Data Ingestion from the RDS to HDFS using Sqoop

Pre-Steps:

(i) Creating a directory:

[root@ip-10-0-0-163 ~]# su - hdfs

[hdfs@ip-10-0-0-163 ~]$ hadoop fs -mkdir -p /input/data/

[hdfs@ip-10-0-0-163 ~]$ hadoop fs -chown root /input/data/

(ii)Checking if directory got created:

[hdfs@ip-10-0-0-212 ~]$ hadoop fs -ls /input/

Found 1 items

drwxr-xr-x   - root supergroup   0 2018-07-16 02:40 /input/data

1. **Sqoop import command:**

sqoop import --connect jdbc:mysql://upgradawsrds.cpclxrkdvwmz.us-east-1.rds.amazonaws.com/indiaahs2012_13 --username upgraduser --password upgraduser --table Key_indicator_districtwise --null-string 'NA' --null-non-string '\\N' --warehouse-dir /input/data

Logs for Sqoop :

[root@ip-10-0-0-212 ~]# sqoop

Warning: /opt/cloudera/parcels/CDH-5.14.0-1.cdh5.14.0.p0.24/bin/../lib/sqoop/../accumulo does not exist! Accumulo imports will fail.

Please set $ACCUMULO_HOME to the root of your Accumulo installation.

Try 'sqoop help' for usage.

[root@ip-10-0-0-212 ~]# sqoop import --connect jdbc:mysql://upgradawsrds.cpclxrkdvwmz.us-east-1.rds.amazonaws.com/indiaahs2012_13

Warning: /opt/cloudera/parcels/CDH-5.14.0-1.cdh5.14.0.p0.24/bin/../lib/sqoop/../accumulo does not exist! Accumulo imports will fail.

Please set $ACCUMULO_HOME to the root of your Accumulo installation.

18/07/21 06:46:43 INFO sqoop.Sqoop: Running Sqoop version: 1.4.6-cdh5.14.0

--table or --query is required for import. (Or use sqoop import-all-tables.)

Try --help for usage instructions.

[root@ip-10-0-0-212 ~]# --username upgraduser --password upgraduser --table Key_indicator_districtwise --null-string 'NA' --null-non-string '\\N' --warehouse-dir /input/data^C

[root@ip-10-0-0-212 ~]# sqoop

Warning: /opt/cloudera/parcels/CDH-5.14.0-1.cdh5.14.0.p0.24/bin/../lib/sqoop/../accumulo does not exist! Accumulo imports will fail.

Please set $ACCUMULO_HOME to the root of your Accumulo installation.

Try 'sqoop help' for usage.

[root@ip-10-0-0-212 ~]# sqoop

Warning: /opt/cloudera/parcels/CDH-5.14.0-1.cdh5.14.0.p0.24/bin/../lib/sqoop/../accumulo does not exist! Accumulo imports will fail.

Please set $ACCUMULO_HOME to the root of your Accumulo installation.

Try 'sqoop help' for usage.

[root@ip-10-0-0-212 ~]# sqoop import --connect jdbc:mysql://upgradawsrds.cpclxrkdvwmz.us-east-1.rds.amazonaws.com/indiaahs2012_13 --username upgraduser --password upgraduser --table Key_indicator_districtwise --null-string 'NA' --null-non-string '\\N' --warehouse-dir /input/data

Warning: /opt/cloudera/parcels/CDH-5.14.0-1.cdh5.14.0.p0.24/bin/../lib/sqoop/../accumulo does not exist! Accumulo imports will fail.

Please set $ACCUMULO_HOME to the root of your Accumulo installation.

18/07/21 06:48:26 INFO sqoop.Sqoop: Running Sqoop version: 1.4.6-cdh5.14.0

18/07/21 06:48:26 WARN tool.BaseSqoopTool: Setting your password on the command-line is insecure. Consider using -P instead.

18/07/21 06:48:27 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.

18/07/21 06:48:27 INFO tool.CodeGenTool: Beginning code generation

18/07/21 06:48:30 INFO manager.SqlManager: Executing SQL statement: SELECT t.* FROM `Key_indicator_districtwise` AS t LIMIT 1

18/07/21 06:48:32 INFO manager.SqlManager: Executing SQL statement: SELECT t.* FROM `Key_indicator_districtwise` AS t LIMIT 1

18/07/21 06:48:33 INFO orm.CompilationManager: HADOOP_MAPRED_HOME is /opt/cloudera/parcels/CDH/lib/hadoop-mapreduce

Note: /tmp/sqoop-root/compile/e953a83e27d9d9272e069bd9f8d4aaf4/Key_indicator_districtwise.java uses or overrides a deprecated API.

Note: Recompile with -Xlint:deprecation for details.

18/07/21 06:48:48 INFO orm.CompilationManager: Writing jar file: /tmp/sqoop-root/compile/e953a83e27d9d9272e069bd9f8d4aaf4/Key_indicator_districtwise.jar

18/07/21 06:48:48 WARN manager.MySQLManager: It looks like you are importing from mysql.

18/07/21 06:48:48 WARN manager.MySQLManager: This transfer can be faster! Use the --direct

18/07/21 06:48:48 WARN manager.MySQLManager: option to exercise a MySQL-specific fast path.

18/07/21 06:48:48 INFO manager.MySQLManager: Setting zero DATETIME behavior to convertToNull (mysql)

18/07/21 06:48:49 INFO mapreduce.ImportJobBase: Beginning import of Key_indicator_districtwise

18/07/21 06:48:50 INFO Configuration.deprecation: mapred.jar is deprecated. Instead, use mapreduce.job.jar

18/07/21 06:48:53 INFO Configuration.deprecation: mapred.map.tasks is deprecated. Instead, use mapreduce.job.maps

18/07/21 06:48:53 INFO client.RMProxy: Connecting to ResourceManager at ip-10-0-0-212.ap-south-1.compute.internal/10.0.0.212:8032

18/07/21 06:49:11 INFO db.DBInputFormat: Using read commited transaction isolation

18/07/21 06:49:11 INFO db.DataDrivenDBInputFormat: BoundingValsQuery: SELECT MIN(`ID`), MAX(`ID`) FROM `Key_indicator_districtwise`

18/07/21 06:49:11 INFO db.IntegerSplitter: Split size: 70; Num splits: 4 from: 1 to: 284

18/07/21 06:49:12 INFO mapreduce.JobSubmitter: number of splits:4

18/07/21 06:49:13 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1532155614048_0004

18/07/21 06:49:14 INFO impl.YarnClientImpl: Submitted application application_1532155614048_0004

18/07/21 06:49:15 INFO mapreduce.Job: The url to track the job: http://ip-10-0-0-212.ap-south-1.compute.internal:8088/proxy/application_1532155614048_0004/

18/07/21 06:49:15 INFO mapreduce.Job: Running job: job_1532155614048_0004

18/07/21 06:49:36 INFO mapreduce.Job: Job job_1532155614048_0004 running in uber mode : false

18/07/21 06:49:36 INFO mapreduce.Job: map 0% reduce 0%

18/07/21 06:49:58 INFO mapreduce.Job: map 50% reduce 0%

18/07/21 06:49:59 INFO mapreduce.Job: map 75% reduce 0%

18/07/21 06:50:15 INFO mapreduce.Job: map 100% reduce 0%

18/07/21 06:50:17 INFO mapreduce.Job: Job job_1532155614048_0004 completed successfully

18/07/21 06:50:17 INFO mapreduce.Job: Counters: 30

File System Counters

FILE: Number of bytes read=0

FILE: Number of bytes written=844620

FILE: Number of read operations=0

FILE: Number of large read operations=0

FILE: Number of write operations=0

HDFS: Number of bytes read=405

HDFS: Number of bytes written=1009058

HDFS: Number of read operations=16

HDFS: Number of large read operations=0

HDFS: Number of write operations=8

Job Counters

Launched map tasks=4

Other local map tasks=4

Total time spent by all maps in occupied slots (ms)=72330

Total time spent by all reduces in occupied slots (ms)=0

Total time spent by all map tasks (ms)=72330

Total vcore-milliseconds taken by all map tasks=72330

Total megabyte-milliseconds taken by all map tasks=74065920

Map-Reduce Framework

Map input records=284

Map output records=284

Input split bytes=405

Spilled Records=0

Failed Shuffles=0

Merged Map outputs=0

GC time elapsed (ms)=793

CPU time spent (ms)=9680

Physical memory (bytes) snapshot=1023086592

Virtual memory (bytes) snapshot=6311923712

Total committed heap usage (bytes)=1264582656

File Input Format Counters

Bytes Read=0

File Output Format Counters

Bytes Written=1009058

18/07/21 06:50:17 INFO mapreduce.ImportJobBase: Transferred 985.4082 KB in 84.9048 seconds (11.606 KB/sec)

18/07/21 06:50:17 INFO mapreduce.ImportJobBase: Retrieved 284 records.

Checking what contents got created in /input/data directory :

[root@ip-10-0-0-212 ~]# hadoop fs -ls /input/data/Key_indicator_districtwise

Found 5 items

-rw-r--r-- 3 root supergroup 0 2018-07-21 06:50 /input/data/Key_indicator_districtwise/_SUCCESS

-rw-r--r-- 3 root supergroup 235455 2018-07-21 06:49 /input/data/Key_indicator_districtwise/part-m-00000

-rw-r--r-- 3 root supergroup 247739 2018-07-21 06:49 /input/data/Key_indicator_districtwise/part-m-00001

-rw-r--r-- 3 root supergroup 253778 2018-07-21 06:49 /input/data/Key_indicator_districtwise/part-m-00002

-rw-r--r-- 3 root supergroup 272086 2018-07-21 06:50 /input/data/Key_indicator_districtwise/part-m-00003

2. Command to see the list of imported data :

hadoop fs -cat /input/data/Key_indicator_districtwise/*

Usage:

[root@ip-10-0-0-212 ~]# hadoop fs -cat /input/data/Key_indicator_districtwise/*

External table creation in Hive and loading the ingested data into it. Data ingestion verification.

1. Command to create the external table

create external table annual_health_survey_ext(

`ID` bigint ,

`State_Name` string ,

`State_District_Name` string ,

`AA_Sample_Units_Total` double ,

`AA_Sample_Units_Rural` double ,

`AA_Sample_Units_Urban` double ,

`AA_Households_Total` double ,

`AA_Households_Rural` double ,

`AA_Households_Urban` double ,

`AA_Population_Total` double ,

`AA_Population_Rural` double ,

`AA_Population_Urban` double ,

`AA_Ever_Married_Women_Aged_15_49_Years_Total` double ,

`AA_Ever_Married_Women_Aged_15_49_Years_Rural` double ,

`AA_Ever_Married_Women_Aged_15_49_Years_Urban` double ,

`AA_Currently_Married_Women_Aged_15_49_Years_Total` double ,

`AA_Currently_Married_Women_Aged_15_49_Years_Rural` double ,

`AA_Currently_Married_Women_Aged_15_49_Years_Urban` double ,

`AA_Children_12_23_Months_Total` double ,

`AA_Children_12_23_Months_Rural` double ,

`AA_Children_12_23_Months_Urban` double ,

`BB_Average_Household_Size_Sc_Total` double ,

`BB_Average_Household_Size_Sc_Rural` double ,

`BB_Average_Household_Size_Sc_Urban` double ,

`BB_Average_Household_Size_St_Total` double ,

`BB_Average_Household_Size_St_Rural` double ,

`BB_Average_Household_Size_St_Urban` double ,

`BB_Average_Household_Size_All_Total` double ,

`BB_Average_Household_Size_All_Rural` double ,

`BB_Average_Household_Size_All_Urban` double ,

`BB_Population_Below_Age_15_Years_Total` double ,

`BB_Population_Below_Age_15_Years_Rural` double ,

`BB_Population_Below_Age_15_Years_Urban` double ,

`BB_Dependency_Ratio_Total` double ,

`BB_Dependency_Ratio_Rural` double ,

`BB_Dependency_Ratio_Urban` double ,

`BB_Currently_Married_Illiterate_Women_Aged_15_49_Years_Total` double ,

`BB_Currently_Married_Illiterate_Women_Aged_15_49_Years_Rural` double ,

`BB_Currently_Married_Illiterate_Women_Aged_15_49_Years_Urban` double ,

`CC_Sex_Ratio_At_Birth_Total` double ,

`CC_Sex_Ratio_At_Birth_Rural` double ,

`CC_Sex_Ratio_At_Birth_Urban` double ,

`CC_Sex_Ratio_0_4_Years_Total` double ,

`CC_Sex_Ratio_0_4_Years_Rural` double ,

`CC_Sex_Ratio_0_4_Years_Urban` double ,

`CC_Sex_Ratio_All_Ages_Total` double ,

`CC_Sex_Ratio_All_Ages_Rural` double ,

`CC_Sex_Ratio_All_Ages_Urban` double ,

`DD_Person_Total` double ,

`DD_Person_Rural` double ,

`DD_Person_Urban` double ,

`DD_Male_Total` double ,

`DD_Male_Rural` double ,

`DD_Male_Urban` double ,

`DD_Female_Total` double ,

`DD_Female_Rural` double ,

`DD_Female_Urban` double ,

`EE_Marriages_Among_Females_Below_Legal_Age_18_Years_Total` double ,

`EE_Marriages_Among_Females_Below_Legal_Age_18_Years_Rural` double ,

`EE_Marriages_Among_Females_Below_Legal_Age_18_Years_Urban` double ,

`EE_Marriages_Among_Males_Below_Legal_Age_21_Years_Total` double ,

`EE_Marriages_Among_Males_Below_Legal_Age_21_Years_Rural` double ,

`EE_Marriages_Among_Males_Below_Legal_Age_21_Years_Urban` double ,

`EE_Married_Women_20_24_Years_Married_Before_18_Years_Total` double ,

`EE_Married_Women_20_24_Years_Married_Before_18_Years_Rural` double ,

`EE_Married_Women_20_24_Years_Married_Before_18_Years_Urban` double ,

`EE_Married_Men_25_29_Years_Married_Before_21_Years_Total` double ,

`EE_Married_Men_25_29_Years_Married_Before_21_Years_Rural` double ,

`EE_Married_Men_25_29_Years_Married_Before_21_Years_Urban` double ,

`EE_Mean_Age_At_Marriage_Male_Total` double ,

`EE_Mean_Age_At_Marriage_Male_Rural` double ,

`EE_Mean_Age_At_Marriage_Male_Urban` double ,

`EE_Mean_Age_At_Marriage_Female_Total` double ,

`EE_Mean_Age_At_Marriage_Female_Rural` double ,

`EE_Mean_Age_At_Marriage_Female_Urban` double ,

`FF_Children_Attending_School_Age_6_17_Years_Person_Total` double ,

`FF_Children_Attending_School_Age_6_17_Years_Person_Rural` double ,

`FF_Children_Attending_School_Age_6_17_Years_Person_Urban` double ,

`FF_Children_Attending_School_Age_6_17_Years_Male_Total` double ,

`FF_Children_Attending_School_Age_6_17_Years_Male_Rural` double ,

`FF_Children_Attending_School_Age_6_17_Years_Male_Urban` double ,

`FF_Children_Attending_School_Age_6_17_Years_Female_Total` double ,

`FF_Children_Attending_School_Age_6_17_Years_Female_Rural` double ,

`FF_Children_Attending_School_Age_6_17_Years_Female_Urban` double ,

`FF_Children_Attended_Before_Drop_Out_Age_6_17_Years_Person_Total` double ,

`FF_Children_Attended_Before_Drop_Out_Age_6_17_Years_Person_Rural` double ,

`FF_Children_Attended_Before_Drop_Out_Age_6_17_Years_Person_Urban` double ,

`FF_Children_Attended_Before_Drop_Out_Age_6_17_Years_Male_Total` double ,

`FF_Children_Attended_Before_Drop_Out_Age_6_17_Years_Male_Rural` double ,

`FF_Children_Attended_Before_Drop_Out_Age_6_17_Years_Male_Urban` double ,

`FF_Children_Attended_Before_Drop_Out_Age_6_17_Years_Female_Total` double ,

`FF_Children_Attended_Before_Drop_Out_Age_6_17_Years_Female_Rural` double ,

`FF_Children_Attended_Before_Drop_Out_Age_6_17_Years_Female_Urban` double ,

`GG_Children_Aged_5_14_Years_Engaged_In_Work_Person_Total` double ,

`GG_Children_Aged_5_14_Years_Engaged_In_Work_Person_Rural` double ,

`GG_Children_Aged_5_14_Years_Engaged_In_Work_Person_Urban` double ,

`GG_Children_Aged_5_14_Years_Engaged_In_Work_Male_Total` double ,

`GG_Children_Aged_5_14_Years_Engaged_In_Work_Male_Rural` double ,

`GG_Children_Aged_5_14_Years_Engaged_In_Work_Male_Urban` double ,

`GG_Children_Aged_5_14_Years_Engaged_In_Work_Female_Total` double ,

`GG_Children_Aged_5_14_Years_Engaged_In_Work_Female_Rural` double ,

`GG_Children_Aged_5_14_Years_Engaged_In_Work_Female_Urban` double ,

`GG_Work_Participation_Rate_15_Years_And_Above_Person_Total` double ,

`GG_Work_Participation_Rate_15_Years_And_Above_Person_Rural` double ,

`GG_Work_Participation_Rate_15_Years_And_Above_Person_Urban` double ,

`GG_Work_Participation_Rate_15_Years_And_Above_Male_Total` double ,

`GG_Work_Participation_Rate_15_Years_And_Above_Male_Rural` double ,

`GG_Work_Participation_Rate_15_Years_And_Above_Male_Urban` double ,

`GG_Work_Participation_Rate_15_Years_And_Above_Female_Total` double ,

`GG_Work_Participation_Rate_15_Years_And_Above_Female_Rural` double ,

`GG_Work_Participation_Rate_15_Years_And_Above_Female_Urban` double ,

`HH_Prevalence_Disability_Per_100000_Population_Person_Total` double ,

`HH_Prevalence_Disability_Per_100000_Population_Person_Rural` double ,

`HH_Prevalence_Disability_Per_100000_Population_Person_Urban` double ,

`HH_Prevalence_Disability_Per_100000_Population_Male_Total` double ,

`HH_Prevalence_Disability_Per_100000_Population_Male_Rural` double ,

`HH_Prevalence_Disability_Per_100000_Population_Male_Urban` double ,

`HH_Prevalence_Disability_Per_100000_Population_Female_Total` double ,

`HH_Prevalence_Disability_Per_100000_Population_Female_Rural` double ,

`HH_Prevalence_Disability_Per_100000_Population_Female_Urban` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Severe_Person_Total` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Severe_Person_Rural` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Severe_Person_Urban` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Severe_Male_Total` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Severe_Male_Rural` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Severe_Male_Urban` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Severe_Female_Total` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Severe_Female_Rural` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Severe_Female_Urban` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Major_Person_Total` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Major_Person_Rural` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Major_Person_Urban` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Major_Male_Total` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Major_Male_Rural` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Major_Male_Urban` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Major_Female_Total` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Major_Female_Rural` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Major_Female_Urban` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Minor_Person_Total` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Minor_Person_Rural` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Minor_Person_Urban` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Minor_Male_Total` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Minor_Male_Rural` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Minor_Male_Urban` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Minor_Female_Total` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Minor_Female_Rural` double ,

`II_Injured_By_Type_Of_Treatment_Per_100000_Minor_Female_Urban` double ,

`JJ_Acute_Illness_Per_100000_Diarrhoea_Dysentery_Person_Total` double ,

`JJ_Acute_Illness_Per_100000_Diarrhoea_Dysentery_Person_Rural` double ,

`JJ_Acute_Illness_Per_100000_Diarrhoea_Dysentery_Person_Urban` double ,

`JJ_Acute_Illness_Per_100000_Diarrhoea_Dysentery_Male_Total` double ,

`JJ_Acute_Illness_Per_100000_Diarrhoea_Dysentery_Male_Rural` double ,

`JJ_Acute_Illness_Per_100000_Diarrhoea_Dysentery_Male_Urban` double ,

`JJ_Acute_Illness_Per_100000_Diarrhoea_Dysentery_Female_Total` double ,

`JJ_Acute_Illness_Per_100000_Diarrhoea_Dysentery_Female_Rural` double ,

`JJ_Acute_Illness_Per_100000_Diarrhoea_Dysentery_Female_Urban` double ,

`JJ_Acute_Illness_Per_100000_Respiratory_Infection_Person_Total` double ,

`JJ_Acute_Illness_Per_100000_Respiratory_Infection_Person_Rural` double ,

`JJ_Acute_Illness_Per_100000_Respiratory_Infection_Person_Urban` double ,

`JJ_Acute_Illness_Per_100000_Respiratory_Infection_Male_Total` double ,

`JJ_Acute_Illness_Per_100000_Respiratory_Infection_Male_Rural` double ,

`JJ_Acute_Illness_Per_100000_Respiratory_Infection_Male_Urban` double ,

`JJ_Acute_Illness_Per_100000_Respiratory_Infection_Female_Total` double ,

`JJ_Acute_Illness_Per_100000_Respiratory_Infection_Female_Rural` double ,

`JJ_Acute_Illness_Per_100000_Respiratory_Infection_Female_Urban` double ,

`JJ_Acute_Illness_Per_100000_Fever_All_Types_Person_Total` double ,

`JJ_Acute_Illness_Per_100000_Fever_All_Types_Person_Rural` double ,

`JJ_Acute_Illness_Per_100000_Fever_All_Types_Person_Urban` double ,

`JJ_Acute_Illness_Per_100000_Fever_All_Types_Male_Total` double ,

`JJ_Acute_Illness_Per_100000_Fever_All_Types_Male_Rural` double ,

`JJ_Acute_Illness_Per_100000_Fever_All_Types_Male_Urban` double ,

`JJ_Acute_Illness_Per_100000_Fever_All_Types_Female_Total` double ,

`JJ_Acute_Illness_Per_100000_Fever_All_Types_Female_Rural` double ,

`JJ_Acute_Illness_Per_100000_Fever_All_Types_Female_Urban` double ,

`JJ_Acute_Illness_Per_100000_Any_Type_Of_Acute_Person_Total` double ,

`JJ_Acute_Illness_Per_100000_Any_Type_Of_Acute_Person_Rural` double ,

`JJ_Acute_Illness_Per_100000_Any_Type_Of_Acute_Person_Urban` double ,

`JJ_Acute_Illness_Per_100000_Any_Type_Of_Acute_Male_Total` double ,

`JJ_Acute_Illness_Per_100000_Any_Type_Of_Acute_Male_Rural` double ,

`JJ_Acute_Illness_Per_100000_Any_Type_Of_Acute_Male_Urban` double ,

`JJ_Acute_Illness_Per_100000_Any_Type_Of_Acute_Female_Total` double ,

`JJ_Acute_Illness_Per_100000_Any_Type_Of_Acute_Female_Rural` double ,

`JJ_Acute_Illness_Per_100000_Any_Type_Of_Acute_Female_Urban` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Person_Total` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Person_Rural` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Person_Urban` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Male_Total` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Male_Rural` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Male_Urban` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Female_Total` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Female_Rural` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Female_Urban` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Government_Person_Total` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Government_Person_Rural` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Government_Person_Urban` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Government_Male_Total` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Government_Male_Rural` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Government_Male_Urban` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Government_Female_Total` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Government_Female_Rural` double ,

`JJ_Acute_Illness_And_Taking_Treatment_Government_Female_Urban` double ,

`KK_Symptoms_Of_Chronic_Illness_Per_100000_Person_Total` double ,

`KK_Symptoms_Of_Chronic_Illness_Per_100000_Person_Rural` double ,

`KK_Symptoms_Of_Chronic_Illness_Per_100000_Person_Urban` double ,

`KK_Symptoms_Of_Chronic_Illness_Per_100000_Male_Total` double ,

`KK_Symptoms_Of_Chronic_Illness_Per_100000_Male_Rural` double ,

`KK_Symptoms_Of_Chronic_Illness_Per_100000_Male_Urban` double ,

`KK_Symptoms_Of_Chronic_Illness_Per_100000_Female_Total` double ,

`KK_Symptoms_Of_Chronic_Illness_Per_100000_Female_Rural` double ,

`KK_Symptoms_Of_Chronic_Illness_Per_100000_Female_Urban` double ,

`KK_Chronic_Illness_And_Sought_Medical_Care_Person_Total` double ,

`KK_Chronic_Illness_And_Sought_Medical_Care_Person_Rural` double ,

`KK_Chronic_Illness_And_Sought_Medical_Care_Person_Urban` double ,

`KK_Chronic_Illness_And_Sought_Medical_Care_Male_Total` double ,

`KK_Chronic_Illness_And_Sought_Medical_Care_Male_Rural` double ,

`KK_Chronic_Illness_And_Sought_Medical_Care_Male_Urban` double ,

`KK_Chronic_Illness_And_Sought_Medical_Care_Female_Total` double ,

`KK_Chronic_Illness_And_Sought_Medical_Care_Female_Rural` double ,

`KK_Chronic_Illness_And_Sought_Medical_Care_Female_Urban` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Diabetes_Person_Total` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Diabetes_Person_Rural` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Diabetes_Person_Urban` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Diabetes_Male_Total` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Diabetes_Male_Rural` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Diabetes_Male_Urban` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Diabetes_Female_Total` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Diabetes_Female_Rural` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Diabetes_Female_Urban` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Hypertension_Person_Total` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Hypertension_Person_Rural` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Hypertension_Person_Urban` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Hypertension_Male_Total` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Hypertension_Male_Rural` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Hypertension_Male_Urban` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Hypertension_Female_Total` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Hypertension_Female_Rural` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Hypertension_Female_Urban` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Tb_Person_Total` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Tb_Person_Rural` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Tb_Person_Urban` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Tb_Male_Total` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Tb_Male_Rural` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Tb_Male_Urban` double ,

`KK_Diag_For_Chronic_Ill_Per_100000_Tb_Female_Total` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Tb_Female_Rural` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Tb_Female_Urban` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Asthma_Person_Total` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Asthma_Person_Rural` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Asthma_Person_Urban` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Asthma_Male_Total` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Asthma_Male_Rural` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Asthma_Male_Urban` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Asthma_Female_Total` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Asthma_Female_Rural` double ,

`KK_Diagnosed_For_Chronic_Illness_Per_100000_Asthma_Female_Urban` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Arthritis_Person_Total` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Arthritis_Person_Rural` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Arthritis_Person_Urban` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Arthritis_Male_Total` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Arthritis_Male_Rural` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Arthritis_Male_Urban` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Arthritis_Female_Total` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Arthritis_Female_Rural` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Arthritis_Female_Urban` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Any_Kind_Person_Total` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Any_Kind_Person_Rural` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Any_Kind_Of_Person_Urban` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Any_Kind_Of_Male_Total` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Any_Kind_Of_Male_Rural` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Any_Kind_Of_Male_Urban` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Any_Kind_Of_Female_Total` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Any_Kind_Of_Female_Rural` double ,

`KK_Diag_For_Chronic_Illness_Per_100000_Any_Kind_Of_Female_Urban` double ,

`KK_Chronic_Illness_And_Getting_Regular_Treatment_Person_Total` double ,

`KK_Chronic_Illness_And_Getting_Regular_Treatment_Person_Rural` double ,

`KK_Chronic_Illness_And_Getting_Regular_Treatment_Person_Urban` double ,

`KK_Chronic_Illness_And_Getting_Regular_Treatment_Male_Total` double ,

`KK_Chronic_Illness_And_Getting_Regular_Treatment_Male_Rural` double ,

`KK_Chronic_Illness_And_Getting_Regular_Treatment_Male_Urban` double ,

`KK_Chronic_Illness_And_Getting_Regular_Treatment_Female_Total` double ,

`KK_Chronic_Illness_And_Getting_Regular_Treatment_Female_Rural` double ,

`KK_Chronic_Illness_And_Getting_Regular_Treatment_Female_Urban` double ,

`KK_Chronic_Ill_And_Getting_Regular_Treatment_Govt_Person_Total` double ,

`KK_Chronic_Ill_And_Getting_Regular_Treatment_Govt_Person_Rural` double ,

`KK_Chronic_Ill_And_Getting_Regular_Treatment_Govt_Person_Urban` double ,

`KK_Chronic_Ill_And_Getting_Regular_Treatment_Govt_Male_Total` double ,

`KK_Chronic_Ill_And_Getting_Regular_Treatment_Govt_Male_Rural` double ,

`KK_Chronic_Ill_And_Getting_Regular_Treatment_Govt_Male_Urban` double ,

`KK_Chronic_Ill_And_Getting_Regular_Treatment_Govt_Female_Total` double ,

`KK_Chronic_Ill_And_Getting_Regular_Treatment_Govt_Female_Rural` double ,

`KK_Chronic_Ill_And_Getting_Regular_Treatment_Govt_Female_Urban` double ,

`LL_Crude_Birth_Rate_Cbr_Total` double ,

`LL_Crude_Birth_Rate_Cbr_Rural` double ,

`LL_Crude_Birth_Rate_Cbr_Urban` double ,

`LL_Natural_Growth_Rate_Total` double ,

`LL_Natural_Growth_Rate_Rural` double ,

`LL_Natural_Growth_Rate_Urban` double ,

`LL_Total_Fertility_Rate_Total` double ,

`LL_Total_Fertility_Rate_Rural` double ,

`LL_Total_Fertility_Rate_Urban` double ,

`LL_Women_20_24_Reporting_Birth_Of_Order_2__Above_Total` double ,

`LL_Women_20_24_Reporting_Birth_Of_Order_2__Above_Rural` double ,

`LL_Women_20_24_Reporting_Birth_Of_Order_2__Above_Urban` double ,

`LL_Women_Reporting_Birth_Of_Order_3__Above_Total` double ,

`LL_Women_Reporting_Birth_Of_Order_3__Above_Rural` double ,

`LL_Women_Reporting_Birth_Of_Order_3__Above_Urban` double ,

`LL_Women_With_Two_Children_Wanting_No_More_Children_Total` double ,

`LL_Women_With_Two_Children_Wanting_No_More_Children_Rural` double ,

`LL_Women_With_Two_Children_Wanting_No_More_Children_Urban` double ,

`LL_Women_15_19_Years_Who_Were_Already_Mothers_Or_Pregnant_Total` double ,

`LL_Women_15_19_Years_Who_Were_Already_Mothers_Or_Pregnant_Rural` double ,

`LL_Women_15_19_Years_Who_Were_Already_Mothers_Or_Pregnant_Urban` double ,

`LL_Median_Age_At_First_Live_Birth_Of_Women_15_49_Years_Total` double ,

`LL_Median_Age_At_First_Live_Birth_Of_Women_15_49_Years_Rural` double ,

`LL_Median_Age_At_First_Live_Birth_Of_Women_15_49_Years_Urban` double ,

`LL_Median_Age_At_First_Live_Birth_Of_Women_25_49_Years_Total` double ,

`LL_Median_Age_At_First_Live_Birth_Of_Women_25_49_Years_Rural` double ,

`LL_Median_Age_At_First_Live_Birth_Of_Women_25_49_Years_Urban` double ,

`LL_Live_Births_Taking_Place_After_An_Interval_Of_36_Months_Total` double ,

`LL_Live_Births_Taking_Place_After_An_Interval_Of_36_Months_Rural` double ,

`LL_Live_Births_Taking_Place_After_An_Interval_Of_36_Months_Urban` double ,

`LL_Mean_Number_Of_Children_Ever_Born_To_Women_15_49_Years_Total` double ,

`LL_Mean_Number_Of_Children_Ever_Born_To_Women_15_49_Years_Rural` double ,

`LL_Mean_Number_Of_Children_Ever_Born_To_Women_15_49_Years_Urban` double ,

`LL_Mean_Number_Of_Children_Surviving_To_Women_15_49_Years_Total` double ,

`LL_Mean_Number_Of_Children_Surviving_To_Women_15_49_Years_Rural` double ,

`LL_Mean_Number_Of_Children_Surviving_To_Women_15_49_Years_Urban` double ,

`LL_Mean_Number_Of_Children_Ever_Born_To_Women_45_49_Years_Total` double ,

`LL_Mean_Number_Of_Children_Ever_Born_To_Women_45_49_Years_Rural` double ,

`LL_Mean_Number_Of_Children_Ever_Born_To_Women_45_49_Years_Urban` double ,

`MM_Pregnancy_To_Women_15_49_Years_Resulting_In_Abortion_Total` double ,

`MM_Pregnancy_To_Women_15_49_Years_Resulting_In_Abortion_Rural` double ,

`MM_Pregnancy_To_Women_15_49_Years_Resulting_In_Abortion_Urban` double ,

`MM_Women_Who_Received_Any_Anc_Before_Abortion_Total` double ,

`MM_Women_Who_Received_Any_Anc_Before_Abortion_Rural` double ,

`MM_Women_Who_Received_Any_Anc_Before_Abortion_Urban` double ,

`MM_Women_Who_Went_For_Ultrasound_Before_Abortion_Total` double ,

`MM_Women_Who_Went_For_Ultrasound_Before_Abortion_Rural` double ,

`MM_Women_Who_Went_For_Ultrasound_Before_Abortion_Urban` double ,

`MM_Average_Month_Of_Pregnancy_At_The_Time_Of_Abortion_Total` double ,

`MM_Average_Month_Of_Pregnancy_At_The_Time_Of_Abortion_Rural` double ,

`MM_Average_Month_Of_Pregnancy_At_The_Time_Of_Abortion_Urban` double ,

`MM_Abortion_Performed_By_Skilled_Health_Personnel_Total` double ,

`MM_Abortion_Performed_By_Skilled_Health_Personnel_Rural` double ,

`MM_Abortion_Performed_By_Skilled_Health_Personnel_Urban` double ,

`MM_Abortion_Taking_Place_In_Institution_Total` double ,

`MM_Abortion_Taking_Place_In_Institution_Rural` double ,

`MM_Abortion_Taking_Place_In_Institution_Urban` double ,

`NN_Current_Usage_Any_Method_Total` double ,

`NN_Current_Usage_Any_Method_Rural` double ,

`NN_Current_Usage_Any_Method_Urban` double ,

`NN_Current_Usage_Any_Modern_Method_Total` double ,

`NN_Current_Usage_Any_Modern_Method_Rural` double ,

`NN_Current_Usage_Any_Modern_Method_Urban` double ,

`NN_Current_Usage_Female_Sterilization_Total` double ,

`NN_Current_Usage_Female_Sterilization_Rural` double ,

`NN_Current_Usage_Female_Sterilization_Urban` double ,

`NN_Current_Usage_Male_Sterilization_Total` double ,

`NN_Current_Usage_Male_Sterilization_Rural` double ,

`NN_Current_Usage_Male_Sterilization_Urban` double ,

`NN_Current_Usage_Copper_T_Iud_Total` double ,

`NN_Current_Usage_Copper_T_Iud_Rural` double ,

`NN_Current_Usage_Copper_T_Iud_Urban` double ,

`NN_Current_Usage_Pills_Total` double ,

`NN_Current_Usage_Pills_Rural` double ,

`NN_Current_Usage_Pills_Urban` double ,

`NN_Current_Usage_Condom_Nirodh_Total` double ,

`NN_Current_Usage_Condom_Nirodh_Rural` double ,

`NN_Current_Usage_Condom_Nirodh_Urban` double ,

`NN_Current_Usage_Emergency_Contraceptive_Pills_Total` double ,

`NN_Current_Usage_Emergency_Contraceptive_Pills_Rural` double ,

`NN_Current_Usage_Emergency_Contraceptive_Pills_Urban` double ,

`NN_Current_Usage_Any_Traditional_Method_Total` double ,

`NN_Current_Usage_Any_Traditional_Method_Rural` double ,

`NN_Current_Usage_Any_Traditional_Method_Urban` double ,

`NN_Current_Usage_Periodic_Abstinence_Total` double ,

`NN_Current_Usage_Periodic_Abstinence_Rural` double ,

`NN_Current_Usage_Periodic_Abstinence_Urban` double ,

`NN_Current_Usage_Withdrawal_Total` double ,

`NN_Current_Usage_Withdrawal_Rural` double ,

`NN_Current_Usage_Withdrawal_Urban` double ,

`NN_Current_Usage_Lam_Total` double ,

`NN_Current_Usage_Lam_Rural` double ,

`NN_Current_Usage_Lam_Urban` double ,

`OO_Unmet_Need_For_Spacing_Total` double ,

`OO_Unmet_Need_For_Spacing_Rural` double ,

`OO_Unmet_Need_For_Spacing_Urban` double ,

`OO_Unmet_Need_For_Limiting_Total` double ,

`OO_Unmet_Need_For_Limiting_Rural` double ,

`OO_Unmet_Need_For_Limiting_Urban` double ,

`OO_Total_Unmet_Need_Total` double ,

`OO_Total_Unmet_Need_Rural` double ,

`OO_Total_Unmet_Need_Urban` double ,

`PP_Married_Pregnant_Women_15_49_Years_Registered_For_Anc_Total` double ,

`PP_Married_Pregnant_Women_15_49_Years_Registered_For_Anc_Rural` double ,

`PP_Married_Pregnant_Women_15_49_Years_Registered_For_Anc_Urban` double ,

`PP_Mothers_Who_Received_Any_Antenatal_Check_Up_Total` double ,

`PP_Mothers_Who_Received_Any_Antenatal_Check_Up_Rural` double ,

`PP_Mothers_Who_Received_Any_Antenatal_Check_Up_Urban` double ,

`PP_Mothers_Who_Had_Antenatal_Check_Up_In_First_Trimester_Total` double ,

`PP_Mothers_Who_Had_Antenatal_Check_Up_In_First_Trimester_Rural` double ,

`PP_Mothers_Who_Had_Antenatal_Check_Up_In_First_Trimester_Urban` double ,

`PP_Mothers_Who_Received_3_Or_More_Antenatal_Care_Total` double ,

`PP_Mothers_Who_Received_3_Or_More_Antenatal_Care_Rural` double ,

`PP_Mothers_Who_Received_3_Or_More_Antenatal_Care_Urban` double ,

`PP_Mothers_Who_Received_At_Least_One_Tt_Injection_Total` double ,

`PP_Mothers_Who_Received_At_Least_One_Tt_Injection_Rural` double ,

`PP_Mothers_Who_Received_At_Least_One_Tt_Injection_Urban` double ,

`PP_Mothers_Who_Consumed_Ifa_For_100_Days_Or_More_Total` double ,

`PP_Mothers_Who_Consumed_Ifa_For_100_Days_Or_More_Rural` double ,

`PP_Mothers_Who_Consumed_Ifa_For_100_Days_Or_More_Urban` double ,

`PP_Mothers_Who_Had_Full_Antenatal_Check_Up_Total` double ,

`PP_Mothers_Who_Had_Full_Antenatal_Check_Up_Rural` double ,

`PP_Mothers_Who_Had_Full_Antenatal_Check_Up_Urban` double ,

`PP_Mothers_Who_Received_Anc_From_Govt_Source_Total` double ,

`PP_Mothers_Who_Received_Anc_From_Govt_Source_Rural` double ,

`PP_Mothers_Who_Received_Anc_From_Govt_Source_Urban` double ,

`PP_Mothers_Whose_Blood_Pressure_Bp_Taken_Total` double ,

`PP_Mothers_Whose_Blood_Pressure_Bp_Taken_Rural` double ,

`PP_Mothers_Whose_Blood_Pressure_Bp_Taken_Urban` double ,

`PP_Mothers_Whose_Blood_Taken_For_Hb_Total` double ,

`PP_Mothers_Whose_Blood_Taken_For_Hb_Rural` double ,

`PP_Mothers_Whose_Blood_Taken_For_Hb_Urban` double ,

`PP_Mothers_Who_Underwent_Ultrasound_Total` double ,

`PP_Mothers_Who_Underwent_Ultrasound_Rural` double ,

`PP_Mothers_Who_Underwent_Ultrasound_Urban` double ,

`QQ_Institutional_Delivery_Total` double ,

`QQ_Institutional_Delivery_Rural` double ,

`QQ_Institutional_Delivery_Urban` double ,

`QQ_Delivery_At_Government_Institution_Total` double ,

`QQ_Delivery_At_Government_Institution_Rural` double ,

`QQ_Delivery_At_Government_Institution_Urban` double ,

`QQ_Delivery_At_Private_Institution_Total` double ,

`QQ_Delivery_At_Private_Institution_Rural` double ,

`QQ_Delivery_At_Private_Institution_Urban` double ,

`QQ_Delivery_At_Home_Total` double ,

`QQ_Delivery_At_Home_Rural` double ,

`QQ_Delivery_At_Home_Urban` double ,

`QQ_Delivery_At_Home_Conducted_By_Skilled_Health_Personnel_Total` double ,

`QQ_Delivery_At_Home_Conducted_By_Skilled_Health_Personnel_Rural` double ,

`QQ_Delivery_At_Home_Conducted_By_Skilled_Health_Personnel_Urban` double ,

`QQ_Safe_Delivery_Total` double ,

`QQ_Safe_Delivery_Rural` double ,

`QQ_Safe_Delivery_Urban` double ,

`QQ_Caesarean_Out_Of_Total_Delivery_In_Government_Total` double ,

`QQ_Caesarean_Out_Of_Total_Delivery_In_Government_Rural` double ,

`QQ_Caesarean_Out_Of_Total_Delivery_In_Government_Urban` double ,

`QQ_Caesarean_Out_Of_Total_Delivery_In_Private_Total` double ,

`QQ_Caesarean_Out_Of_Total_Delivery_In_Private_Rural` double ,

`QQ_Caesarean_Out_Of_Total_Delivery_In_Private_Urban` double ,

`RR_Less_Than_24_Hrs_Stay_In_Institution_After_Delivery_Total` double ,

`RR_Less_Than_24_Hrs_Stay_In_Institution_After_Delivery_Rural` double ,

`RR_Less_Than_24_Hrs_Stay_In_Institution_After_Delivery_Urban` double ,

`RR_Mothers_Who_Received_Within_48_Hrs_Of_Delivery_Total` double ,

`RR_Mothers_Who_Received_Within_48_Hrs_Of_Delivery_Rural` double ,

`RR_Mothers_Who_Received_Within_48_Hrs_Of_Delivery_Urban` double ,

`RR_Mothers_Who_Received_Within_1_Week_Of_Delivery_Total` double ,

`RR_Mothers_Who_Received_Within_1_Week_Of_Delivery_Rural` double ,

`RR_Mothers_Who_Received_Within_1_Week_Of_Delivery_Urban` double ,

`RR_Mothers_Who_Did_Not_Receive_Any_Post_Natal_Check_Up_Total` double ,

`RR_Mothers_Who_Did_Not_Receive_Any_Post_Natal_Check_Up_Rural` double ,

`RR_Mothers_Who_Did_Not_Receive_Any_Post_Natal_Check_Up_Urban` double ,

`RR_New_Borns_Who_Were_Checked_Up_Within_24_Hrs_Of_Birth_Total` double ,

`RR_New_Borns_Who_Were_Checked_Up_Within_24_Hrs_Of_Birth_Rural` double ,

`RR_New_Borns_Who_Were_Checked_Up_Within_24_Hrs_Of_Birth_Urban` double ,

`SS_Availed_Financial_Assistance_For_Delivery_Under_Jsy_Total` double ,

`SS_Availed_Financial_Assistance_For_Delivery_Under_Jsy_Rural` double ,

`SS_Availed_Financial_Assistance_For_Delivery_Under_Jsy_Urban` double ,

`SS_Availed_Financial_Assis_For_Inst_Delivery_Under_Jsy_Total` double ,

`SS_Availed_Financial_Assis_For_Inst_Delivery_Under_Jsy_Rural` double ,

`SS_Availed_Financial_Assis_For_Inst_Delivery_Under_Jsy_Urban` double ,

`SS_Availed_Financial_Assis_For_Govt_Delivery_Under_Jsy_Total` double ,

`SS_Availed_Financial_Assis_For_Govt_Delivery_Under_Jsy_Rural` double ,

`SS_Availed_Financial_Assis_For_Govt_Delivery_Under_Jsy_Urban` double ,

`TT_Children_Aged_12_23_Months_Having_Immunization_Card_Total` double ,

`TT_Children_Aged_12_23_Months_Having_Immunization_Card_Rural` double ,

`TT_Children_Aged_12_23_Months_Having_Immunization_Card_Urban` double ,

`TT_Children_Aged_12_23_Months_Who_Have_Received_Bcg_Total` double ,

`TT_Children_Aged_12_23_Months_Who_Have_Received_Bcg_Rural` double ,

`TT_Children_Aged_12_23_Months_Who_Have_Received_Bcg_Urban` double ,

`TT_Children_12_23_Months_Received_3_Doses_Of_Polio_Vaccine_Total` double ,

`TT_Children_12_23_Months_Received_3_Doses_Of_Polio_Vaccine_Rural` double ,

`TT_Children_12_23_Months_Received_3_Doses_Of_Polio_Vaccine_Urban` double ,

`TT_Children_12_23_Months_Received_3_Doses_Of_Dpt_Vaccine_Total` double ,

`TT_Children_12_23_Months_Received_3_Doses_Of_Dpt_Vaccine_Rural` double ,

`TT_Children_12_23_Months_Received_3_Doses_Of_Dpt_Vaccine_Urban` double ,

`TT_Children_Aged_12_23_Months_Received_Measles_Vaccine_Total` double ,

`TT_Children_Aged_12_23_Months_Received_Measles_Vaccine_Rural` double ,

`TT_Children_Aged_12_23_Months_Received_Measles_Vaccine_Urban` double ,

`TT_Children_Aged_12_23_Months_Fully_Immunized_Total` double ,

`TT_Children_Aged_12_23_Months_Fully_Immunized_Rural` double ,

`TT_Children_Aged_12_23_Months_Fully_Immunized_Urban` double ,

`TT_Children_Who_Have_Received_Polio_Dose_At_Birth_Total` double ,

`TT_Children_Who_Have_Received_Polio_Dose_At_Birth_Rural` double ,

`TT_Children_Who_Have_Received_Polio_Dose_At_Birth_Urban` double ,

`TT_Children_Who_Did_Not_Receive_Any_Vaccination_Total` double ,

`TT_Children_Who_Did_Not_Receive_Any_Vaccination_Rural` double ,

`TT_Children_Who_Did_Not_Receive_Any_Vaccination_Urban` double ,

`TT_Children_6_35_Mon_At_Least_1_Vit_A_Dose_Last_6_Months_Total` double ,

`TT_Children_6_35_Mon_At_Least_1_Vit_A_Dose_Last_6_Months_Rural` double ,

`TT_Children_6_35_Mon_At_Least_1_Vit_A_Dose_Last_6_Months_Urban` double ,

`TT_Children_6_35_Mon_Ifa_Tablets_Syrup_Last_3_Months_Total` double ,

`TT_Children_6_35_Mon_Ifa_Tablets_Syrup_Last_3_Months_Rural` double ,

`TT_Children_6_35_Mon_Ifa_Tablets_Syrup_Last_3_Months_Urban` double ,

`TT_Children_Whose_Birth_Weight_Was_Taken_Total` double ,

`TT_Children_Whose_Birth_Weight_Was_Taken_Rural` double ,

`TT_Children_Whose_Birth_Weight_Was_Taken_Urban` double ,

`TT_Children_With_Birth_Weight_Less_Than_2_5_Kg_Total` double ,

`TT_Children_With_Birth_Weight_Less_Than_2_5_Kg_Rural` double ,

`TT_Children_With_Birth_Weight_Less_Than_2_5_Kg_Urban` double ,

`UU_Children_Suffering_From_Diarrhoea_Total` double ,

`UU_Children_Suffering_From_Diarrhoea_Rural` double ,

`UU_Children_Suffering_From_Diarrhoea_Urban` double ,

`UU_Children_Diarrhoea_Who_Received_Haf_Ors_Ort_Total` double ,

`UU_Children_Diarrhoea_Who_Received_Haf_Ors_Ort_Rural` double ,

`UU_Children_Diarrhoea_Who_Received_Haf_Ors_Ort_Urban` double ,

`UU_Children_Suffering_From_Acute_Respiratory_Infection_Total` double ,

`UU_Children_Suffering_From_Acute_Respiratory_Infection_Rural` double ,

`UU_Children_Suffering_From_Acute_Respiratory_Infection_Urban` double ,

`UU_Children_Acute_Respiratory_Infection_Sought_Treatment_Total` double ,

`UU_Children_Acute_Respiratory_Infection_Sought_Treatment_Rural` double ,

`UU_Children_Acute_Respiratory_Infection_Sought_Treatment_Urban` double ,

`UU_Children_Suffering_From_Fever_Total` double ,

`UU_Children_Suffering_From_Fever_Rural` double ,

`UU_Children_Suffering_From_Fever_Urban` double ,

`UU_Children_Suffering_From_Fever_Who_Sought_Treatment_Total` double ,

`UU_Children_Suffering_From_Fever_Who_Sought_Treatment_Rural` double ,

`UU_Children_Suffering_From_Fever_Who_Sought_Treatment_Urban` double ,

`VV_Children_Breastfed_Within_One_Hour_Of_Birth_Total` double ,

`VV_Children_Breastfed_Within_One_Hour_Of_Birth_Rural` double ,

`VV_Children_Breastfed_Within_One_Hour_Of_Birth_Urban` double ,

`VV_Children_6_35_Mon_Excl_Breastfed_For_At_Least_6_Mon_Total` double ,

`VV_Children_6_35_Mon_Excl_Breastfed_For_At_Least_6_Mon_Rural` double ,

`VV_Children_6_35_Mon_Excl_Breastfed_For_At_Least_6_Mon_Urban` double ,

`VV_Other_Than_Breast_Milk_During_First_6_Months_Water_Total` double ,

`VV_Other_Than_Breast_Milk_During_First_6_Months_Water_Rural` double ,

`VV_Other_Than_Breast_Milk_During_First_6_Months_Water_Urban` double ,

`VV_1st_6_Months_Animal_Formula_Milk_Total` double ,

`VV_1st_6_Months_Animal_Formula_Milk_Rural` double ,

`VV_1st_6_Months_Animal_Formula_Milk_Urban` double ,

`VV_1st_6_Months_Semi_Solid_Mashed_Food_Total` double ,

`VV_1st_6_Months_Semi_Solid_Mashed_Food_Rural` double ,

`VV_1st_6_Months_Semi_Solid_Mashed_Food_Urban` double ,

`VV_1st_6_Months_Solid_Adult_Food_Total` double ,

`VV_1st_6_Months_Solid_Adult_Food_Rural` double ,

`VV_1st_6_Months_Solid_Adult_Food_Urban` double ,

`VV_1st_6_Months_Vegetables_Fruits_Total` double ,

`VV_1st_6_Months_Vegetables_Fruits_Rural` double ,

`VV_1st_6_Months_Vegetables_Fruits_Urban` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Water_Total` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Water_Rural` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Water_Urban` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Animal_Formula_Milk_Total` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Animal_Formula_Milk_Rural` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Animal_Formula_Milk_Urban` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Semi_Solid_Mashed_Food_Total` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Semi_Solid_Mashed_Food_Rural` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Semi_Solid_Mashed_Food_Urban` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Solid_Adult_Food_Total` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Solid_Adult_Food_Rural` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Solid_Adult_Food_Urban` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Vegetables_Fruits_Total` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Vegetables_Fruits_Rural` double ,

`VV_Avg_Month_Other_Than_Breast_Milk_Vegetables_Fruits_Urban` double ,

`WW_Birth_Registered_Total` double ,

`WW_Birth_Registered_Rural` double ,

`WW_Birth_Registered_Urban` double ,

`WW_Children_Registered_And_Received_Birth_Certificate_Total` double ,

`WW_Children_Registered_And_Received_Birth_Certificate_Rural` double ,

`WW_Children_Registered_And_Received_Birth_Certificate_Urban` double ,

`XX_Women_Who_Are_Aware_Of_Hiv_Aids_Total` double ,

`XX_Women_Who_Are_Aware_Of_Hiv_Aids_Rural` double ,

`XX_Women_Who_Are_Aware_Of_Hiv_Aids_Urban` double ,

`XX_Women_Who_Are_Aware_Of_Rti_Sti_Total` double ,

`XX_Women_Who_Are_Aware_Of_Rti_Sti_Rural` double ,

`XX_Women_Who_Are_Aware_Of_Rti_Sti_Urban` double ,

`XX_Women_Who_Are_Aware_Of_Haf_Ors_Ort_Zinc_Total` double ,

`XX_Women_Who_Are_Aware_Of_Haf_Ors_Ort_Zinc_Rural` double ,

`XX_Women_Who_Are_Aware_Of_Haf_Ors_Ort_Zinc_Urban` double ,

`XX_Women_Who_Are_Aware_Of_Danger_Signs_Of_Ari_Pneumonia_Total` double ,

`XX_Women_Who_Are_Aware_Of_Danger_Signs_Of_Ari_Pneumonia_Rural` double ,

`XX_Women_Who_Are_Aware_Of_Danger_Signs_Of_Ari_Pneumonia_Urban` double ,

`YY_Crude_Death_Rate_Cdr_Total_Person` double ,

`YY_Crude_Death_Rate_Cdr_Total_Male` double ,

`YY_Crude_Death_Rate_Cdr_Total_Female` double ,

`YY_Crude_Death_Rate_Cdr_Rural_Person` double ,

`YY_Crude_Death_Rate_Cdr_Rural_Male` double ,

`YY_Crude_Death_Rate_Cdr_Rural_Female` double ,

`YY_Crude_Death_Rate_Cdr_Urban_Person` double ,

`YY_Crude_Death_Rate_Cdr_Urban_Male` double ,

`YY_Crude_Death_Rate_Cdr_Urban_Female` double ,

`YY_Infant_Mortality_Rate_Imr_Total_Person` double ,

`YY_Infant_Mortality_Rate_Imr_Total_Male` double ,

`YY_Infant_Mortality_Rate_Imr_Total_Female` double ,

`YY_Infant_Mortality_Rate_Imr_Rural_Person` double ,

`YY_Infant_Mortality_Rate_Imr_Rural_Male` double ,

`YY_Infant_Mortality_Rate_Imr_Rural_Female` double ,

`YY_Infant_Mortality_Rate_Imr_Urban_Person` double ,

`YY_Infant_Mortality_Rate_Imr_Urban_Male` double ,

`YY_Infant_Mortality_Rate_Imr_Urban_Female` double ,

`YY_Neo_Natal_Mortality_Rate_Total` double ,

`YY_Neo_Natal_Mortality_Rate_Rural` double ,

`YY_Neo_Natal_Mortality_Rate_Urban` double ,

`YY_Post_Neo_Natal_Mortality_Rate_Total` double ,

`YY_Post_Neo_Natal_Mortality_Rate_Rural` double ,

`YY_Post_Neo_Natal_Mortality_Rate_Urban` double ,

`YY_Under_Five_Mortality_Rate_U5MR_Total_Person` double ,

`YY_Under_Five_Mortality_Rate_U5MR_Total_Male` double ,

`YY_Under_Five_Mortality_Rate_U5MR_Total_Female` double ,

`YY_Under_Five_Mortality_Rate_U5MR_Rural_Person` double ,

`YY_Under_Five_Mortality_Rate_U5MR_Rural_Male` double ,

`YY_Under_Five_Mortality_Rate_U5MR_Rural_Female` double ,

`YY_Under_Five_Mortality_Rate_U5MR_Urban_Person` double ,

`YY_Under_Five_Mortality_Rate_U5MR_Urban_Male` double ,

`YY_Under_Five_Mortality_Rate_U5MR_Urban_Female` double ,

`ZZ_Crude_Birth_Rate_Total_Lower_Limit` double ,

`ZZ_Crude_Birth_Rate_Total_Upper_Limit` double ,

`ZZ_Crude_Birth_Rate_Rural_Lower_Limit` double ,

`ZZ_Crude_Birth_Rate_Rural_Upper_Limit` double ,

`ZZ_Crude_Birth_Rate_Urban_Lower_Limit` double ,

`ZZ_Crude_Birth_Rate_Urban_Upper_Limit` double ,

`ZZ_Crude_Death_Rate_Total_Lower_Limit` double ,

`ZZ_Crude_Death_Rate_Total_Upper_Limit` double ,

`ZZ_Crude_Death_Rate_Rural_Lower_Limit` double ,

`ZZ_Crude_Death_Rate_Rural_Upper_Limit` double ,

`ZZ_Crude_Death_Rate_Urban_Lower_Limit` double ,

`ZZ_Crude_Death_Rate_Urban_Upper_Limit` double ,

`ZZ_Infant_Mortality_Rate_Total_Lower_Limit` double ,

`ZZ_Infant_Mortality_Rate_Total_Upper_Limit` double ,

`ZZ_Infant_Mortality_Rate_Rural_Lower_Limit` double ,

`ZZ_Infant_Mortality_Rate_Rural_Upper_Limit` double ,

`ZZ_Infant_Mortality_Rate_Urban_Lower_Limit` double ,

`ZZ_Infant_Mortality_Rate_Urban_Upper_Limit` double ,

`ZZ_Under_Five_Mortality_Rate_U5MR_Total_Lower_Limit` double ,

`ZZ_Under_Five_Mortality_Rate_U5MR_Total_Upper_Limit` double ,

`ZZ_Under_Five_Mortality_Rate_U5MR_Rural_Lower_Limit` double ,

`ZZ_Under_Five_Mortality_Rate_U5MR_Rural_Upper_Limit` double ,

`ZZ_Under_Five_Mortality_Rate_U5MR_Urban_Lower_Limit` double ,

`ZZ_Under_Five_Mortality_Rate_U5MR_Urban_Upper_Limit` double ,

`ZZ_Sex_Ratio_At_Birth_Total_Lower_Limit` double ,

`ZZ_Sex_Ratio_At_Birth_Total_Upper_Limit` double ,

`ZZ_Sex_Ratio_At_Birth_Rural_Lower_Limit` double ,

`ZZ_Sex_Ratio_At_Birth_Rural_Upper_Limit` double ,

`ZZ_Sex_Ratio_At_Birth_Urban_Lower_Limit` double ,

`ZZ_Sex_Ratio_At_Birth_Urban_Upper_Limit` double)

row format delimited fields terminated by ','

stored as TEXTFILE ;

Time taken: 2.307 seconds

Hive> DESCRIBE formatted annual_health_survey_ext ;

The table gets created in this location by default: /user/hive/warehouse/

Note: I did not want to use AWS S3 as external table location thus the external table location shall be the default location(/user/hive/warehourse/)

2. Command to load the ingested data into external table :

load data inpath '/input/data/Key_indicator_districtwise' overwrite into table annual_health_survey_ext;

Logs :

Loading data to table default.annual_health_survey_ext

chgrp: changing ownership of 'hdfs://ip-10-0-0-212.ap-south-1.compute.internal:8020/user/hive/warehouse/annual_health_survey_ext': User does not belong to hive

Table default.annual_health_survey_ext stats: [numFiles=4, totalSize=1009058]

OK

Time taken: 2.581 seconds

3. (i) Query to count the total number of rows [HUE]:

Select count(*) from annual_health_survey_ext ;

Output : 284

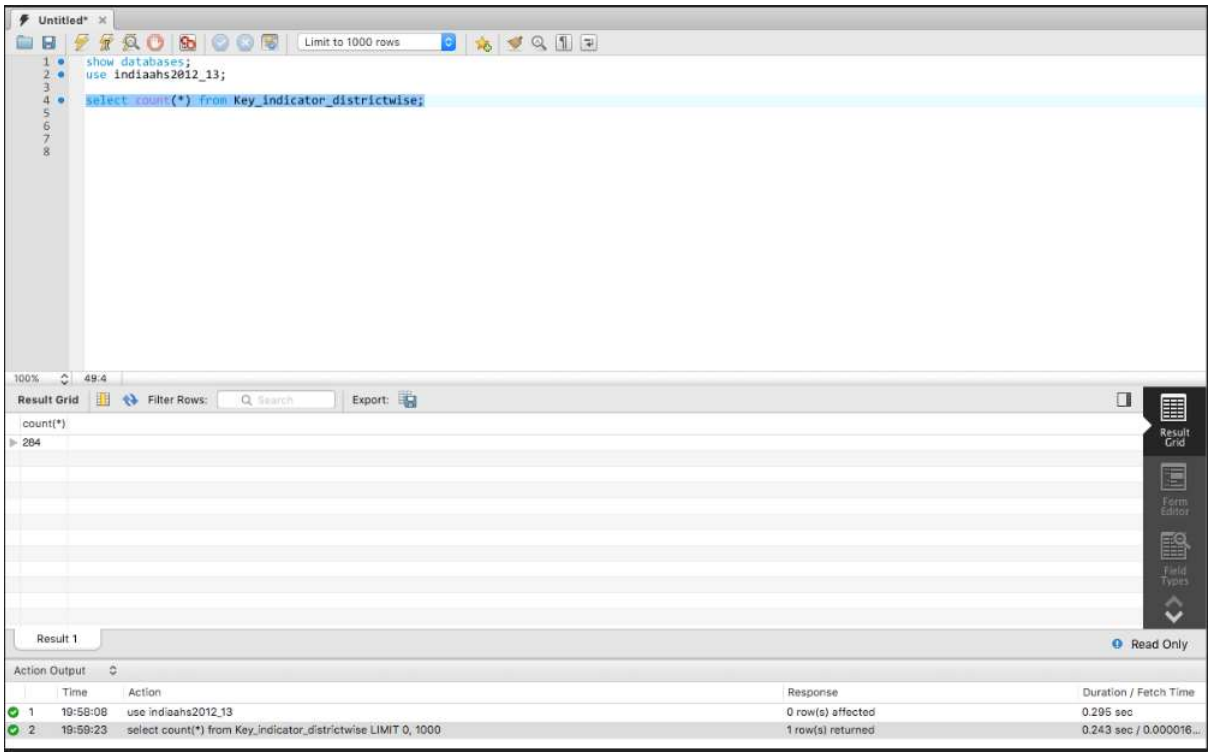
Screenshot:

Query to count the total number of rows [MySQL Workbench]:

select count(*) from Key_indicator_districtwise ;

Output : 284

Screenshot:



(ii) Query to select the top 10 rows and first 8 columns [HUE] :

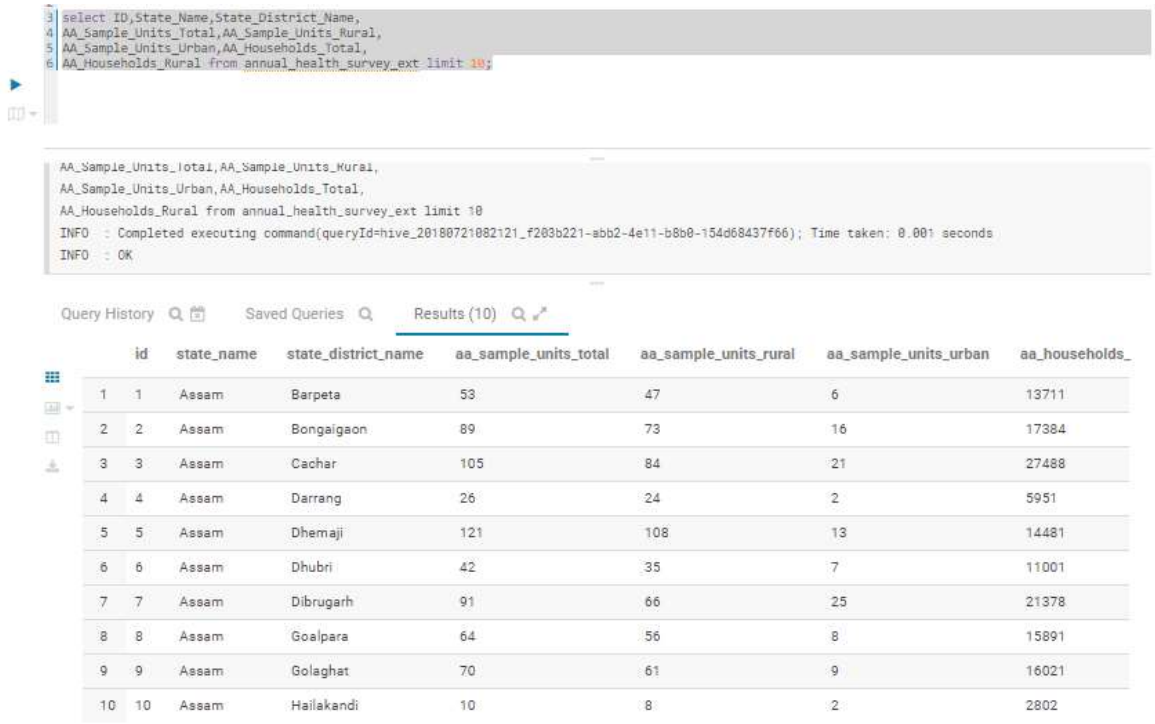
select ID,State_Name,State_District_Name,

AA_Sample_Units_Total,AA_Sample_Units_Rural,

AA_Sample_Units_Urban,AA_Households_Total,

AA_Households_Rural from annual_health_survey_ext limit 10;

Screenshot:



```
select ID,State_Name,State_District_Name,
AA_Sample_Units_Total,AA_Sample_Units_Rural,
AA_Sample_Units_Urban,AA_Households_Total,
AA_Households_Rural from annual_health_survey_ext limit 10;
```

```
AA_Sample_Units_Total,AA_Sample_Units_Rural,
AA_Sample_Units_Urban,AA_Households_Total,
AA_Households_Rural from annual_health_survey_ext limit 10
INFO  : Completed executing command(queryId=hive_20180721082121_f203b221-abb2-4e11-b8b0-154d68437f66); Time taken: 0.001 seconds
INFO  : OK
```

Query History | Saved Queries | Results (10)

	id	state_name	state_district_name	aa_sample_units_total	aa_sample_units_rural	aa_sample_units_urban	aa_households_
1	1	Assam	Barpeta	53	47	6	13711
2	2	Assam	Bongaigaon	89	73	16	17384
3	3	Assam	Cachar	105	84	21	27488
4	4	Assam	Darrang	26	24	2	5951
5	5	Assam	Dhemaji	121	108	13	14481
6	6	Assam	Dhubri	42	35	7	11001
7	7	Assam	Dibrugarh	91	66	25	21378
8	8	Assam	Goalpara	64	56	8	15891
9	9	Assam	Golaghat	70	61	9	16021
10	10	Assam	Hailakandi	10	8	2	2802

Query to select the top 10 rows and first 8 columns [MySQL Workbench] :

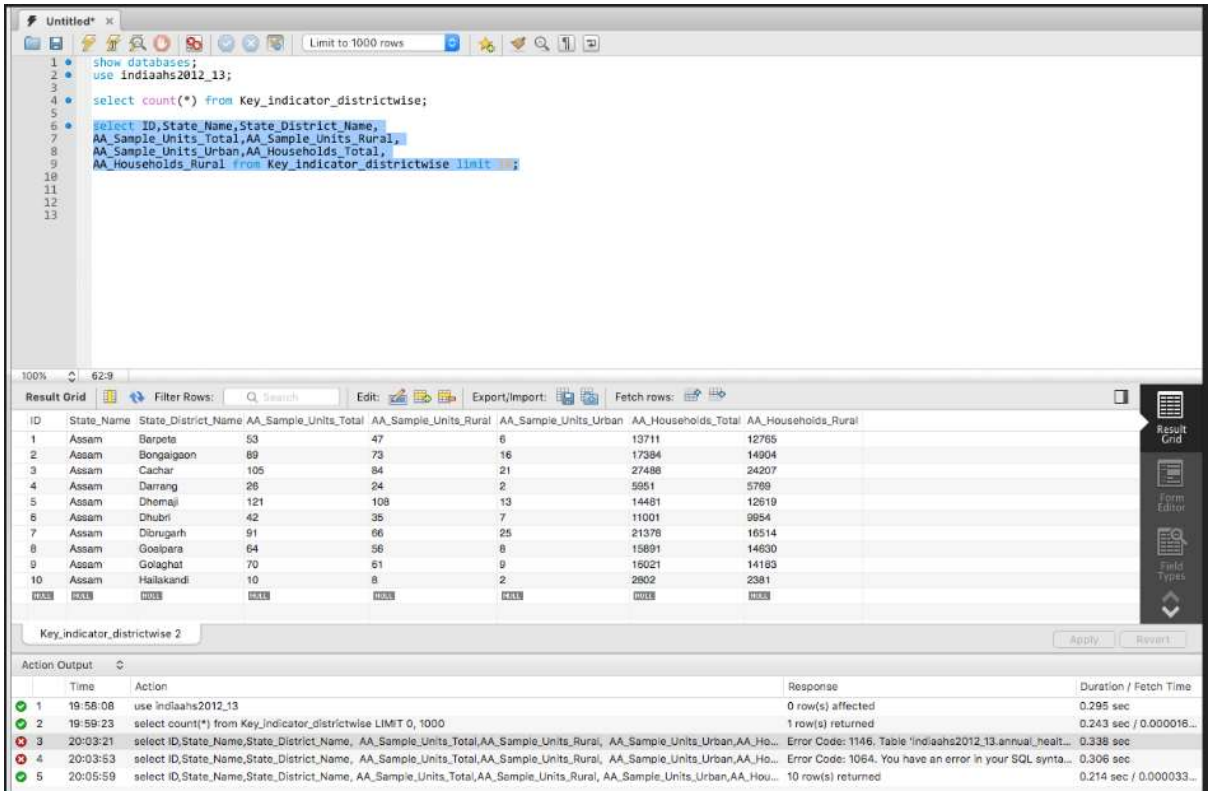
select ID,State_Name,State_District_Name,

AA_Sample_Units_Total,AA_Sample_Units_Rural,

AA_Sample_Units_Urban,AA_Households_Total,

AA_Households_Rural from Key_indicator_districtwise limit 10;

Screenshot:



Subset schema creation in Hive to support the analyses

1. **Columns used in the subset schema**: State_Name, State_District_Name, YY_Under_Five_Mortality_Rate_U5MR_Total_Person, LL_Total_Fertility_Rate_Total, AA_Population_Total, AA_Households_Total, CC_Sex_Ratio_All_Ages_Total

2. **Storage format used** : ORC [Benchmarking against 2 types : default and ORC]

Runtimes of Queries on both tables		
Query	Tablename = ahs_table1_default	Tablename = ahs_table2_orc
select count(*) from <Tablename>	80.763 seconds	66.925 seconds
select State_Name, count(*) from <Table Name> group by State_Name;	55.562 seconds	54.754 seconds
select * from <Table Name> where State_Name = 'Uttar Pradesh'	41.883 seconds	39.086 seconds

3. **Create and insert command for the default format** :

Create Command:

```
create external table ahs_table1_default(
`State_Name` string,
`State_District_Name` string,
`AA_Population_Total` double,
`AA_Households_Total` double,
`CC_Sex_Ratio_All_Ages_Total` double,
`LL_Total_Fertility_Rate_Total` double,
`YY_Under_Five_Mortality_Rate_U5MR_Total_Person` double
)
row format delimited fields terminated by ',';
```

Time taken: 4.343 seconds

The table gets created in below location by default: /user/hive/warehouse/

Insert Command:

```
INSERT OVERWRITE TABLE ahs_table1_default SELECT
State_Name,State_District_Name,AA_Population_Total,AA_Households_Total,CC_Sex_Ratio_All_Ages_Total,LL_Total_Fertility_Rate_Total,YY_Under_Five_Mortality_Rate_U5MR_Total_Person FROM annual_health_survey_ext ;
```

Time taken: 20.058 seconds

4. Create and insert command for the formats such as ORC :

Create Command:

```
create external table ahs_table2_orc(
`State_Name` string,
`State_District_Name` string,
`AA_Population_Total` double,
`AA_Households_Total` double,
`CC_Sex_Ratio_All_Ages_Total` double,
`LL_Total_Fertility_Rate_Total` double,
`YY_Under_Five_Mortality_Rate_U5MR_Total_Person` double
```

)

row format delimited fields terminated by ','

STORED AS ORC tblproperties ("orc.compress"="ZLIB");

Time taken: 1.765 seconds

The table gets created in below location by default: /user/hive/warehouse/

The compression type could be ZLIB / SNAPPY here. I wanted to choose ZLIB.

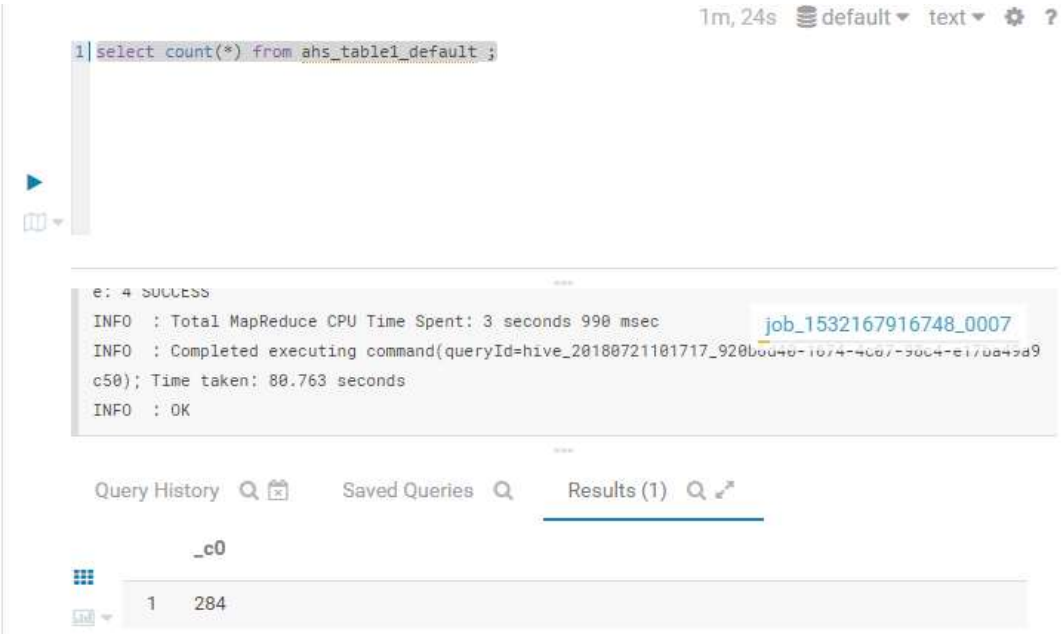
Insert Command:

INSERT OVERWRITE TABLE ahs_table2_orc SELECT State_Name,State_District_Name,AA_Population_Total,AA_Households_Total,CC_Sex_Ratio_All_Ages_Total,LL_Total_Fertility_Rate_Total,YY_Under_Five_Mortality_Rate_U5MR_Total_Person FROM annual_health_survey_ext ;

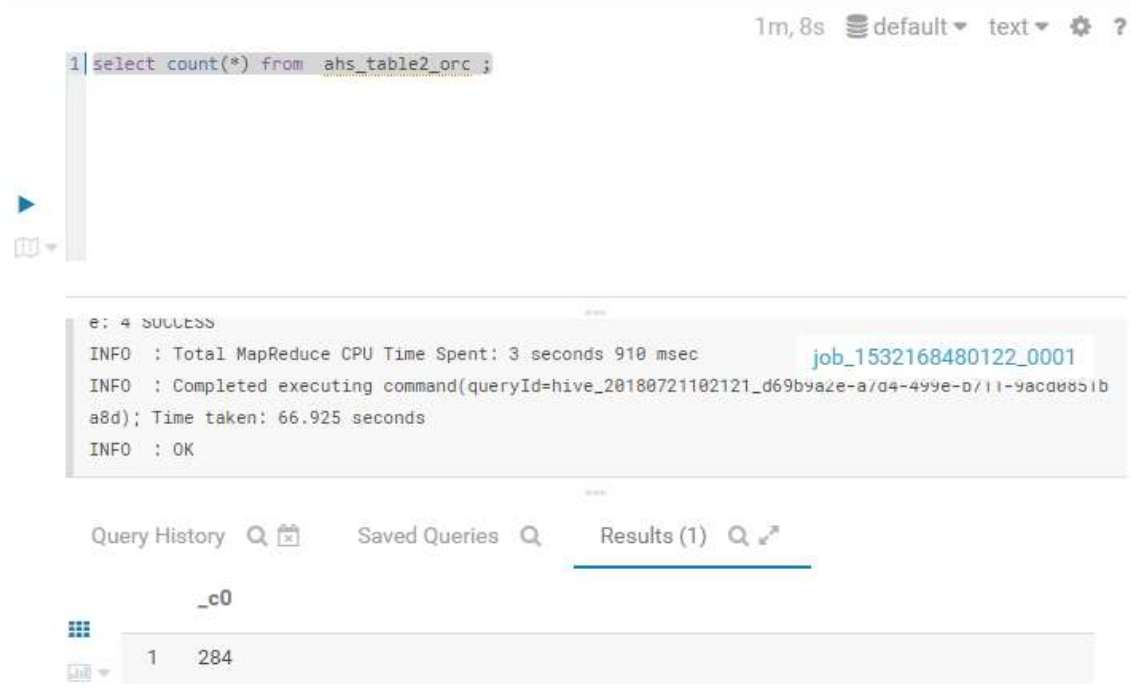
Time taken: 17.226 seconds

5. **Screenshot of runtimes against each query given above for the default format as well as for the formats such as ORC** :

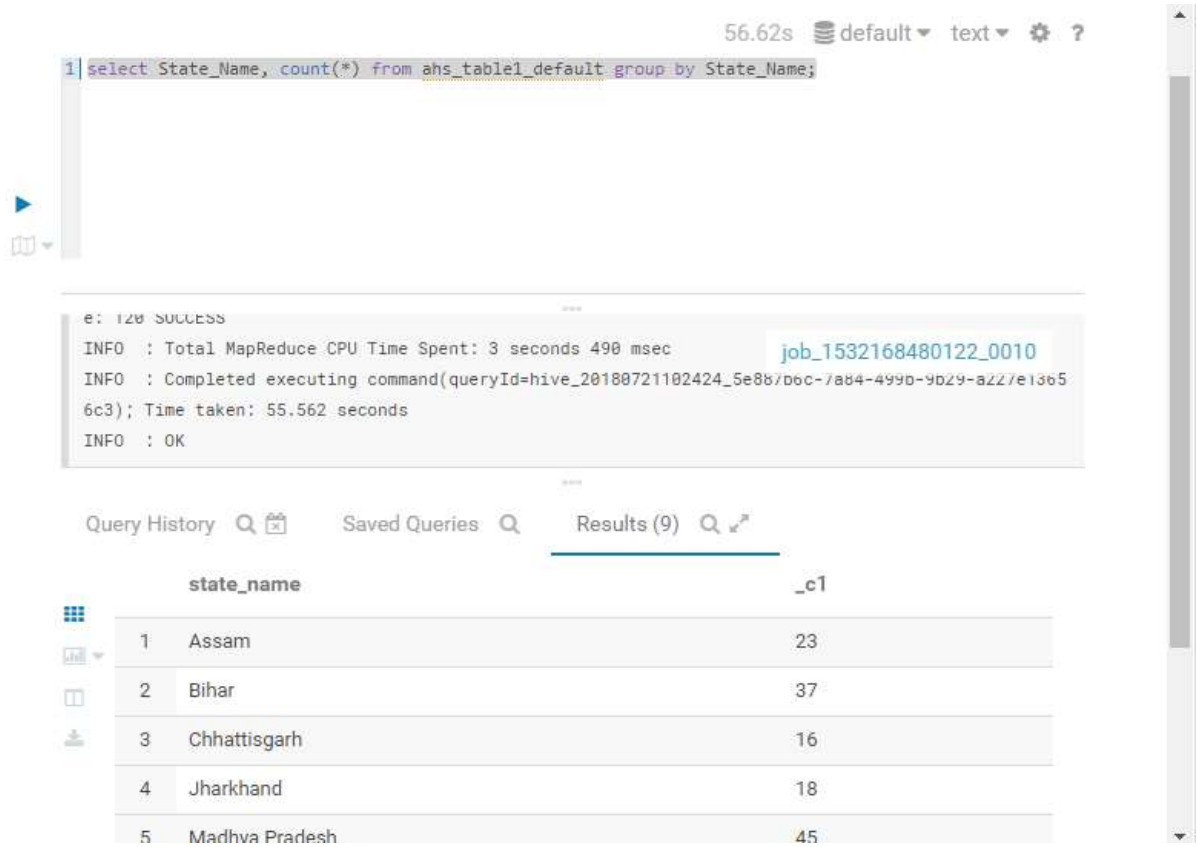
select count(*) from ahs_table1_default;



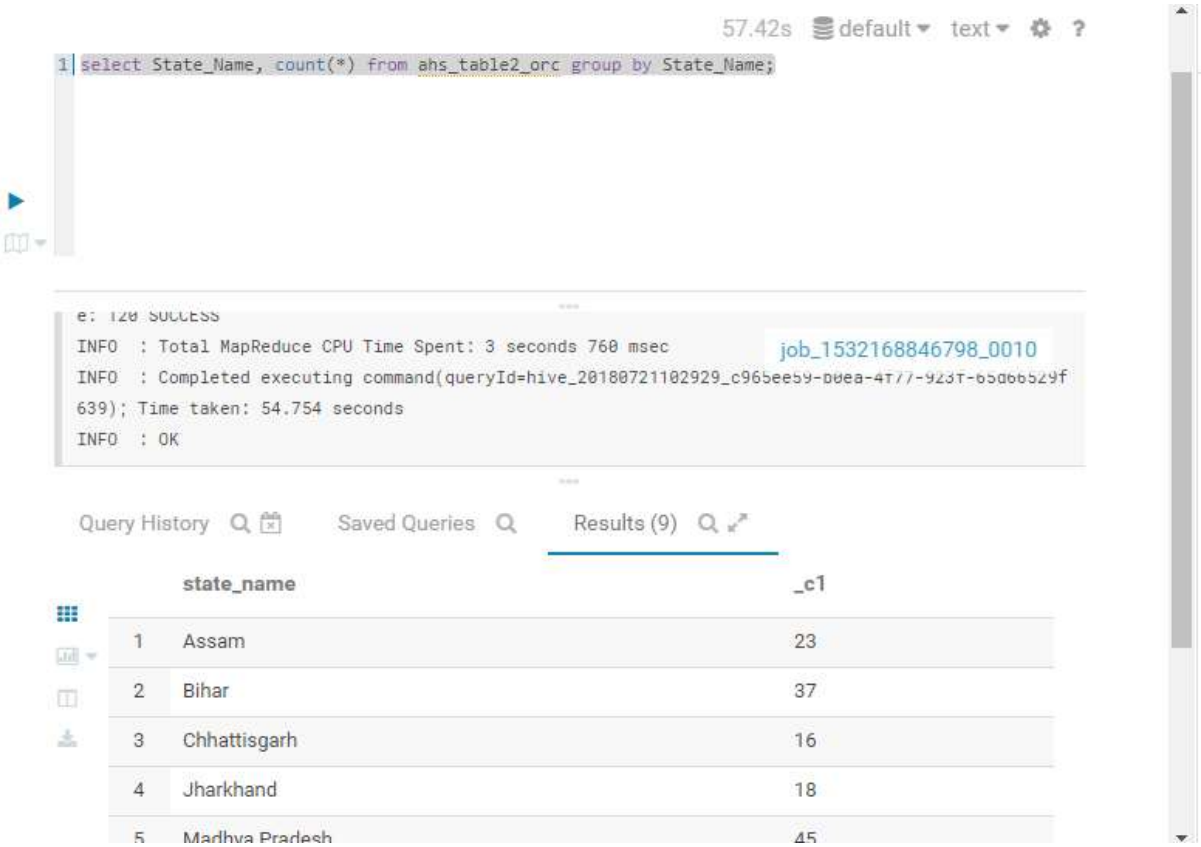
select count(*) from ahs_table2_orc;



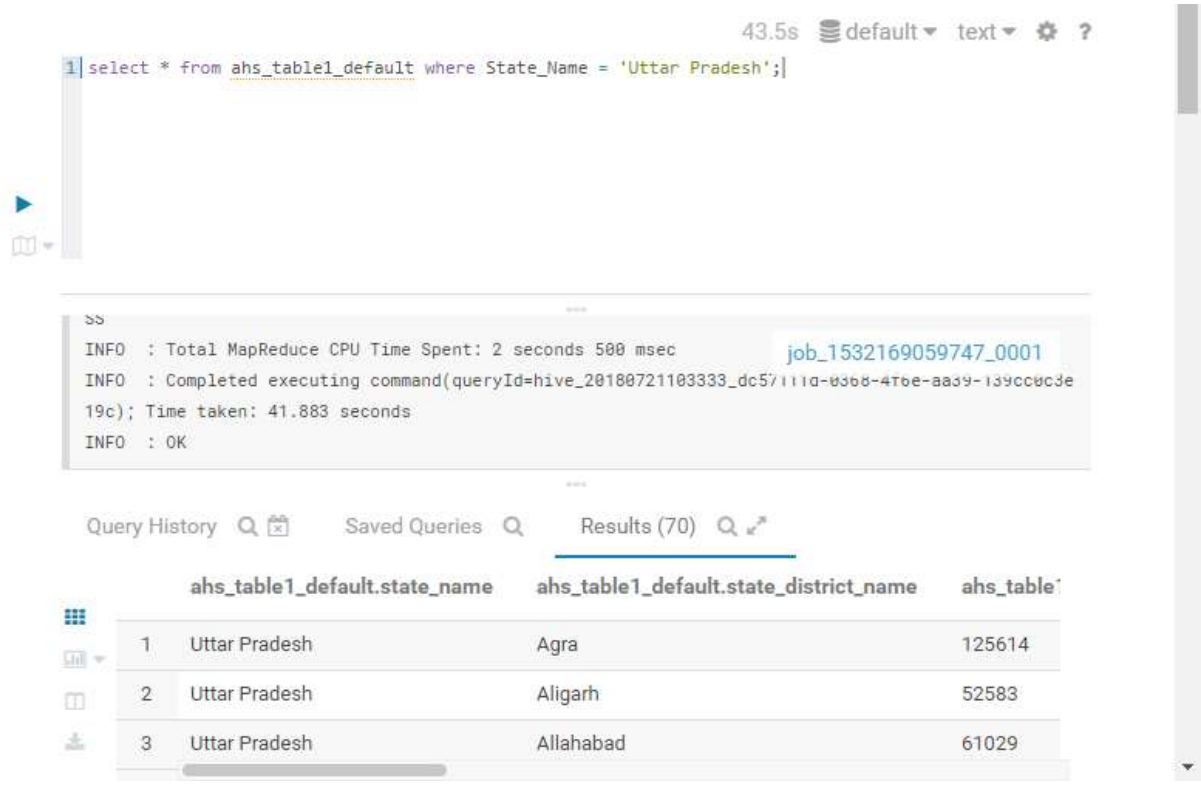
select State_Name, count(*) from ahs_table1_default group by State_Name;



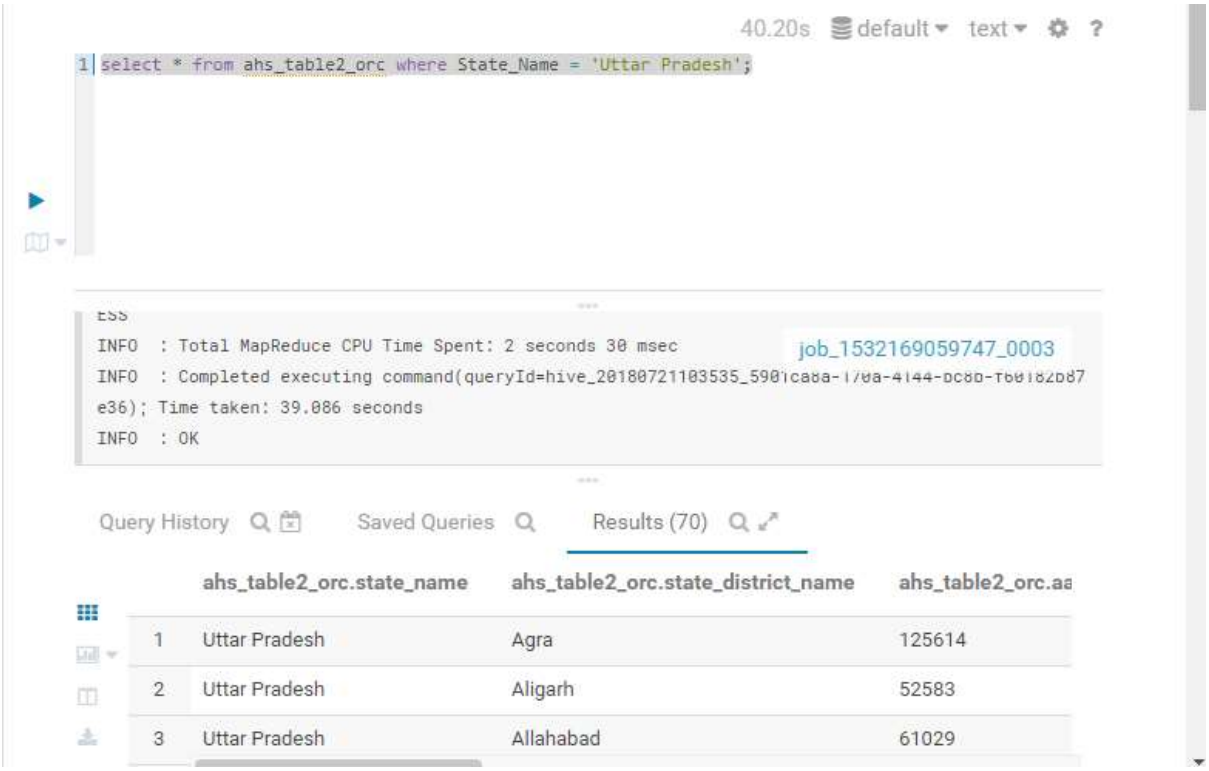
select State_Name, count(*) from ahs_table2_orc group by State_Name;



select * from ahs_table1_default where State_Name = ‘Uttar Pradesh’;



select * from ahs_table2_orc where State_Name = 'Uttar Pradesh';



6. **Create and insert command for the partition table for analyses 1 & 2. The partition table should be created using the table created above.**

   ⇨ **Creating a partition table with default format and inserting data into it using the default format table 'ahs_table1_default' created above in Question 3.**

set hive.exec.dynamic.partition =true;
set hive.exec.dynamic.partition.mode=nonstrict;

drop table if exists ahs_part1_default ;
Time taken: 0.029 seconds

Create Command:

```
create external table ahs_part1_default(
`LL_Total_Fertility_Rate_Total` double,
`YY_Under_Five_Mortality_Rate_U5MR_Total_Person` double
)
PARTITIONED BY (`State_Name` string)
row format delimited fields terminated by ',';
```

Time taken: 1.108 seconds

Insert Command:

INSERT OVERWRITE TABLE ahs_part1_default partition(State_Name) SELECT LL_Total_Fertility_Rate_Total, YY_Under_Five_Mortality_Rate_U5MR_Total_Person ,State_Name FROM ahs_table1_default ;

Time taken: 62.595 seconds

⇨ **Creating a partition table with ORC format and inserting data into it using the ORC format table 'ahs_table2_orc' created above in Question 4.**

drop table if exists ahs_part2_orc ;

Time taken: 0.057 seconds

Create Command:

create external table ahs_part2_orc(

`LL_Total_Fertility_Rate_Total` double,

`YY_Under_Five_Mortality_Rate_U5MR_Total_Person` double

)

PARTITIONED BY (`State_Name` string)

row format delimited fields terminated by ','

STORED AS ORC tblproperties ("orc.compress"="SNAPPY");

Time taken: 0.429 seconds

Insert Command:

INSERT OVERWRITE TABLE ahs_part2_orc partition(State_Name) SELECT LL_Total_Fertility_Rate_Total, YY_Under_Five_Mortality_Rate_U5MR_Total_Person ,State_Name FROM ahs_table2_orc ;

Time taken: 57.427 seconds

Analsyis:

1. **State wise child mortality rate**
   (Using the ORC partition table for optimization)
   Query:

   select State_name , AVG(YY_Under_Five_Mortality_Rate_U5MR_Total_Person) as Child_Mortality_Rate from ahs_part2_orc GROUP By State_name;

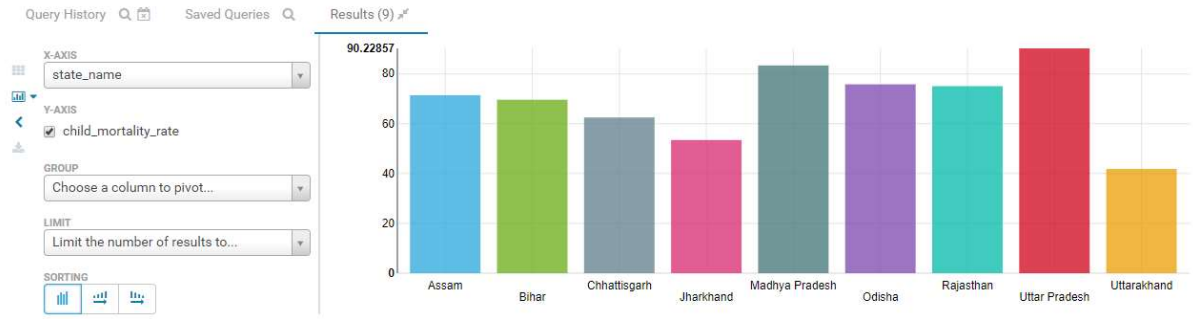
Time Taken: 55.726 seconds

Screenshot of the result:

Query History | Saved Queries | Results (9)

	state_name	child_mortality_rate
1	Assam	71.43478260869566
2	Bihar	69.62162162162163
3	Chhattisgarh	62.5
4	Jharkhand	53.44444444444444
5	Madhya Pradesh	83.37777777777778
6	Odisha	75.8
7	Rajasthan	75.0625
8	Uttar Pradesh	90.22857142857143
9	Uttarakhand	41.84615384615385

Chart:



2. State wise fertility rate

(Using the ORC partition table for optimization)

Query

```
select State_name , AVG(LL_Total_Fertility_Rate_Total) as Fertility_Rate
from ahs_part2_orc GROUP By State_name;
```

Time Taken: 54.127 seconds

Screenshot of the result

Results (9)

	state_name	fertility_rate
1	Assam	2.4
2	Bihar	3.532432432432432
3	Chhattisgarh	2.70125
4	Jharkhand	2.894444444444445
5	Madhya Pradesh	3.031111111111111
6	Odisha	2.28
7	Rajasthan	3.028125
8	Uttar Pradesh	3.3978571428571427
9	Uttarakhand	2.022307692307692

Chart :

3. Does high fertility correlate with high child mortality?

(Using the ORC partition table for optimization)

Query

select State_Name , AVG(LL_Total_Fertility_Rate_Total) as FertilityRate,
AVG(YY_Under_Five_Mortality_Rate_U5MR_Total_Person) as ChildMortalityRate
from ahs_part2_orc GROUP BY State_Name;

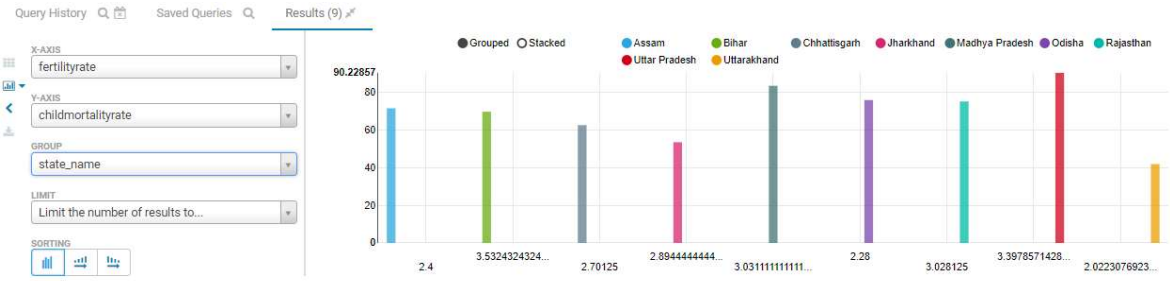
Time Taken: 55.372 seconds

Screenshot of the result

Query History | Saved Queries | Results (9)

	state_name	fertilityrate	childmortalityrate
1	Assam	2.4	71.43478260869566
2	Bihar	3.532432432432432	69.62162162162163
3	Chhattisgarh	2.70125	62.5
4	Jharkhand	2.894444444444445	53.44444444444444
5	Madhya Pradesh	3.031111111111111	83.37777777777778
6	Odisha	2.28	75.8
7	Rajasthan	3.028125	75.0625
8	Uttar Pradesh	3.3978571428571427	90.22857142857143
9	Uttarakhand	2.022307692307692	41.84615384615385

Chart



Q. Does high fertility correlate with high child mortality?

Ans. To deduce this from our query , we export the query results to excel and calculate the CORRELATION COEFFICIENT using the CORREL function. This gives us a result like below:

	A	B	C	D	E	F
1	state_name	fertilityrate	childmortalityrate			
2	Assam	2.40	71.43			
3	Bihar	3.53	69.62		**Correlation Coefficient using CORREL function:**	**0.56**
4	Chhattisgarh	2.70	62.50			
5	Jharkhand	2.89	53.44			
6	Madhya Pradesh	3.03	83.38			
7	Odisha	2.28	75.80			
8	Rajasthan	3.03	75.06			
9	Uttar Pradesh	3.40	90.23			
10	Uttarakhand	2.02	41.85			
11						
12						

This results in a positive correlation, when the correlation coefficient (r) is greater than 0, signifies that both variables move in the same direction or are correlated. **Positive correlation indicates that both variables increase or decrease together**, although they might not be directly impacting each other.

4. Find top 2 districts per state with the highest population per household

(Using the ORC table which was created for optimization)

Query :

```
select * from (
select *, rank() OVER (PARTITION BY State_Name order by
population_per_household desc) rank from (
Select
State_Name,State_District_Name,AA_Population_Total/AA_Households_Total
as population_per_household
from ahs_table2_orc
) a group by State_Name,State_District_Name,population_per_household
) b where rank<=2 ;
```

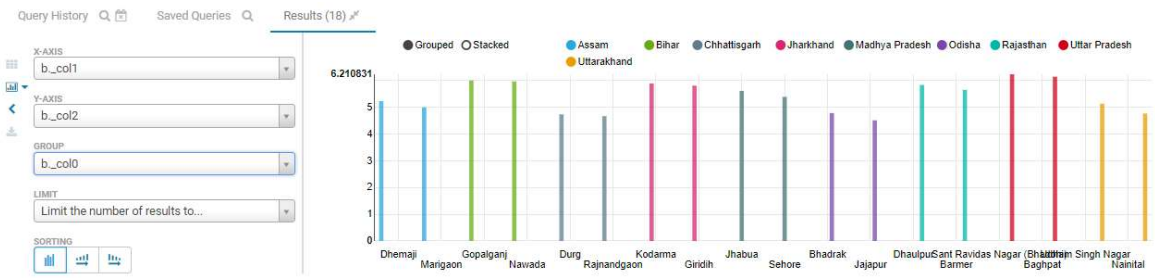
Time taken: 110.102 seconds

Screenshot of the result

Results (18)

	b._col0	b._col1	b._col2	b.rank
1	Assam	Dhemaji	5.2103445894620535	1
2	Assam	Marigaon	4.978445126406547	2
3	Bihar	Gopalganj	5.979195301761839	1
4	Bihar	Nawada	5.944978455419291	2
5	Chhattisgarh	Durg	4.716408016844732	1
6	Chhattisgarh	Rajnandgaon	4.651162790697675	2
7	Jharkhand	Kodarma	5.868167462952465	1
8	Jharkhand	Giridih	5.787106964805766	2
9	Madhya Pradesh	Jhabua	5.5903925014645575	1
10	Madhya Pradesh	Sehore	5.366774132372464	2
11	Odisha	Bhadrak	4.765950743055191	1
12	Odisha	Jajapur	4.494145867839397	2
13	Rajasthan	Dhaulpur	5.810972222222222	1
14	Rajasthan	Barmer	5.629192111322455	2
15	Uttar Pradesh	Sant Ravidas Nagar (Bhadohi)	6.210831290394473	1
16	Uttar Pradesh	Baghpat	6.11956799591002	2
17	Uttarakhand	Udham Singh Nagar	5.1164532900989546	1
18	Uttarakhand	Nainital	4.748913659550349	2

Chart



5. Find top 2 districts per state with the lowest sex ratios

(Using the ORC table which was created for optimization)

Query:

```
select * from (
select *, rank() OVER (PARTITION BY State_Name order by
CC_Sex_Ratio_All_Ages_Total ASC) rank from (
Select State_Name,State_District_Name,CC_Sex_Ratio_All_Ages_Total from
ahs_table2_orc
) a group by State_Name,State_District_Name,CC_Sex_Ratio_All_Ages_Total
) b where rank<=2;
```

Time taken : 98 seconds

Screenshot of the result:

Query History Saved Queries Results (18)

	b._col0	b._col1	b._col2	b.rank
1	Assam	Kamrup	925	1
2	Assam	North Cachar Hills	941	2
3	Bihar	Pashchim Champaran	894	1
4	Bihar	Khagaria	900	2
5	Chhattisgarh	Koriya	937.3	1
6	Chhattisgarh	Bilaspur	948.43	2
7	Jharkhand	Dhanbad	913	1
8	Jharkhand	Bokaro	917	2
9	Madhya Pradesh	Morena	833.13	1
10	Madhya Pradesh	Datia	852.12	2
11	Odisha	Sonapur	941	1
12	Odisha	Jharsuguda	944	2
13	Rajasthan	Karauli	837	1
14	Rajasthan	Dhaulpur	838	2
15	Uttar Pradesh	Gautam Buddha Nagar	836.82	1
16	Uttar Pradesh	Shahjahanpur	853.67	2
17	Uttarakhand	Haridwar	884.93	1
18	Uttarakhand	Udham Singh Nagar	914.31	2

Chart :