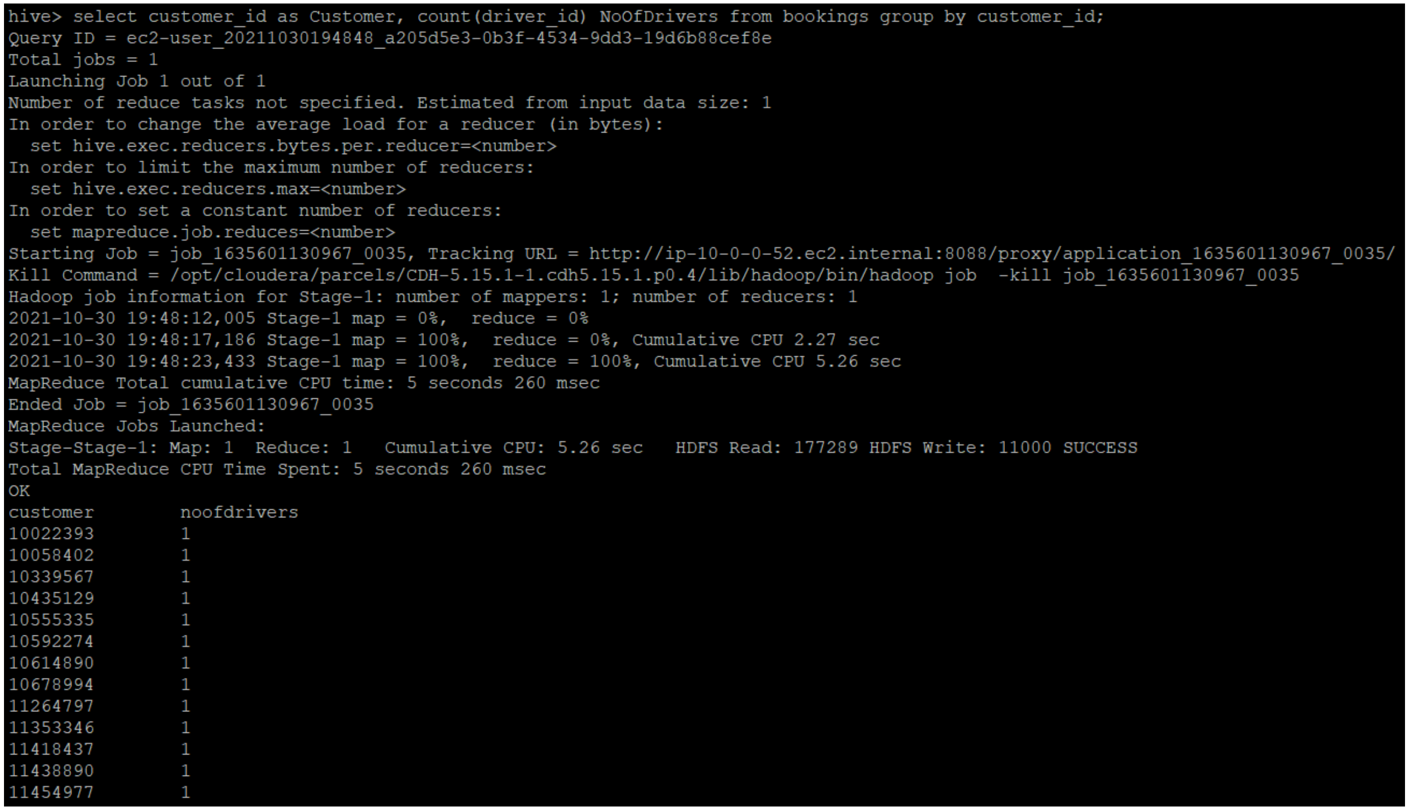
Logic For Final Submission

Tables present in the hive database ‘cab_ride_analysis’ are **aggBookings**, **bookings** and **clickstreamdata**.

Task 5: Calculate the total number of different drivers for each customer.

Query: *select customer_id as Customer, count(driver_id) NoOfDrivers from bookings group by customer_id;*

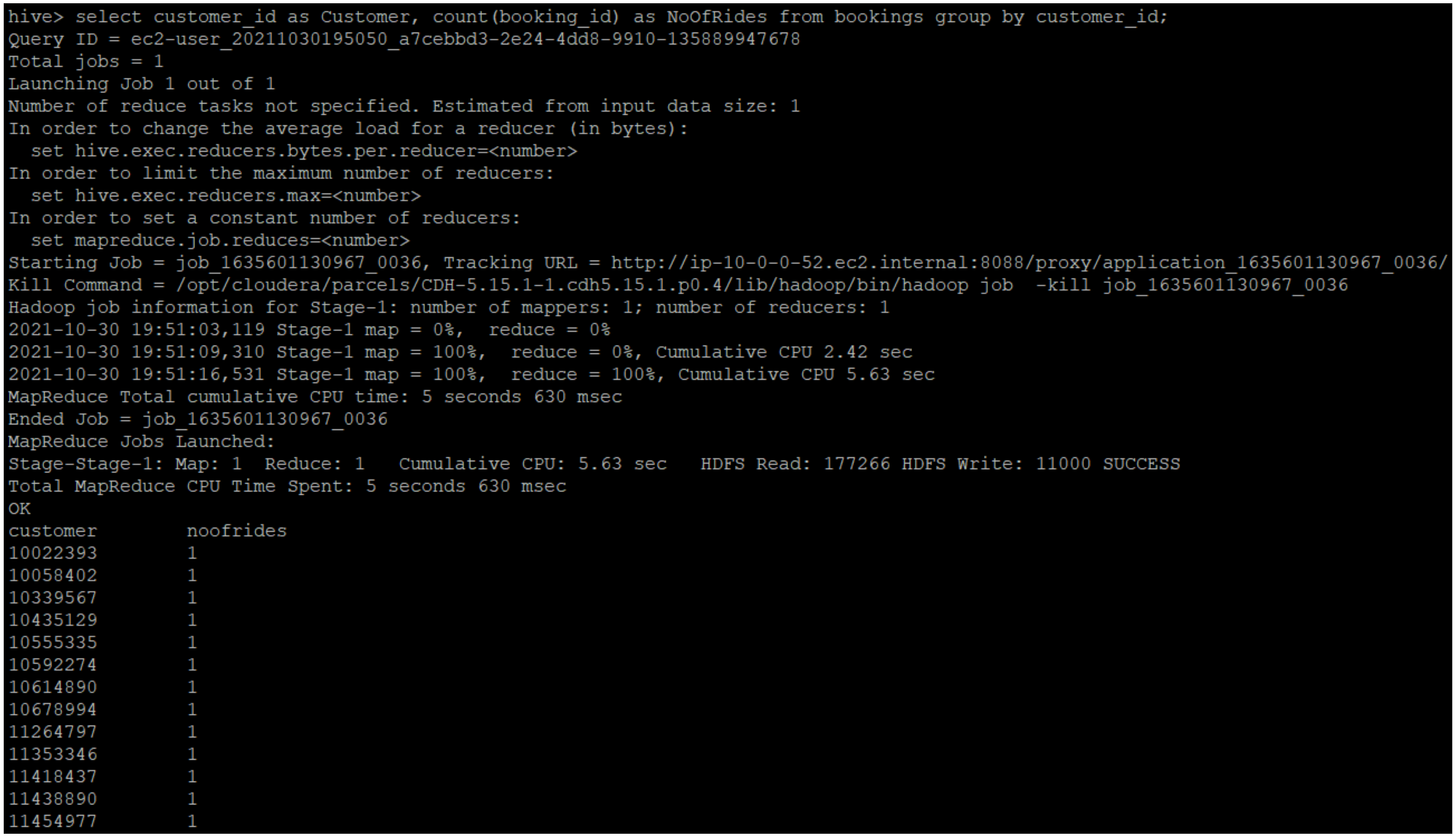


```
hive> select customer_id as Customer, count(driver_id) NoOfDrivers from bookings group by customer_id;
Query ID = ec2-user_20211030194848_a205d5e3-0b3f-4534-9dd3-19d6b88cef8e
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1635601130967_0035, Tracking URL = http://ip-10-0-0-52.ec2.internal:8088/proxy/application_1635601130967_0035/
Kill Command = /opt/cloudera/parcels/CDH-5.15.1-1.cdh5.15.1.p0.4/lib/hadoop/bin/hadoop job  -kill job_1635601130967_0035
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2021-10-30 19:48:12,005 Stage-1 map = 0%,  reduce = 0%
2021-10-30 19:48:17,186 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.27 sec
2021-10-30 19:48:23,433 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 5.26 sec
MapReduce Total cumulative CPU time: 5 seconds 260 msec
Ended Job = job_1635601130967_0035
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 5.26 sec   HDFS Read: 177289 HDFS Write: 11000 SUCCESS
Total MapReduce CPU Time Spent: 5 seconds 260 msec
OK
customer        noofdrivers
10022393        1
10058402        1
10339567        1
10435129        1
10555335        1
10592274        1
10614890        1
10678994        1
11264797        1
11353346        1
11418437        1
11438890        1
11454977        1
```

Explanation: The number of drives for each customer can be found out by grouping the customer_id and counting the number of drives for unique customer_id.

Task 6: Calculate the total rides taken by each customer.

Query: *select customer_id as Customer, count(booking_id) as NoOfRides from bookings group by customer_id;*

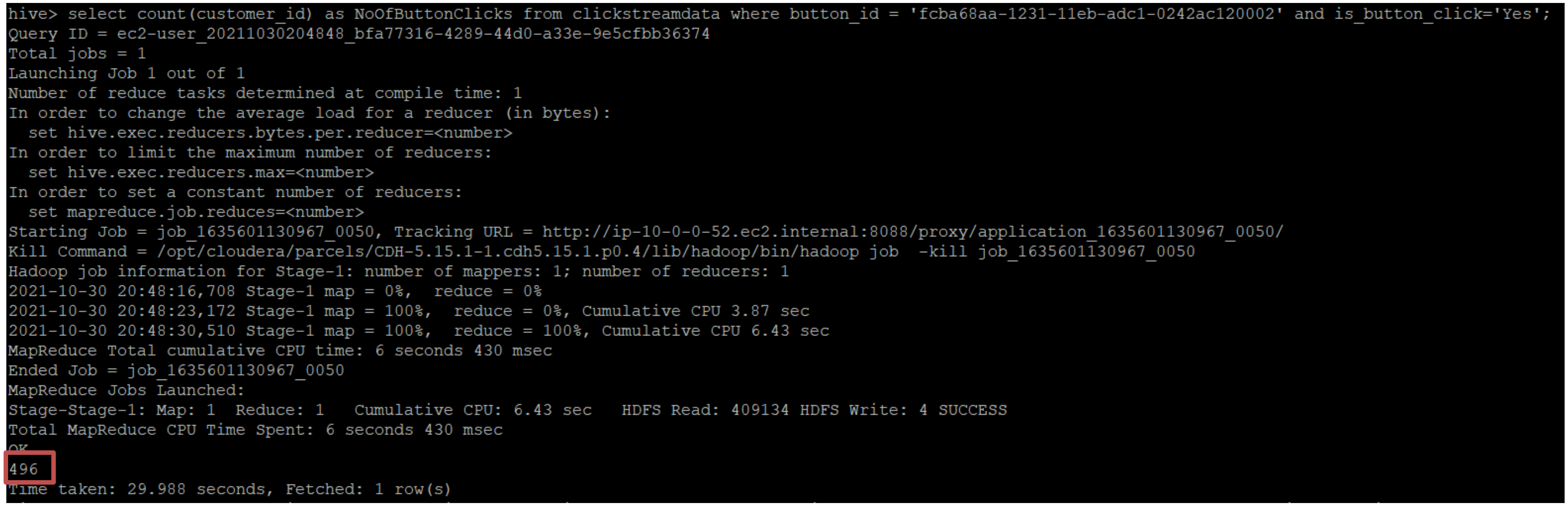


```
hive> select customer_id as Customer, count(booking_id) as NoOfRides from bookings group by customer_id;
Query ID = ec2-user_20211030195050_a7cebbd3-2e24-4dd8-9910-135889947678
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1635601130967_0036, Tracking URL = http://ip-10-0-0-52.ec2.internal:8088/proxy/application_1635601130967_0036/
Kill Command = /opt/cloudera/parcels/CDH-5.15.1-1.cdh5.15.1.p0.4/lib/hadoop/bin/hadoop job  -kill job_1635601130967_0036
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2021-10-30 19:51:03,119 Stage-1 map = 0%,  reduce = 0%
2021-10-30 19:51:09,310 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.42 sec
2021-10-30 19:51:16,531 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 5.63 sec
MapReduce Total cumulative CPU time: 5 seconds 630 msec
Ended Job = job_1635601130967_0036
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 5.63 sec   HDFS Read: 177266 HDFS Write: 11000 SUCCESS
Total MapReduce CPU Time Spent: 5 seconds 630 msec
OK
customer        noofrides
10022393        1
10058402        1
10339567        1
10435129        1
10555335        1
10592274        1
10614890        1
10678994        1
11264797        1
11353346        1
11418437        1
11438890        1
11454977        1
```

Explanation: The total rides taken by each customer can be found out by grouping the customer_id and couting the booking_ids for each user which essentials gives the number of rides taken by each customer.

Task 7: Find the total visits made by each customer on the booking page and the total ‘Book Now’ button presses. This can show the conversion ratio. The booking page id is ‘**e7bc5fb2-1231-11eb-adc1-0242ac120002**’. The Book Now button id is ‘**fcba68aa-1231-11eb-adc1-0242ac120002’**. You also need to calculate the conversion ratio as part of this task.

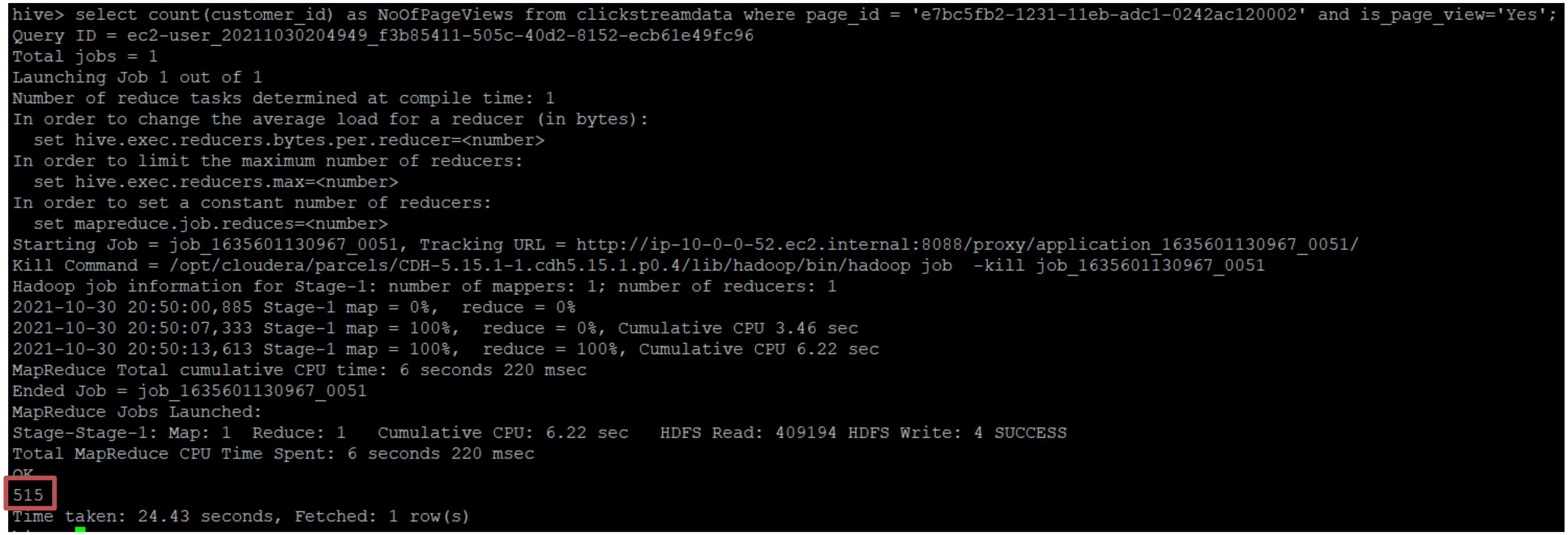
Query 1: *select count(customer_id) as NoOfButtonClicks from clickstreamdata where button_id = 'fcba68aa-1231-11eb-adc1-0242ac120002' and is_button_click='Yes';*



```
hive> select count(customer_id) as NoOfButtonClicks from clickstreamdata where button_id = 'fcba68aa-1231-11eb-adc1-0242ac120002' and is_button_click='Yes';
Query ID = ec2-user_20211030204848_bfa77316-4289-44d0-a33e-9e5cfbb36374
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1635601130967_0050, Tracking URL = http://ip-10-0-0-52.ec2.internal:8088/proxy/application_1635601130967_0050/
Kill Command = /opt/cloudera/parcels/CDH-5.15.1-1.cdh5.15.1.p0.4/lib/hadoop/bin/hadoop job  -kill job_1635601130967_0050
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2021-10-30 20:48:16,708 Stage-1 map = 0%,  reduce = 0%
2021-10-30 20:48:23,172 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 3.87 sec
2021-10-30 20:48:30,510 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 6.43 sec
MapReduce Total cumulative CPU time: 6 seconds 430 msec
Ended Job = job_1635601130967_0050
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 6.43 sec   HDFS Read: 409134 HDFS Write: 4 SUCCESS
Total MapReduce CPU Time Spent: 6 seconds 430 msec
OK
496
Time taken: 29.988 seconds, Fetched: 1 row(s)
```

Task 7. Cont.

Query 2: *select count(customer_id) as NoOfPageViews from clickstreamdata where page_id = 'e7bc5fb2-1231-11eb-adc1-0242ac120002' and is_page_view='Yes';*



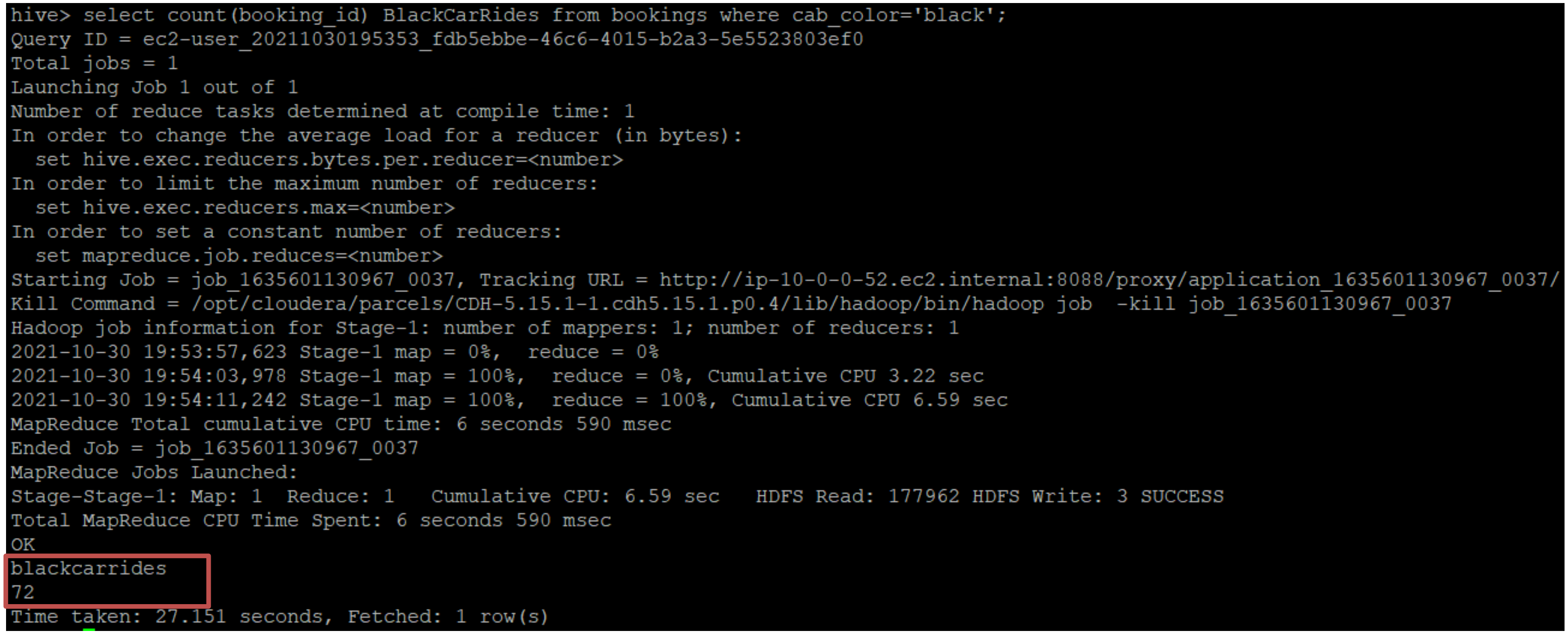
```
hive> select count(customer_id) as NoOfPageViews from clickstreamdata where page_id = 'e7bc5fb2-1231-11eb-adc1-0242ac120002' and is_page_view='Yes';
Query ID = ec2-user_20211030204949_f3b85411-505c-40d2-8152-ecb61e49fc96
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1635601130967_0051, Tracking URL = http://ip-10-0-0-52.ec2.internal:8088/proxy/application_1635601130967_0051/
Kill Command = /opt/cloudera/parcels/CDH-5.15.1-1.cdh5.15.1.p0.4/lib/hadoop/bin/hadoop job  -kill job_1635601130967_0051
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2021-10-30 20:50:00,885 Stage-1 map = 0%,  reduce = 0%
2021-10-30 20:50:07,333 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 3.46 sec
2021-10-30 20:50:13,613 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 6.22 sec
MapReduce Total cumulative CPU time: 6 seconds 220 msec
Ended Job = job_1635601130967_0051
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 6.22 sec   HDFS Read: 409194 HDFS Write: 4 SUCCESS
Total MapReduce CPU Time Spent: 6 seconds 220 msec
OK
515
Time taken: 24.43 seconds, Fetched: 1 row(s)
```

Explanation: The Conversion Ratio is essentially the number of customers who has visited the booking page and how many of them have actually clicked on the button "Book Now" and hence booked the cab. The number of customers who have clicked the "Book Now" button can be found out by counting the customer_id where the button_id of "Book Now" was clicked on and the page_id of booking page which was viewed by the customer

Conversion Ratio: Total 'Book Now' Button Press/Total Visits made by customer on the booking page.
496/515 = **0.9631. Therefor the Conversion Ratio of people booking a ride is 96.31%.**

Task 8: Calculate the count of all trips done on black cabs.

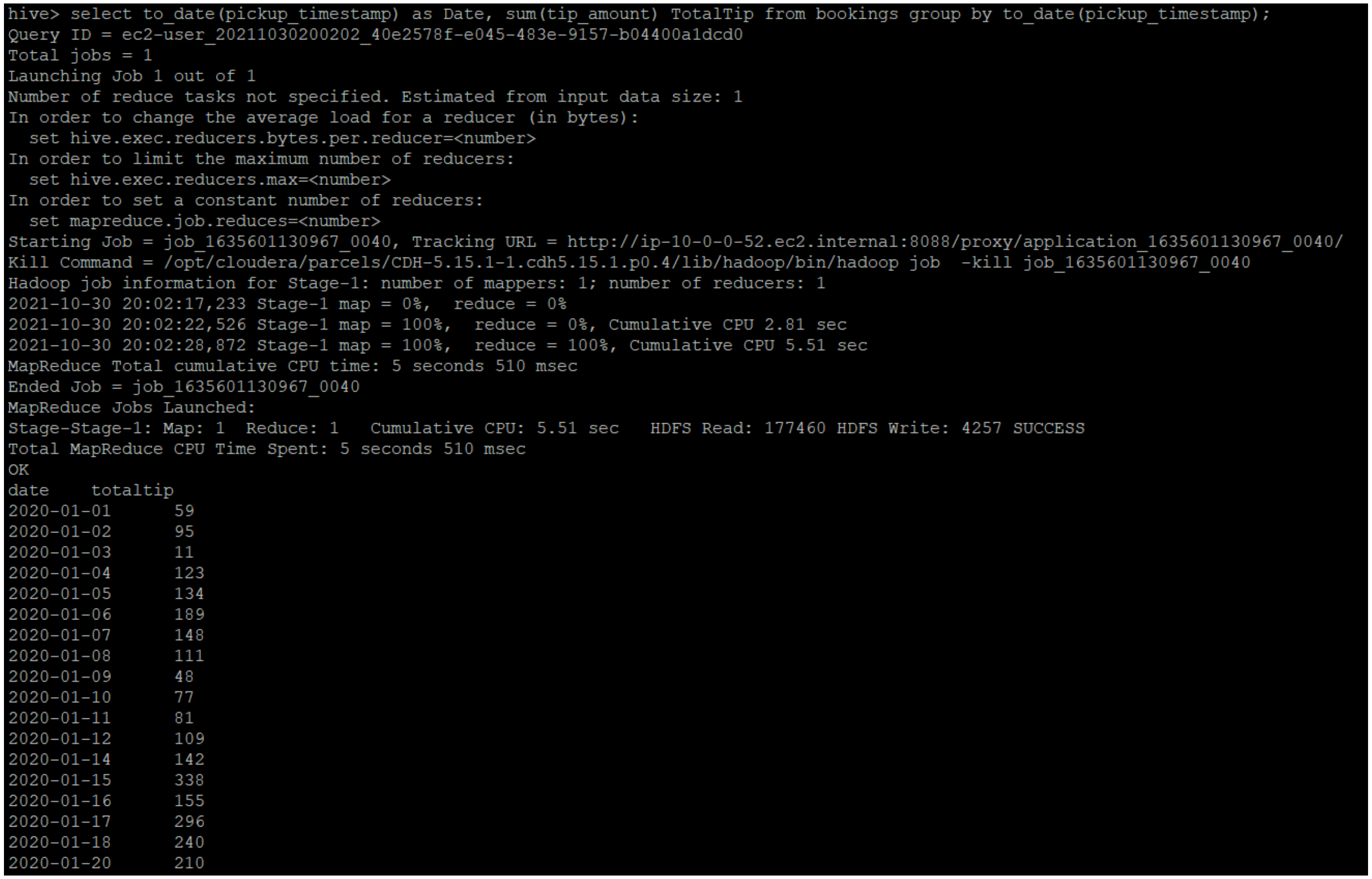
Query: *select count(booking_id) BlackCarRides from bookings where cab_color = 'black';*



```
hive> select count(booking_id) BlackCarRides from bookings where cab_color='black';
Query ID = ec2-user_20211030195353_fdb5ebbe-46c6-4015-b2a3-5e5523803ef0
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1635601130967_0037, Tracking URL = http://ip-10-0-0-52.ec2.internal:8088/proxy/application_1635601130967_0037/
Kill Command = /opt/cloudera/parcels/CDH-5.15.1-1.cdh5.15.1.p0.4/lib/hadoop/bin/hadoop job  -kill job_1635601130967_0037
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2021-10-30 19:53:57,623 Stage-1 map = 0%,  reduce = 0%
2021-10-30 19:54:03,978 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 3.22 sec
2021-10-30 19:54:11,242 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 6.59 sec
MapReduce Total cumulative CPU time: 6 seconds 590 msec
Ended Job = job_1635601130967_0037
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 6.59 sec   HDFS Read: 177962 HDFS Write: 3 SUCCESS
Total MapReduce CPU Time Spent: 6 seconds 590 msec
OK
blackcarrides
72
Time taken: 27.151 seconds, Fetched: 1 row(s)
```

Explanation: To calculate the count of trips done on black cabs we can simply count the the booking_ids where the cab was black in color.

Task 9: Calculate the total amount of tips given date wise to all drivers by customers.
Query: *select to_date(pickup_timestamp) as Date, sum(tip_amount) TotalTip from bookings group by to_date(pickup_timestamp);*

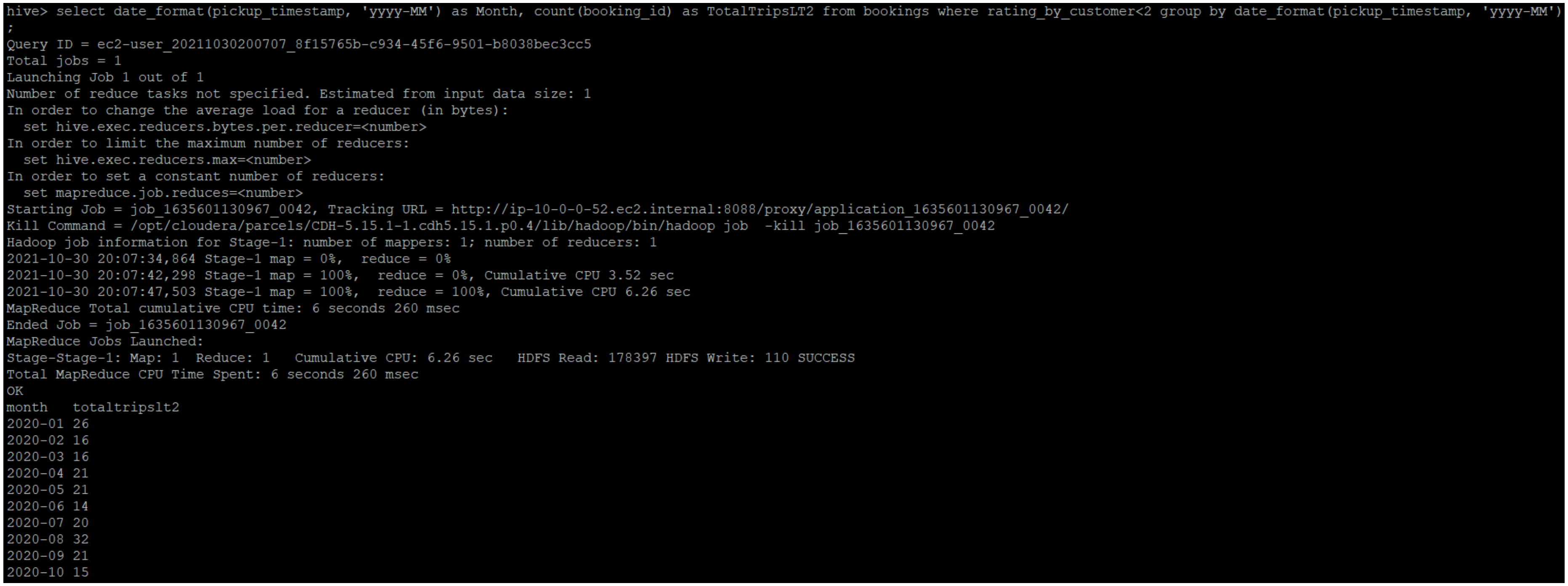


```
hive> select to_date(pickup_timestamp) as Date, sum(tip_amount) TotalTip from bookings group by to_date(pickup_timestamp);
Query ID = ec2-user_20211030200202_40e2578f-e045-483e-9157-b04400a1dcd0
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1635601130967_0040, Tracking URL = http://ip-10-0-0-52.ec2.internal:8088/proxy/application_1635601130967_0040/
Kill Command = /opt/cloudera/parcels/CDH-5.15.1-1.cdh5.15.1.p0.4/lib/hadoop/bin/hadoop job  -kill job_1635601130967_0040
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2021-10-30 20:02:17,233 Stage-1 map = 0%,  reduce = 0%
2021-10-30 20:02:22,526 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 2.81 sec
2021-10-30 20:02:28,872 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 5.51 sec
MapReduce Total cumulative CPU time: 5 seconds 510 msec
Ended Job = job_1635601130967_0040
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 5.51 sec   HDFS Read: 177460 HDFS Write: 4257 SUCCESS
Total MapReduce CPU Time Spent: 5 seconds 510 msec
OK
date    totaltip
2020-01-01      59
2020-01-02      95
2020-01-03      11
2020-01-04      123
2020-01-05      134
2020-01-06      189
2020-01-07      148
2020-01-08      111
2020-01-09      48
2020-01-10      77
2020-01-11      81
2020-01-12      109
2020-01-14      142
2020-01-15      338
2020-01-16      155
2020-01-17      296
2020-01-18      240
2020-01-20      210
```

Explanation: To Calculate the total amount of tip given to all the drivers on any particular day we can group by the date and sum up the tip amount given to each driver on that day. We need to convert the timestamp to date format which can be done by “**To_Date**” function.

Task 10: Calculate the total count of all the bookings with ratings lower than 2 as given by customers in a particular month.

Query: *select date_format(pickup_timestamp, 'yyyy-MM') as Month, count(booking_id) as TotalTripsLT2 from bookings where rating_by_customer < 2 group by date_format(pickup_timestamp, 'yyyy-MM');*

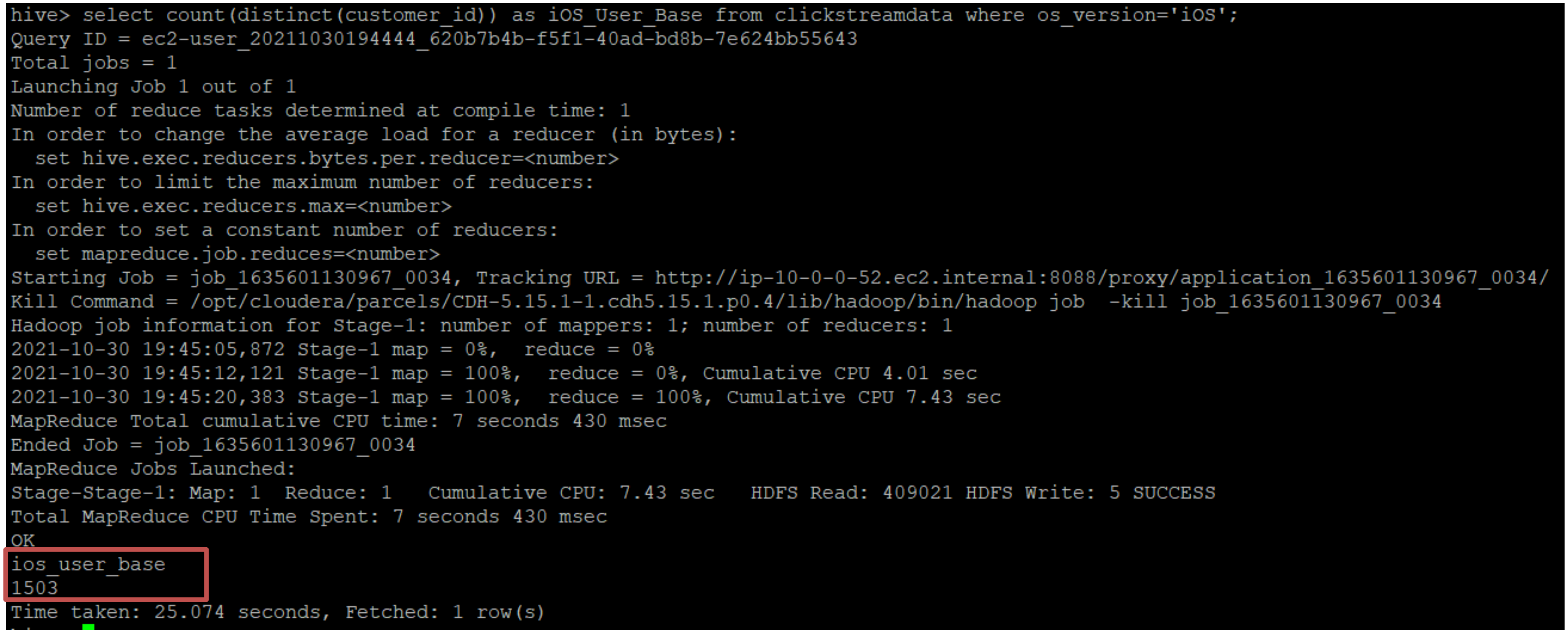


```
hive> select date_format(pickup_timestamp, 'yyyy-MM') as Month, count(booking_id) as TotalTripsLT2 from bookings where rating_by_customer<2 group by date_format(pickup_timestamp, 'yyyy-MM')
;
Query ID = ec2-user_20211030200707_8f15765b-c934-45f6-9501-b8038bec3cc5
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks not specified. Estimated from input data size: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1635601130967_0042, Tracking URL = http://ip-10-0-0-52.ec2.internal:8088/proxy/application_1635601130967_0042/
Kill Command = /opt/cloudera/parcels/CDH-5.15.1-1.cdh5.15.1.p0.4/lib/hadoop/bin/hadoop job  -kill job_1635601130967_0042
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2021-10-30 20:07:34,864 Stage-1 map = 0%,  reduce = 0%
2021-10-30 20:07:42,298 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 3.52 sec
2021-10-30 20:07:47,503 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 6.26 sec
MapReduce Total cumulative CPU time: 6 seconds 260 msec
Ended Job = job_1635601130967_0042
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 6.26 sec   HDFS Read: 178397 HDFS Write: 110 SUCCESS
Total MapReduce CPU Time Spent: 6 seconds 260 msec
OK
month   totaltripslt2
2020-01 26
2020-02 16
2020-03 16
2020-04 21
2020-05 21
2020-06 14
2020-07 20
2020-08 32
2020-09 21
2020-10 15
```

Explanation: To calculate the number of low ratings (lower than 2) in a given month, we can first convert the timestamp to monthly date format and group by that month of that particular year and count the number of bookings where the rating was less than 2.

Task 11: Calculate the count of total iOS users.

Query: *select count(distinct(customer_id)) as iOS_User_Base from clickstreamdata where os_version = 'iOS';*



```
hive> select count(distinct(customer_id)) as iOS_User_Base from clickstreamdata where os_version='iOS';
Query ID = ec2-user_20211030194444_620b7b4b-f5f1-40ad-bd8b-7e624bb55643
Total jobs = 1
Launching Job 1 out of 1
Number of reduce tasks determined at compile time: 1
In order to change the average load for a reducer (in bytes):
  set hive.exec.reducers.bytes.per.reducer=<number>
In order to limit the maximum number of reducers:
  set hive.exec.reducers.max=<number>
In order to set a constant number of reducers:
  set mapreduce.job.reduces=<number>
Starting Job = job_1635601130967_0034, Tracking URL = http://ip-10-0-0-52.ec2.internal:8088/proxy/application_1635601130967_0034/
Kill Command = /opt/cloudera/parcels/CDH-5.15.1-1.cdh5.15.1.p0.4/lib/hadoop/bin/hadoop job  -kill job_1635601130967_0034
Hadoop job information for Stage-1: number of mappers: 1; number of reducers: 1
2021-10-30 19:45:05,872 Stage-1 map = 0%,  reduce = 0%
2021-10-30 19:45:12,121 Stage-1 map = 100%,  reduce = 0%, Cumulative CPU 4.01 sec
2021-10-30 19:45:20,383 Stage-1 map = 100%,  reduce = 100%, Cumulative CPU 7.43 sec
MapReduce Total cumulative CPU time: 7 seconds 430 msec
Ended Job = job_1635601130967_0034
MapReduce Jobs Launched:
Stage-Stage-1: Map: 1  Reduce: 1   Cumulative CPU: 7.43 sec   HDFS Read: 409021 HDFS Write: 5 SUCCESS
Total MapReduce CPU Time Spent: 7 seconds 430 msec
OK
ios_user_base
1503
Time taken: 25.074 seconds, Fetched: 1 row(s)
```

Explanation: The number of iOS users using the app can be found out by simply counting the distinct customer_id who has the os_version as iOS.