PORTFOLIO

Report and Discussion of the Completed Labs

5. **week5-week6:** Through practical class explanation and courseware 06_SQL_Queries,07_SQL_Functions and The review of 08_SQL_Joins is completed as DB_Lab_05.(The content is more than basic knowledge, in which join statement is often used in simple problems without join syntax, resulting in increased repetition times and time cost.)

Week5: In the last class of database, I finished BASIC TASKS. The whole process lasted for 2 hours. I tried to use join statement for each topic, but later I found it was not easy. The number of attempts has been lost, because each problem is to be solved through join statements, which makes the difficulty soaring, and at the same time, there are many error messages. But the whole process took about 30-35 attempts, and it was successful.

Week6: After giving up the idea of using join statement, the homework became easier. It took me one and a half hours to complete the MEDIUM TASK in week6, and the total number of attempts was 13 (2 for 8 questions, 2 for 9 questions, 5 for 10 questions, 1 for 11 questions, and 2 for 12 questions). After that, I spent 3 hours to complete the ADVANCED TASK with a total of 30 attempts (5 times for 13 questions, 3 times for 14 questions, 3 times for 15 questions, 4 times for 16 questions, 8 times for 17 questions, 3 times for 18 questions, and 4 times for 19 questions).

Personal Reflection and Critical Evaluation

5. For me, the difficulty of DB_Lab_05 increased. During the completion process, advanced syntax was frequently used to solve some relatively simple problems, which reduced the completion efficiency.

Member Name and student ID (Printed)	Signature
Name:Conger Yang ID:2023020206	

DB_Lab_05

Only Number：Conger Yang

BASIC TASK

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

select count(CHK) from acc_transaction

	count bigint
1	21

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

select count(*) from account where product_cd='CHK'

	count bigint
1	10

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

select first_name,last_name,name from employee inner join department on employee.dept_id=department.dept_id;

	first_name character varying (20)	last_name character varying (20)	name character varying (20)
1	Michael	Smith	Administration
2	Susan	Barker	Administration
3	Robert	Tyler	Administration
4	Susan	Hawthrone	Operations
5	John	Gooding	Loans
6	Helen	Fleming	Operations
7	Chris	Tucker	Operations
8	Sarah	Tucker	Operations
9	Jane	Grossman	Operations
10	Paula	Roberts	Operations
11	Samantha	Jameson	Operations
12	John	Blake	Operations
13	Cindy	Mason	Operations
14	Frank	Portman	Operations
15	THERESA	Markham	Operations
16	Beth	Fowler	Operations
17	Rick	Tulman	Operations
18	Thomas	Ziegler	Operations

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

select (avail_balance + pending_balance) AS ACCOUNT_SUM from account;

	account_sum numeric
1	1068.24
2	1535.54
3	10974.18
4	20000.00
5	10000.00
6	6974.38
7	775.98
8	251.34
9	19691.10
10	3000.00
11	47150.24
12	0.00
13	77104.10
14	100000.00
15	244.74
16	4516.04
17	400.00
18	2115.50
19	4335.00
20	4475.94
21	2245.00
22	1061.20
23	6367.24

5.

select sum(avail_balance) from account where cust_id=1

	sum numeric
1	4836.72

6. select sum(avail_balance), cust_id from account group by cust_id order by cust_id asc;

	sum numeric	cust_id numeric (10)
1	4836.72	1
2	2458.02	2
3	3180.25	3
4	6788.98	4
5	2237.97	5
6	10122.37	6
7	5000.00	7
8	3875.18	8
9	11471.22	9
10	23575.12	10
11	88552.05	12

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

select PRODUCT_CD AS "Account Type",AVG(avail_balance) as "average data" from account group by product_cd;

	Account Type character varying (10)	average data numeric
1	CHK	7307.2760000000000000
2	SBL	50000.000000000000
3	MM	5818.3800000000000000
4	SAV	471.5900000000000000
5	CD	4920.9050000000000000
6	BUS	0.000000000000000000

MEDIUM TASKS

8.

select sum(AVAIL_BALANCE) FROM ACCOUNT WHERE OPEN_BRANCH_ID=2;

	sum numeric
1	12294.74

9.

select product_cd, max(avail_balance) from account group by product_cd;

	product_cd character varying (10)	max numeric
1	CHK	38552.05
2	SBL	50000.00
3	MM	9845.55
4	SAV	767.77
5	CD	10000.00
6	BUS	0.00

10.

select product_cd, min(avail_balance)as min_avail_balance from account group by product_cd;

	product_cd character varying (10)	min_avail_balance numeric
1	CHK	122.37
2	SBL	50000.00
3	MM	2122.50
4	SAV	200.00
5	CD	1500.00
6	BUS	0.00

11.

select cust_id, ROUND(sum(avail_balance))as min_avail_balance from account group by CUST_ID ORDER BY CUST_ID ASC;

	cust_id numeric (10)	min_avail_balance numeric
1	1	4837
2	2	2458
3	3	3180
4	4	6789
5	5	2238
6	6	10122
7	7	5000
8	8	3875
9	9	11471
10	10	23575
11	12	88552

12.

a.

SELECT LAST_NAME ||' '|| FIRST_NAME AS EMP_NAME FROM EMPLOYEE;

	emp_name text
1	Smith Michael
2	Barker Susan
3	Tyler Robert
4	Hawthrone Susan
5	Gooding John
6	Fleming Helen
7	Tucker Chris
8	Tucker 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.

SELECT LAST_NAME ||' '|| FIRST_NAME ||' position is '|| title as emp_infor FROM EMPLOYEE;

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

ADVANCED TASKS

13.

SELECT REPLACE('Fear leads to anger; anger leads to hatred; hatred leads to conflict; conflict leads to suffering', 'anger', 'panic buying') AS modified_text;

	modified_text text
1	Fear leads to panic buying; panic buying leads to hatred; hatred leads to conflict; conflict leads to suffe…

14.

update customer set fed_id=replace(fed_id,'-','');

	cust_id [PK] numeric (10)	address character varying (30)	city character varying (20)	cust_type_cd character varying (1)	fed_id character varying
1	5	2341 Main St	Salem	I	
2	11	287a Corporate Ave	Wilmington	B	042222222
3	12	789 Main St	Salem	B	043333333
4	13	4772 Presidential	Quincy	B	044444444
5	10	7 Industiral Way	Wilmington	B	041111111
6	9	29 Maple St	Newton	I	999999999
7	8	472 Freedom Rd	Salem	I	888888888
8	7	29 Admiral Ln	Wilmington	I	777777777
9	6	12 Blaylcok Ln	Waltham	I	666666666
10	4	12 Bunchanan LN	Waltham	I	444444444
11	3	18 Jessup Rd	Quincy	I	333333333
12	2	372 Clearwater Blvd	Woburn	I	222222222
13	1	47 Mockingbird Ln	Lynnfield	I	111111111

15.

select extract(year from txn_date) ||' '|| count(extract(year from txn_date)) as YearCount from acc_transaction group by extract(year from txn_date) order by extract(year from txn_date) asc ;

	yearcount text
1	2000 3
2	2001 4
3	2002 4
4	2003 3
5	2004 7

16.

1) update employee set title=upper(title) ;
2) update employee set title =case when title='TELLER' THEN 'CASHIER'

WHEN TITLE='HEAD TELLER' THEN 'CASHIER' ELSE TITLE END WHERE TITLE IN('TELLER','HEAD TELLER');

3) SELECT COUNT(TITLE) ||' '|| TITLE AS "COUNT JOBTITLE" FROM EMPLOYEE GROUP BY TITLE;

title character varying (20)
PRESIDENT
VICE PRESIDENT
TREASURER
OPERATIONS MANAGER
LOAN MANAGER
HEAD TELLER
TELLER
TELLER
TELLER
HEAD TELLER
TELLER
HEAD TELLER
TELLER
TELLER
HEAD TELLER

1)

title character varying (20)
PRESIDENT
VICE PRESIDENT
TREASURER
OPERATIONS MANAGE
LOAN MANAGER
CASHIER
CASHIER
CASHIER
CASHIER
CASHIER
CASHIER
CASHIER
CASHIER
CASHIER
CASHIER

2)

	COUNT JOBTITLE text
1	1 VICE PRESIDENT
2	1 OPERATIONS MANAGER
3	1 LOAN MANAGER
4	1 TREASURER
5	13 CASHIER
6	1 PRESIDENT

3)

17.

select c.*,sum(a.AVAIL_BALANCE) as sumavail_balance from customer c,account a where c.cust_id=a.cust_id GROUP BY c.CUST_ID having SUM(AVAIL_BALANCE)<5000 order by cust_id asc;

cust_id [PK] numeric (10)	address character varying (30)	city character varying (20)	cust_type_cd character varying (1)	fed_id character varying (
1	47 Mockingbird Ln	Lynnfield	I	111111111
2	372 Clearwater Blvd	Woburn	I	222222222
3	18 Jessup Rd	Quincy	I	333333333
5	2341 Main St	Salem	I	
8	472 Freedom Rd	Salem	I	888888888

pe_cd ter varying (1)	fed_id character varying (12)	postal_code character varying (10)	state character varying (20)	sumavail_balance numeric
	111111111	1940	MA	4836.72
	222222222	1801	MA	2458.02
	333333333	2169	MA	3180.25
		3079	NH	2237.97
	888888888	3079	NH	3875.18

18.

select b.branch_id,b.name,count(e.ASSIGNED_BRANCH_ID)as numbercount from branch b,employee e where b.BRANCH_ID=e.ASSIGNED_BRANCH_ID group by e.ASSIGNED_BRANCH_ID, b.branch_id order by branch_id asc;

	branch_id [PK] numeric (10)	name character varying (20)	numbercount bigint
1	1	Headquarters	9
2	2	Woburn Branch	3
3	3	Quincy Branch	3
4	4	So.NH Branch	3

19.

select count(a.product_cd),p.name from account a,product p where p.product_cd=a.product_cd and a.product_cd IN ('CHK', 'SAV') group by p.name,a.product_cd ;

	count bigint	name character varying (50)
1	10	checking account
2	4	savings account