
9681	9995295
1478	17573685
1624	24677247
1628	8163570
2218	11489748
2301	10172277
3104	10468116
3536	25515630
3799	2750373
4938	20963730
5450	2792202
5480	12929860
8442	11520917
8829	6890212

```
+-----+-----+  
17 rows in set (0.00 sec)
```