**FRAUDULENT TRANSACTIONS IN A BANK (CASE STUDY)**

**SQL QUERY USING PGADMIN 4**

CREATE TABLE fraudulent (

step INT,

type VARCHAR(20) ,

amount FLOAT,

nameorig VARCHAR(50),

oldbalanceorg FLOAT,

newbalanceorig FLOAT,

namedest VARCHAR(50),

oldbalancedest FLOAT,

newbalancedest FLOAT,

isfraud INT,

isflaggedfraud INT

);

select \* from fraudulent;

**--1. How many transactions occurred per transaction type**

SELECT type, COUNT(\*) AS no\_of\_transactions

FROM fraudulent

GROUP BY type;

**Result:**

|  |  |
| --- | --- |
| **Type** | **no\_of\_transactions** |
| **"PAYMENT"** | **10798** |
| **"TRANSFER"** | **6182** |
| **"CASH\_IN"** | **3639** |
| **"DEBIT"** | **394** |
| **"CASH\_OUT"** | **8987** |

**--2. Which transaction type has the highest number of fraudulent transactions**

SELECT type, COUNT(isfraud) AS count\_of\_isfraud FROM fraudulent

WHERE isfraud = 1

GROUP BY type

ORDER BY COUNT(isfraud) DESC

LIMIT 1;

**Result: "CASH\_OUT" 4116**

**--3. Average fraudulent transaction amount**

select avg(amount) as avg\_fraudamount from fraudulent

WHERE isfraud = 1;

**Result: 1467967.2991403867**

**--4. Maximum fraudulent transaction amount**

SELECT MAX(amount) from fraudulent AS max\_fraudulent\_amount

where isfraud = 1;

**Result:** 10000000

**--5. Minimum fraudulent transaction amount**

SELECT MIN(amount) from fraudulent AS min\_fraudulent\_amount

where isfraud = 1

**--6. Top 10 customers with the highest amount defrauded**

SELECT nameorig, SUM(amount) AS total\_defrauded

FROM fraudulent

WHERE isfraud = 1

GROUP BY nameorig

ORDER BY total\_defrauded DESC

LIMIT 10;

**Result:**

"C634268681" 10000000

"C517014062" 10000000

"C1274910960" 10000000

"C2048555739" 10000000

"C1930318116" 10000000

"C1014298205" 10000000

"C780743034" 10000000

"C99979309" 10000000

"C88849251" 10000000

"C1666917384" 10000000

**--7. How effective is the bank flagging fraud?** If the total number of fraudulent transaction is equal to the total number of flagged transaction, then the bank's method is effective.

SELECT COUNT(isflaggedfraud) AS no\_of\_flagged\_fraudulent\_transactions, COUNT(isfraud) AS no\_of­fraudulent\_transactions, (COUNT(isflaggedfraud) / COUNT(isfraud))\*100 AS fraud\_detection\_rate

FROM fraudulent

WHERE isfraud = 1 AND isflaggedfraud = 1;

**Result**: 100% effective

**--8. Who are the top 20 Fraudsters?** Although, it wasn’t clearly stated in the table but the amount recipients will likely be the fraudsters.

SELECT namedest, isfraud, amount FROM fraudulent

WHERE isfraud = 1

ORDER BY amount DESC

LIMIT 20;

**Result**:

"C1347105871"

"C1941053102"

"C632110164"

"C588547519"

"C1990623385"

"C1954217280"

"C397396936"

"C557678014"

"C875288652"

"C1622860679"

"C1917849910"

"C1379703840"

"C1468356154"

"C666339947"

"C380259496"

"C945327594"

"C615227407"

"C1089455271"

"C766681183"

"C97016938"