ANALYZING BANKING TRENDS: CUSTOMER TRANSACTIONS AND REGIONAL IMPACT

Data source: HI-COUNSELOR

Brief introduction:

This project was analyzed with three tables listed below on MYSQL Workbench for the impact of banking trends on customer transactions across different regions.

1. User_Nodes: table sample is displayed below

consumer_	region_id	node_id	start_date	end_date
1	3	4	2/1/2020	3/1/2020
2	3	5	3/1/2020	17-01-2020
3	5	4	27-01-202	18-02-2020
4	5	4	7/1/2020	19-01-2020
5	3	3	15-01-202	23-01-2020
6	1	1	########	6/2/2020
7	2	5	20-01-202	4/2/2020
8	1	2	15-01-202	28-01-2020
9	4	5	21-01-202	25-01-2020
10	3	4	13-01-202	14-01-2020
11	2	5	19-01-202	25-01-2020
12	1	2	13-01-202	14-01-2020
13	2	3	2/1/2020	14-01-2020
14	1	2	25-01-202	25-01-2020
15	1	3	25-01-202	8/2/2020
16	4	4	13-01-202	18-01-2020
17	2	3	19-01-202	27-01-2020
18	1	3	17-01-202	15-02-2020
19	2	2	17-01-202	6/2/2020
20	2	4	18-01-202	9/2/2020
21	3	2	########	25-01-2020
22	4	3	19-01-202	18-02-2020
23	1	5	21-01-202	15-02-2020
24	2	5	26-01-202	14-02-2020
25	5	1	28-01-202	########
26	3	3	17-01-202	25-01-2020

2. User_Transactions: table sample is displayed below

consumer_id	transaction_date	transaction_type	transaction_amount
312	20-01-2020	deposit	485
376	1/3/2020	deposit	706
188	13-01-2020	deposit	601
138	1/11/2020	deposit	520
373	18-01-2020	deposit	596
361	1/12/2020	deposit	797
169	1/10/2020	deposit	628
402	1/5/2020	deposit	435
60	19-01-2020	deposit	495
378	1/7/2020	deposit	193
383	26-01-2020	deposit	889
292	1/10/2020	deposit	136
63	1/6/2020	deposit	234
499	1/2/2020	deposit	147
130	1/2/2020	deposit	557
441	1/12/2020	deposit	418
53	24-01-2020	deposit	22
30	26-01-2020	deposit	33
305	1/9/2020	deposit	36
136	1/11/2020	deposit	882
276	1/7/2020	deposit	926
410	1/7/2020	deposit	601
152	1/1/2020	deposit	917
123	16-01-2020	deposit	423
17	19-01-2020	deposit	465

3. World_Regions: table sample is displayed below

region_id	region_name
1	United States
2	Europe
3	Australia
4	Asia
5	Africa
6	Russia
7	China

Database creation:

CREATE DATABASE hicounselor

Database Activation:

USE hicounselor;

Viewing all data on each table:

SELECT * FROM nodes;

 SELECT * FROM transaction;

 SELECT * FROM regions;

Note: For ease of working on MYSQL workbench User_Nodes, User_Transaction and World_Regions were all renamed to Nodes, Transaction and regions respectively

Query and sample of displayed results required for Task 1-15:

 # TASK 1: List all regions along with all users assigned to each region

SELECT nodes.consumer_id,regions.region_name

FROM nodes

JOIN regions

ON nodes.region_id=regions.region_id;

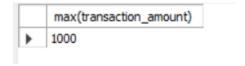| consumer_id	region_name
1	Australia
2	Australia
3	Africa
4	Africa
5	Australia
6	United States
7	Europe
8	United States
9	Asia
10	Australia
11	Europe

TASK 2: Find the user who made the largest deposit amount and the transaction type for that deposit

SELECT consumer_id, transaction_type, transaction_amount

FROM transaction

ORDER BY transaction_amount DESC LIMIT 1;

select max(transaction_amount) from transaction;

max(transaction_amount)
1000

TASK 3: Calculate the total amount deposited for each user in the "Europe" region

SELECT r.region_name,n.consumer_id,t.transaction_type,sum(t.transaction_amount) as Total_amount from regions as r

right join nodes as n using (region_id)

join transaction as t using (consumer_id)

group by consumer_id

having r.region_name = 'Europe' and t.transaction_type = 'deposit';

SELECT r.region_name, n.consumer_id, t.transaction_type, SUM(t.transaction_amount) as Total_amount

FROM nodes AS n

LEFT JOIN regions AS r ON n.region_id = r.region_id

JOIN transaction AS t ON n.consumer_id = t.consumer_id

WHERE r.region_name = 'Europe' AND t.transaction_type = 'deposit'

GROUP BY n.consumer_id;

consumer_id	region_id	region_name	Total_amount	transaction_type
7	2	Europe	32116	deposit
11	2	Europe	15925	deposit
13	2	Europe	22750	deposit
17	2	Europe	3255	deposit
19	2	Europe	6293	deposit
20	2	Europe	11739	deposit
24	2	Europe	13720	deposit
29	2	Europe	30590	deposit
30	2	Europe	6804	deposit
34	2	Europe	9121	deposit
36	2	Europe	19110	deposit

TASK 4: Calculate the total number of transaction made by user in the "United States" region

SELECT nodes.consumer_id, regions.region_name, count(transaction.transaction_type) AS number_transaction

FROM transaction

JOIN nodes

ON transaction.consumer_id=nodes.consumer_id

LEFT JOIN regions

ON regions.region_id=nodes.region_id

group by consumer_id

Having region_name='United States';

consumer_id	region_name	number_transaction
6	United States	133
8	United States	70
12	United States	28
14	United States	28
15	United States	14
18	United States	56
23	United States	42
37	United States	154
46	United States	91
51	United States	77
63	United States	91

TASK 5: Calculate the total Number of users who made more than 5 transactions

SELECT consumer_id,count(consumer_id) AS transaction_count

FROM transaction

GROUP BY consumer_id

HAVING count(consumer_id) >5;

consumer_id	transaction_count
5	11
6	19
7	13
8	10
9	10
10	18
11	17
13	13
16	17
18	8
19	7

TASK 6: Region with the highest number of nodes assigned to them

SELECT n.region_id,r.region_name,count(n.node_id) as Total_Nodes

from nodes as n

left join regions as r using(region_id)

group by region_name

order by Total_Nodes DESC LIMIT 1;

region_id	region_name	Total_Nodes
▶ 1	United States	770

TASK 7: Find the user who made the highest deposit amount in the Australia region

SELECT nodes.consumer_id,regions.region_name
,transaction.transaction_type,sum(transaction.transaction_amount) AS highest_deposit_amount

FROM transaction

JOIN nodes

ON transaction.consumer_id=nodes.consumer_id

LEFT JOIN regions

ON nodes.region_id=regions.region_id

GROUP BY consumer_id

HAVING region_name='Australia' AND transaction_type='deposit'

ORDER BY highest_deposit_amount DESC LIMIT 1;

consumer_id	region_name	transaction_type	highest_deposit_amount
▶ 476	Australia	deposit	87430

TASK 8: Calculate the total amount deposited by each user in each region

SELECT

regions.region_name, transaction.transaction_type,

   sum(transaction.transaction_amount) AS Total_amount_deposited

FROM transaction

JOIN nodes

ON transaction.consumer_id=nodes.consumer_id

LEFT JOIN regions on nodes.region_id=regions.region_id

GROUP BY region_name

HAVING transaction_type = 'deposit'

ORDER BY Total_amount_deposited;

	region_name	transaction_type	Total_amount_deposited
▶	Africa	deposit	3401552
	Asia	deposit	4057879
	Australia	deposit	4233481
	Europe	deposit	4406276
	United States	deposit	4611768

TASK 9: Retrieve the total number of transaction for each region

SELECT regions.region_name, count(transaction.transaction_type) AS Total_transaction

FROM transaction

INNER JOIN nodes

ON transaction.consumer_id=nodes.consumer_id

LEFT JOIN regions on nodes.region_id=regions.region_id

GROUP BY region_name;

region_name	Total_transaction
Africa	6797
Asia	7952
Australia	8414
Europe	8806
United States	9107

TASK 10: Find the total deposit amount for each region (region_name) in the user_transaction

table. #Consider only those transactions where the consumer_id is associated with a valid region in the

#user_nodes table.

SELECT regions.region_name,

   sum(transaction.transaction_amount) AS total_amount,

   transaction.transaction_type

FROM nodes

INNER JOIN transaction

ON nodes.consumer_id=transaction.consumer_id

LEFT JOIN regions

ON nodes.region_id=regions.region_id

GROUP BY region_name

HAVING transaction_type='deposit';

region_name	total_amount	transaction_type
Africa	3401552	deposit
Asia	4057879	deposit
Australia	4233481	deposit
Europe	4406276	deposit
United States	4611768	deposit

/*TASK 11: Find the top 5 consumers who have made the highest total transaction amount (sum of all their deposit transactions)

in the user_transaction table.*/

SELECT

      consumer_id, transaction_type,

  sum(transaction_amount) AS total_transaction_amount

FROM transaction

GROUP BY consumer_id

HAVING transaction_type='deposit'

ORDER BY total_transaction_amount DESC LIMIT 5;

consumer_id	transaction_type	total_transaction_amount
442	deposit	13201
424	deposit	12776
197	deposit	12509
476	deposit	12490
192	deposit	12447

TASK 12: How many consumers are allocated to each region?

SELECT

      regions.region_name,

      count(nodes.consumer_id) AS Number_of_consumer

FROM nodes

LEFT JOIN regions

ON regions.region_id=nodes.region_id

GROUP BY region_name;

region_name	Number_of_consumer
Africa	616
Asia	665
Australia	714
Europe	735
United States	770

TASK 13: What is the unique count and total amount for each transaction type?

SELECT transaction_type,sum(transaction_amount) AS total_transaction

FROM transaction

GROUP BY transaction_type;

transaction_type	total_transaction
deposit	1359168
purchase	806537
withdrawal	793003

/* TASK 14: What are the average deposit counts and amounts for each transaction type ('deposit')

across all customers, grouped by transaction type?*/

SELECT

      transaction_type,avg(transaction_amount) AS total_transaction_amount,

  count(transaction_type) AS number_transaction_type

FROM transaction

WHERE transaction_type='deposit'

GROUP BY transaction_type;

OR

SELECT

transaction_type,avg(transaction_amount) AS total_transaction_amount,

count(transaction_type) AS number_transaction_type

FROM transaction

GROUP BY transaction_type

HAVING transaction_type='deposit';

transaction_type	total_transaction_amount	number_transaction_type
deposit	508.8611	2671

TASK 15: How many transactions were made by consumers from each region?

SELECT

regions.region_name,count(transaction.consumer_id) as Total_Consumers

FROM transaction

INNER JOIN nodes

ON transaction.consumer_id=nodes.consumer_id

LEFT JOIN regions

ON regions.region_id=nodes.region_id

Group by region_name;

region_name	Total_Consumers
Africa	6797
Asia	7952
Australia	8414
Europe	8806
United States	9107