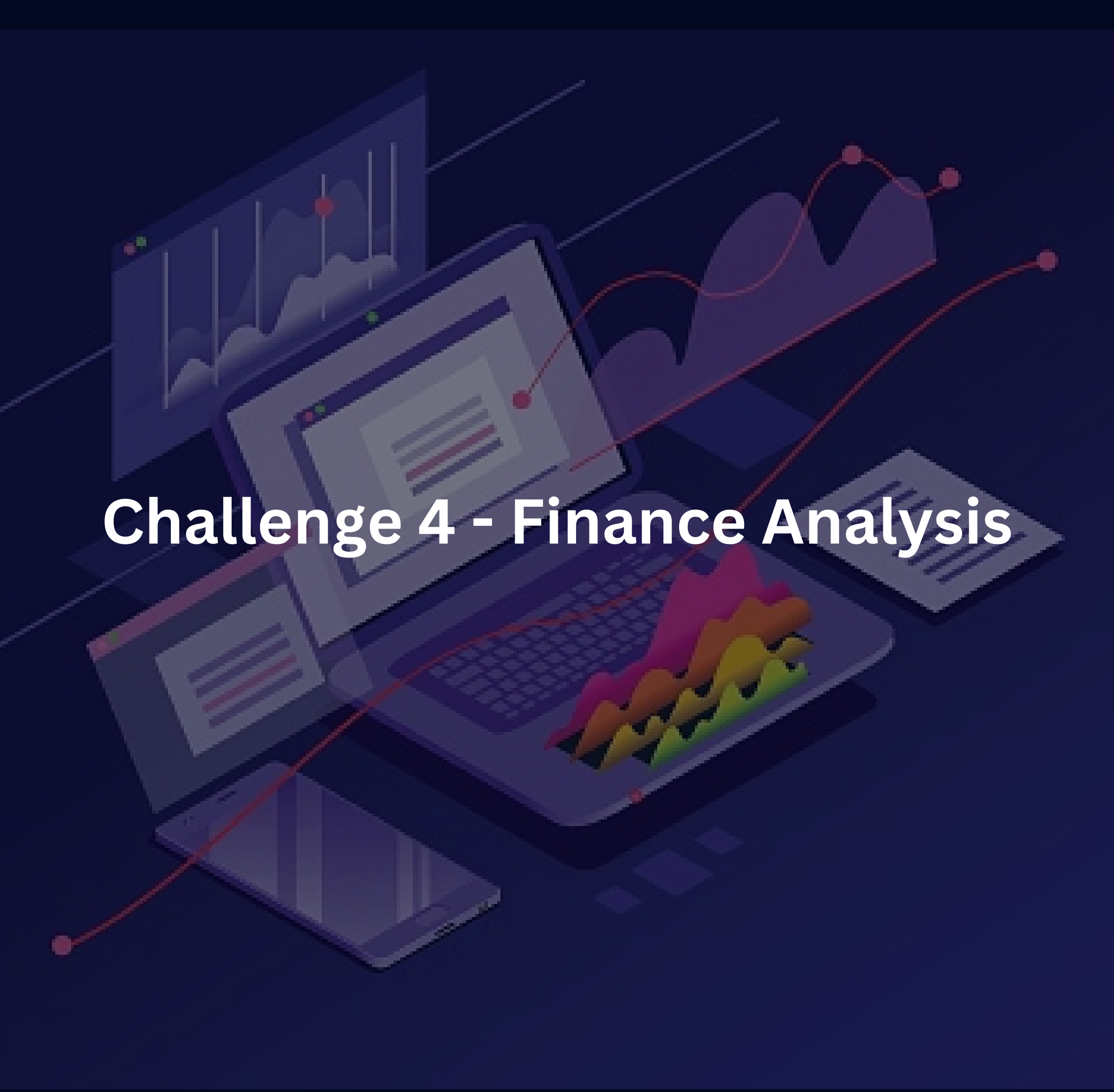

Challenge 4 - Finance Analysis

You are a Finance Analyst working for 'The Big Bank' You have been tasked with finding out about your customers and their banking behaviour. Examine the accounts they hold and the type of transactions they make to develop greater insight into your customers.

Customers

CustomerID	FirstName	LastName	City	State
1	John	Doe	New York	NY
2	Jane	Doe	New York	NY
3	Bob	Smith	San Francisco	CA
4	Alice	Johnson	San Francisco	CA
5	Michael	Lee	Los Angeles	CA
6	Jennifer	Wang	Los Angeles	CA

Accounts

AccountID	CustomerID	BranchID	AccountType	Balance
1	1	5	Checking	1000
2	1	5	Savings	5000
3	2	1	Checking	2500
4	2	1	Savings	####
5	3	2	Checking	7500
6	3	2	Savings	####
7	4	8	Checking	5000
8	4	8	Savings	####
9	5	14	Checking	####
10	5	14	Savings	####
11	6	2	Checking	5000
12	6	2	Savings	####
13	1	5	Credit Card	-500
14	2	1	Credit Card	-1000
15	3	2	Credit Card	-2000

Transactions

TransactionID	AccoutID	TransactionDate	Amount
1	1	2022-01-01	-500
2	1	2022-01-02	-250
3	2	2022-01-03	1000
4	3	2022-01-04	-1000
5	3	2022-01-05	500
6	4	2022-01-06	1000
7	4	2022-01-07	-500
8	5	2022-01-08	-2500
9	6	2022-01-09	500
10	6	2022-01-10	-1000
11	7	2022-01-11	-500
12	7	2022-01-12	-250
13	8	2022-01-13	1000
14	8	2022-01-14	-1000
15	9	2022-01-15	500

Branches

BranchID	BranchName	City	State
1	Main	New York	NY
2	Downtown	San Francisco	CA
3	West LA	Los Angeles	CA
4	East LA	Los Angeles	CA
5	Uptown	New York	NY
6	Financial District	San Francisco	CA
7	Midtown	New York	NY
8	South Bay	San Francisco	CA
9	Downtown	Los Angeles	CA
10	Chinatown	New York	NY
11	Marina	San Francisco	CA
12	Beverly Hills	Los Angeles	CA
13	Brooklyn	New York	NY
14	North Beach	San Francisco	CA
15	Pasadena	Los Angeles	CA

1. What are the names of all the customers who live in New York?

Ans:

```
select firstname, lastname from customers where city='new york';
```

Result Grid | Filter

	firstname	lastname
▶	John	Doe
	Jane	Doe

2. What is the total number of accounts in the Accounts table?

Ans:

```
select count(accountid) as total_accounts from accounts;
```

Result Grid

	total_accounts
▶	15

3. What is the total balance of all checking accounts?

Ans:

```
select accounttype, sum(balance) as total_balance
from accounts
where accounttype='checking'
group by accounttype;
```

Result Grid | Filter Rows:

	accounttype	total_balance
▶	Checking	31000.00

4. What is the total balance of all accounts associated with customers who live in Los Angeles?

Ans:

```
select c.city, sum(a.balance) as total_balance
from customers c
join accounts a on c.customerid=a.customerid
where city='los angeles' group by 1;
```

Result Grid | Filter Rows:

	city	total_balance
▶	Los Angeles	75000.00

5. Which branch has the highest average account balance?

Ans:

```
select b.branchname, avg(a.balance) as avg_balance
from branches b
join accounts a on b.branchid=a.branchid
group by 1
order by 2 desc
limit 1
```

Result Grid | Filter Rows:

branchname	avg_balance
North Beach	30000.000000

6. Which customer has the highest current balance in their accounts?

Ans:

```
select  c.firstname, c.lastname, max(a.balance) as balance
from customers c
join accounts a on c.customerid=a.customerid
group by 1,2
order by 3 desc limit 1;
```

Result Grid | Filter Rows:

	firstname	lastname	balance
▶	Michael	Lee	50000.00

7. Which customer has made the most transactions in the Transactions table?

Ans:

```
select a.customerid, c.firstname, c.lastname,
count(t.transactionid) as no_of_transactions
from customers c
join accounts a on c.customerid=a.customerid
join transactions t on a.accountid=t.accountid
group by 1,2,3 order by 4 desc limit 1;
```

Result Grid | Filter Rows: | Export:

customerid	firstname	lastname	no_of_transactions
2	Jane	Doe	4

8. Which branch has the highest total balance across all of its accounts?

Ans:

```
select a.branchid, b.branchname,sum(a.balance) as total_balance
from branches b join accounts a on b.branchid=a.branchid
group by 1,2 order by 3 desc limit 1;
```

Result Grid | Filter Rows:

branchid	branchname	total_balance
14	North Beach	60000.00

9. Which customer has the highest total balance across all of their accounts, including savings and checking accounts?

Ans:

```
select a.customerid, c.firstname, c.lastname,
sum(a.balance) as total_balance
from customers c join accounts a on
c.customerid=a.customerid
group by 1,2,3 order by 4 desc limit 1;
```

Result Grid | Filter Rows:

customerid	firstname	lastname	total_balance
5	Michael	Lee	60000.00

10. Which branch has the highest number of transactions in the Transactions table?

Ans:

```
with cte1 as  (
   select a.branchid, b.branchname, count(t.transactionid) as
no_of_transactions,
dense_rank() over(order by count(t.transactionid) desc) as rn
from branches b join accounts a on b.branchid=a.branchid
join transactions t on a.accountid=t.accountid
group by 1 )
select branchname, no_of_transactions from cte1
where rn=1;
```

Result Grid | Filter Rows:

branchname	no_of_transactions
Main	4
South Bay	4