Databases-Week05

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BASIC TASKS

1. In total, how many transactions have been carried out at the bank?

Mycode:

```
SELECT COUNT(*) AS total_transactions
FROM acc_transaction;
```

Myresult:

	total_transactions bigint
1	21

2. How many accounts of type ‘CHK’ are there at this bank?

Mycode:

```
SELECT COUNT(*) AS chk_accounts
FROM account
WHERE product_cd = 'CHK';
```

Myresult:

	chk_accounts bigint
1	10

3. Produce a list of job titles and how many employees hold this position.

Mycode:

```
SELECT title, COUNT(*) AS num_employees
FROM employee
GROUP BY title;
```

Myresult:

	title character varying (50)	num_employees bigint
1	Vice President	1
2	Head Teller	4
3	Teller	9
4	Treasurer	1
5	President	1
6	Operations Manager	1
7	Loan Manager	1

4Produce a list of Customers and the number of accounts they have.

Mycode:

```
SELECT c.cust_id, COUNT(a.account_id) AS num_accounts
FROM customer c
JOIN account a ON c.cust_id = a.cust_id
GROUP BY c.cust_id;
```

Myresult:

	cust_id [PK] integer	num_accounts bigint
1	4	3
2	10	2
3	9	3
4	7	1
5	6	2
6	12	1
7	3	2
8	13	1
9	1	3
10	5	1
11	2	2
12	8	2

5What is the total available balance for the customer;

James Hadley (cust_id = 1)?

Mycode:

```
SELECT SUM(avail_balance) AS total_balance
FROM account
WHERE cust_id = 1;
```

Myresult:

	total_balance numeric
1	4557.75

6Produce a list of all customers and their total available balance

Myresult:

	cust_id [PK] integer	total_balance numeric
1	4	6788.98
2	10	23575.12
3	9	10971.22
4	7	5000.00
5	6	10122.37
6	12	38552.05
7	3	3270.25
8	13	50000.00
9	1	4557.75
10	5	2237.97
11	2	2458.02
12	8	3875.18

7Write a query to list all account product types and the average available balance for each type

Mycode:

```
SELECT product_cd, AVG(avail_balance) AS avg_balance
FROM account
GROUP BY product_cd;
```

Myresult:

	product_cd character varying (10)	avg_balance numeric
1	MM	5681.7133333333333333
2	SAV	463.9400000000000000
3	CHK	7300.8010000000000000
4	CD	4875.0000000000000000
5	SBL	50000.000000000000
6	BUS	0.00000000000000000000

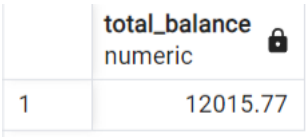
Medium task

8. Find the total available balance in customers' accounts where the opening branch was the Woburn Branch.

Mycode:

```
SELECT SUM(avail_balance) AS total_balance
FROM account
WHERE open_branch_id = (SELECT branch_id FROM branch WHERE name = 'Woburn Branch');
```

Myresult:



	total_balance numeric
1	12015.77

9Produce a list of account product types and the highest available balance for each.

Mycode:

```
SELECT product_cd, MAX(avail_balance) AS highest_balance
FROM account
GROUP BY product_cd;
```

Myresult:

	product_cd character varying (10)	highest_balance numeric
1	MM	9345.55
2	SAV	767.77
3	CHK	38552.05
4	CD	10000.00
5	SBL	50000.00
6	BUS	0.00

10What is the minimum available balance?

Mycode:

```
SELECT MIN(avail_balance) AS min_balance
FROM account;
```

Myresult:

	min_balance numeric
1	0.00

11Produce a list of the total available balance per customer. The balance displayed should be rounded down.

Mycode:

```
SELECT c.cust_id, FLOOR(SUM(a.avail_balance)) AS total_balance
FROM customer c
JOIN account a ON c.cust_id = a.cust_id
GROUP BY c.cust_id;
```

Myresult:

	cust_id [PK] integer	total_balance numeric
1	4	6788
2	10	23575
3	9	10971
4	7	5000
5	6	10122
6	12	38552
7	3	3270
8	13	50000
9	1	4557
10	5	2237
11	2	2458
12	8	3875

12The Output lists of EMPLOYEE details in the following formats (only one column should be output):

a. Employees Name; [LAST_NAME], [FIRST_NAME] e.g. Smith, Michael

b. Employee Position; [FIRST_NAME] [LAST_NAME] Position: [TITLE] e.g. Michael Smith Position: President

A

Mycode:

```
SELECT CONCAT(last_name, ', ', first_name) AS employee_name
FROM employee;
```

Myresult:

	employee_name text
1	Smith, Michael
2	Barker, Susan
3	Tyler, Robert
4	Hawthorne, Susan
5	Gooding, John
6	Fleming, Helen
7	Tucker, Chris
8	Parker, Sarah
9	Grossman, Jane
10	Roberts, Paula
11	Jameson, Samantha
12	Blake, John
13	Mason, Cindy
14	Portman, Frank
15	Markham, Theresa
16	Fowler, Beth
17	Tulman, Rick
18	Ziegler, Thomas

B

Mycode:

```
SELECT CONCAT(first_name, ' ', last_name, ' Position: ',
title) AS employee_details
FROM employee;
```

Myresult:

	employee_details text
1	Michael Smith Position: President
2	Susan Barker Position: Vice President
3	Robert Tyler Position: Treasurer
4	Susan Hawthorne Position: Operations Manager
5	John Gooding Position: Loan Manager
6	Helen Fleming Position: Head Teller
7	Chris Tucker Position: Teller
8	Sarah Parker Position: Teller
9	Jane Grossman Position: Teller
10	Paula Roberts Position: Head Teller
11	Samantha Jameson Position: Teller
12	John Blake Position: Head Teller
13	Cindy Mason Position: Teller
14	Frank Portman Position: Teller
15	Theresa Markham Position: Head Teller
16	Beth Fowler Position: Teller
17	Rick Tulman Position: Teller
18	Thomas Ziegler Position: Teller

Advanced task

13Consider this text “Fear leads to anger; anger leads to hatred; hatred leads to conflict; conflict leads to suffering”. Write a statement to return the same text but swap the word ‘anger’ for ‘panic buying’.

Mycode:

```
SELECT REPLACE('Fear leads to anger; anger leads to hatred; hatred leads to conflict; conflict leads to
```

suffering', 'anger', 'panic buying');

Myresult:

	replace text
1	Fear leads to panic buying; panic buying leads to hatred; hatred leads to conflict; conflict leads to suffe...

14

The data in the CUSTOMER table that holds the FED_ID is currently held in two different formats. Either nnn-nnnnnn or nn-nnnnnn (where n is a number). The bank wishes to standardise the format so that all values in FED_ID are stored as nnnnnnnn. Write an update statement to do this.

Mycode:

```
UPDATE customer
SET fed_id = REGEXP_REPLACE(fed_id, '[-]', '');
```

Myresult:

	cust_id [PK] integer	address character varying (255)	city character varying (100)	cust_type_cd character (1)	fed_id character varying (15)	postal_code character varying (20)	state character varying (50)
1	1	47 Mockingbird Ln	Lynnfield	I	11111-1111	01940	MA
2	2	372 Clearwater Blvd	Woburn	I	22222-2222	01801	MA
3	3	18 Jessup Rd	Quincy	I	33333-3333	02169	MA
4	4	12 Buchanan Ln	Waltham	I	44444-4444	02451	MA
5	5	2341 Main St	Salem	I	[null]	03079	NH
6	6	12 Blaylock Ln	Waltham	I	66666-6666	02451	MA
7	7	29 Admiral Ln	Wilmington	I	77777-7777	01887	MA
8	8	472 Freedom Rd	Salem	I	88888-8888	03079	NH
9	9	29 Maple St	Newton	I	99999-9999	02458	MA
10	10	7 Industrial Way	Salem	B	041111111	03079	NH
11	11	287A Corporate Ave	Wilmington	B	042222222	01887	MA
12	12	789 Main St	Salem	B	043333333	03079	NH
13	13	4772 Presidential Way	Quincy	B	044444444	02169	MA

15Write a query to return the year portion of the account transaction date and the number of transactions

that took place in each year.

Mycode:

```
SELECT EXTRACT(YEAR FROM txn_date) AS year,
COUNT(*) AS transactions_count
FROM acc_transaction
GROUP BY EXTRACT(YEAR FROM txn_date);
```

Myresult:

	year numeric	transactions_count bigint
1	2000	3
2	2003	3
3	2002	4
4	2001	4
5	2004	7

16There have been some inconsistencies in the way data has been entered into the system. As SQL is case sensitive this has caused problems when searching for data. To prevent problems, update the EMPLOYEE table to store everyone's job title in Uppercase.

Produce a report showing the number of employees that have Teller as part of their job title and a count of all other employees that have a job title other than Teller. The report should show 'Cashier' instead of

‘Teller’ or ‘Head Teller’.

Mycode:

```
SELECT COUNT(*) AS Count,
        CASE
            WHEN title LIKE '%TELLER%' THEN 'Cashier'
            ELSE 'Other'
        END AS JobTitle
FROM employee
GROUP BY CASE
            WHEN title LIKE '%TELLER%' THEN 'Cashier'
            ELSE 'Other'
        END;
```

Myresult:

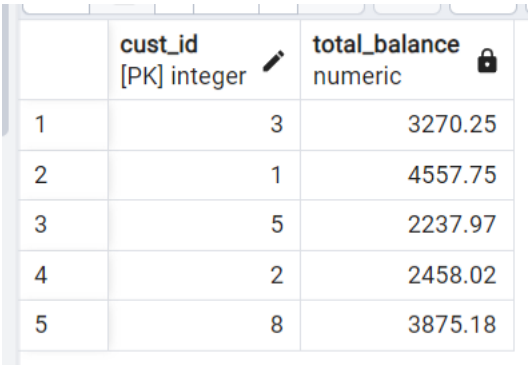
	count bigint	jobtitle text
1	5	Other
2	13	Cashier

17. Produce a list of customers whose accumulated available balance is less than £5000.

Mycode:

```
SELECT c.cust_id, SUM(a.avail_balance) AS total_balance
FROM customer c
JOIN account a ON c.cust_id = a.cust_id
GROUP BY c.cust_id
HAVING SUM(a.avail_balance) < 5000;
```

Myresult:



	cust_id [PK] integer	total_balance numeric
1	3	3270.25
2	1	4557.75
3	5	2237.97
4	2	2458.02
5	8	3875.18

18 Produce a report showing the total number of staff assigned to each branch.

Mycode:

```
SELECT assigned_branch_id, COUNT(*) AS total_staff
FROM employee
GROUP BY assigned_branch_id;
```


```
SELECT assigned_branch_id, COUNT(*) AS total_staff
FROM employee
GROUP BY assigned_branch_id;
```

Myresult:

	assigned_branch_id integer	total_staff bigint
1	4	3
2	3	3
3	1	9
4	2	3

19 Using only the ACCOUNTS Table; produce a report showing the total number of accounts which have the product codes CHK and SAV. Y

mycode:

```
SELECT COUNT(*) AS num_accounts,
        CASE
            WHEN product_cd = 'CHK' THEN 'Checking Account'
            WHEN product_cd = 'SAV' THEN 'Savings Account'
        END AS product_type
FROM account
WHERE product_cd IN ('CHK', 'SAV')
GROUP BY product_cd;
```

Myresult:

	num_accounts bigint	product_type text
1	10	Checking Account
2	4	Savings Account