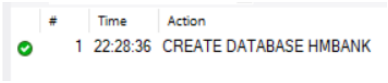
ASSIGNMENT-BANKING SYSTEM

TASK 1

1. Create the database named "HMBank"

   CREATE DATABASE HMBANK;



#	Time	Action
1	22:28:36	CREATE DATABASE HMBANK

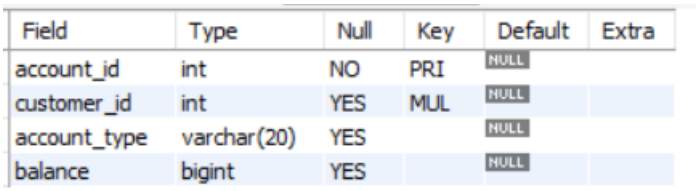
2. Define the schema for the Customers, Accounts, and Transactions tables based on the provided schema.

   create table Customdet(customer_id int primary key, first_name text, last_name text, DOB date, email varchar(50), phone_number varchar(10), address varchar(150));

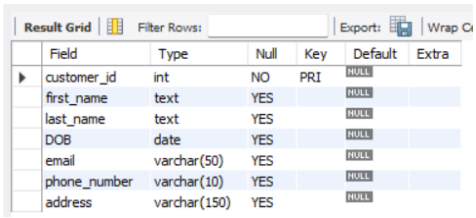
   create table Accounts (account_id int primary key, customer_id int, foreign key(customer_id) references Customers(customer_id), account_type varchar(20),balance bigint);

   create table Transactions(transaction_id int primary key, account_id int, transaction_type varchar(25), amount bigint,transaction_date date, foreign key(account_id) references Accounts(account_id));

accounts
customers
transactions



Field	Type	Null	Key	Default	Extra
account_id	int	NO	PRI	NULL	
customer_id	int	YES	MUL	NULL	
account_type	varchar(20)	YES		NULL	
balance	bigint	YES		NULL	



Result Grid | Filter Rows: | Export: | Wrap C

Field	Type	Null	Key	Default	Extra
customer_id	int	NO	PRI	NULL	
first_name	text	YES		NULL	
last_name	text	YES		NULL	
DOB	date	YES		NULL	
email	varchar(50)	YES		NULL	
phone_number	varchar(10)	YES		NULL	
address	varchar(150)	YES		NULL	

TASK 2

1.Write a SQL query to retrieve the name, account type and email of all customers.

```
select concat(first_name," ",last_name) as Name,(select account_type from Accounts where Accounts.customer_id=Custdet.customer_id )as type ,email from Custdet;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Cor

Name	type	email
John Doe	NULL	john.doe@example.com
Jane Smith	NULL	jane.smith@example.com
Michael Johnson	NULL	michael.johnson@example.com
Emily Brown	NULL	emily.brown@example.com
David Wilson	NULL	david.wilson@example.com
Sarah Taylor	NULL	sarah.taylor@example.com
Christopher Martinez	NULL	chris.martinez@example.com
Jessica Anderson	NULL	jessica.anderson@example.com
Daniel Garcia	NULL	daniel.garcia@example.com
Amanda Thomas	NULL	amanda.thomas@example.com
Matthew Hernandez	NULL	matthew.hernandez@example....
Lauren King	NULL	lauren.king@example.com

2. Write a SQL query to list all transaction corresponding customer.

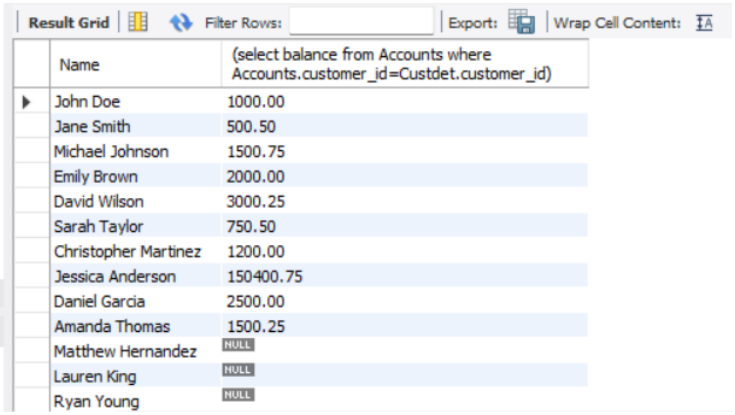
```
select concat(c.first_name," ",c.last_name) as Name, t.transaction_type,t.amount from Custdet c join Accounts a on c.customer_id=a.customer_id join Transactions t on a.account_id=t.account_id;
```

Result Grid | Filter Rows: | Export:

Name	transaction_type	amount
John Doe	deposit	100.00
Jane Smith	withdrawal	50.00
Michael Johnson	deposit	200.50
Emily Brown	withdrawal	300.75
David Wilson	deposit	400.00
Sarah Taylor	withdrawal	150.25
Christopher Martinez	deposit	800.00
Jessica Anderson	withdrawal	75.50
Daniel Garcia	deposit	600.00
Amanda Thomas	withdrawal	200.75

3.Write a SQL query to increase the balance of a specific account by a certain amount.

```
update Accounts set balance=(balance+150000) where customer_id=8;
select concat(first_name," ",last_name) as Name,(select balance from Accounts where
Accounts.customer_id=Custdet.customer_id) from Custdet;
```

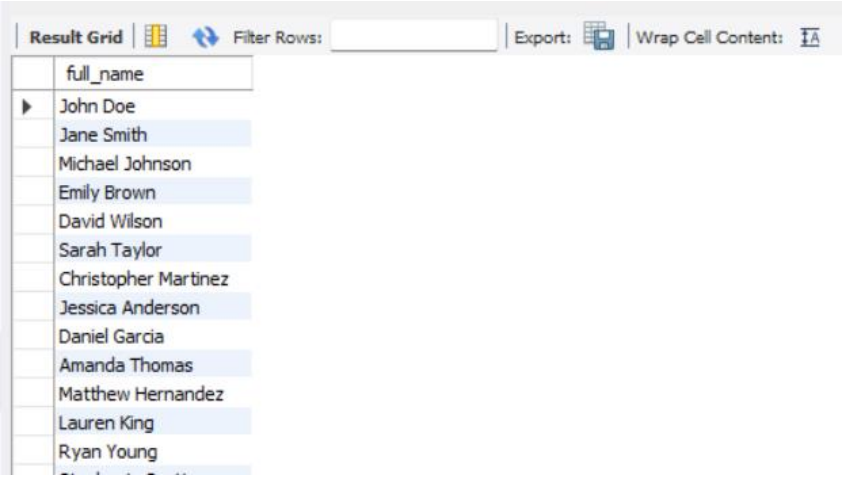


Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	(select balance from Accounts where Accounts.customer_id=Custdet.customer_id)
John Doe	1000.00
Jane Smith	500.50
Michael Johnson	1500.75
Emily Brown	2000.00
David Wilson	3000.25
Sarah Taylor	750.50
Christopher Martinez	1200.00
Jessica Anderson	150400.75
Daniel Garcia	2500.00
Amanda Thomas	1500.25
Matthew Hernandez	NULL
Lauren King	NULL
Ryan Young	NULL

4.Write a SQL query to Combine first and last names of customers as a full name.

```
select concat(first_name," ", last_name ) as full_name from Custdet;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

full_name
John Doe
Jane Smith
Michael Johnson
Emily Brown
David Wilson
Sarah Taylor
Christopher Martinez
Jessica Anderson
Daniel Garcia
Amanda Thomas
Matthew Hernandez
Lauren King
Ryan Young

5.Write a SQL query to remove accounts with a balance of zero where the account type is savings.

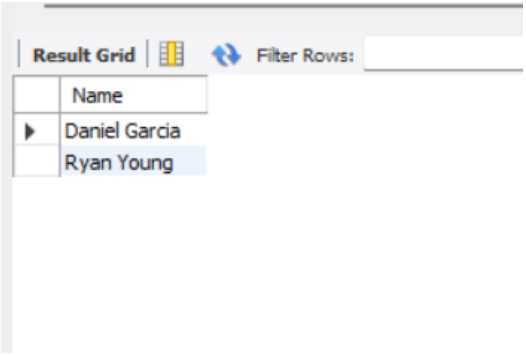
```
delete from Transactions where account_id in( Select account_id from Accounts where Balance=0 and account_type="Savings");
delete from Accounts where balance=0 and account_type="Savings";
```

Result Grid | Filter Rows:

full_name	account_type	balance
John Doe	Savings	50000
Jane Smith	Checking	10000
Michael Johnson	Savings	75000
Emily Brown	Checking	25000
David Wilson	Savings	100000
Sarah Taylor	Savings	60000
Christopher Martinez	Checking	20000
Jessica Anderson	Savings	840000
Daniel Garcia	Checking	30000
Amanda Thomas	Savings	80000
Matthew Hernandez	Checking	40000
Lauren King	Savings	95000
Ryan Young	Checking	35000
Stephanie Scott	Savings	70000
Justin Ramirez	Checking	50000

6.Write a SQL query to Find customers living in a specific city.

```
select concat(first_name," ",last_name) as Name from Custdet where address like "%%%%Banana%%%%" or address like "%%%%Cherry%%%%" ;
```

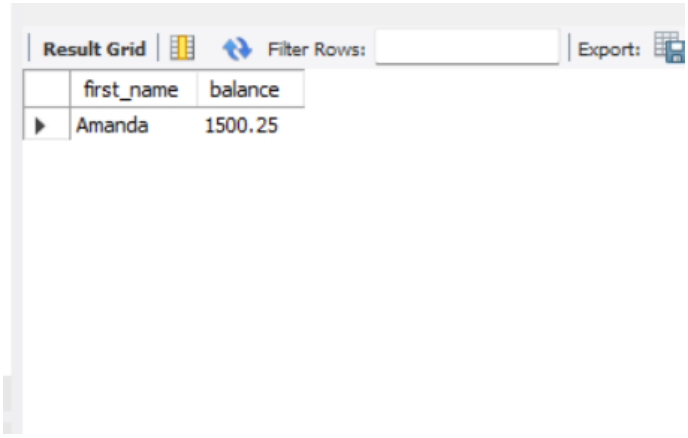


Result Grid | Filter Rows:

Name
Daniel Garcia
Ryan Young

7.Write a SQL query to Get the account balance for a specific account.

```
select first_name , balance from Custdet join Accounts on
Custdet.customer_id=Accounts.customer_id where account_id=10;
```

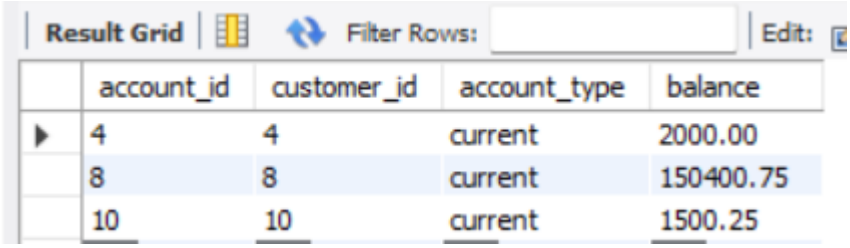


Result Grid | Filter Rows: | Export:

first_name	balance
Amanda	1500.25

8. Write a SQL query to List all current accounts with a balance greater than $1,000.

```
SELECT * FROM accounts WHERE account_type = 'current' AND balance > 1000;
```

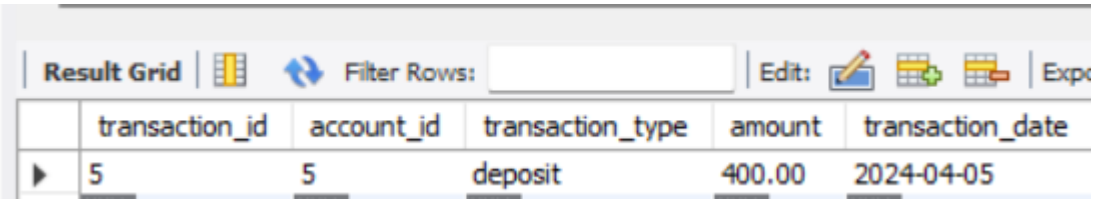


Result Grid | Filter Rows: | Edit:

account_id	customer_id	account_type	balance
4	4	current	2000.00
8	8	current	150400.75
10	10	current	1500.25

9. Write a SQL query to Retrieve all transactions for a specific account.

```
SELECT * FROM transactions WHERE account_id = '5';
```

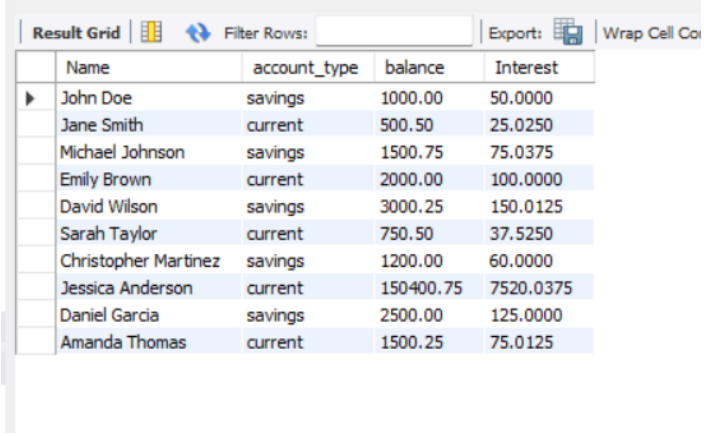


Result Grid | Filter Rows: | Edit: | Expo

transaction_id	account_id	transaction_type	amount	transaction_date
5	5	deposit	400.00	2024-04-05

10. Write a SQL query to Calculate the interest accrued on savings accounts based on a given interest rate.

```
select concat(first_name," ",last_name) as Name, account_type, balance, balance*0.05 as Interest
from Custdet join Accounts on Custdet.customer_id=Accounts.customer_id;
```

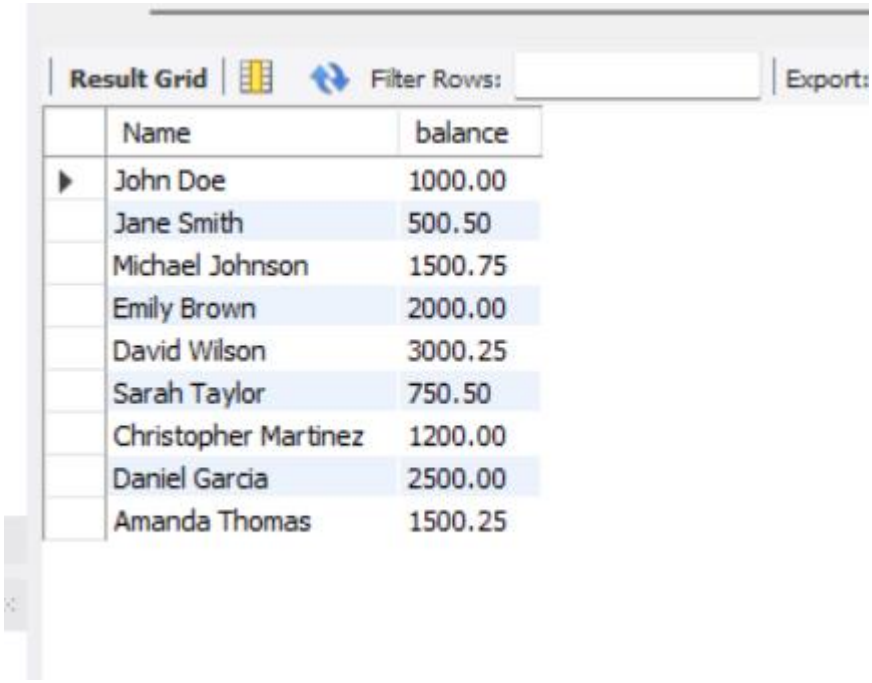


Result Grid | Filter Rows: | Export: | Wrap Cell Co

Name	account_type	balance	Interest
John Doe	savings	1000.00	50.0000
Jane Smith	current	500.50	25.0250
Michael Johnson	savings	1500.75	75.0375
Emily Brown	current	2000.00	100.0000
David Wilson	savings	3000.25	150.0125
Sarah Taylor	current	750.50	37.5250
Christopher Martinez	savings	1200.00	60.0000
Jessica Anderson	current	150400.75	7520.0375
Daniel Garcia	savings	2500.00	125.0000
Amanda Thomas	current	1500.25	75.0125

11. Write a SQL query to Identify accounts where the balance is less than a specified overdraft limit.

```
select concat(first_name," ",last_name) as Name, balance from Custdet join Accounts on
Custdet.customer_id=Accounts.customer_id where balance<50000;
```



Result Grid | Filter Rows: | Export:

Name	balance
John Doe	1000.00
Jane Smith	500.50
Michael Johnson	1500.75
Emily Brown	2000.00
David Wilson	3000.25
Sarah Taylor	750.50
Christopher Martinez	1200.00
Daniel Garcia	2500.00
Amanda Thomas	1500.25

12. Write a SQL query to Find customers not living in a specific city.

```
select concat(first_name," ",last_name) as Name, address from custdet where address not like "%Banana%";
```

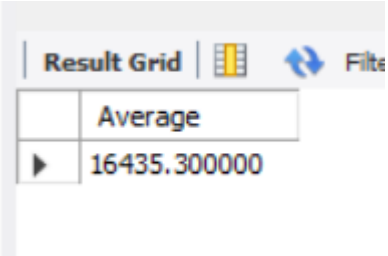
Result Grid | Filter Rows: | Export:

Name	address
John Doe	123 Main St, City, Country
Jane Smith	456 Elm St, City, Country
Michael Johnson	789 Oak St, City, Country
Emily Brown	321 Maple St, City, Country
David Wilson	654 Pine St, City, Country
Sarah Taylor	876 Cedar St, City, Country
Christopher Martinez	432 Birch St, City, Country
Jessica Anderson	567 Walnut St, City, Country
Daniel Garcia	890 Cherry St, City, Country
Amanda Thomas	789 Pineapple St, City, Country
Matthew Hernandez	345 Mango St, City, Country
Lauren King	234 Peach St, City, Country
Stephanie Scott	543 Grape St, City, Country
Justin Ramirez	876 Orange St, City, Country

TASK 3

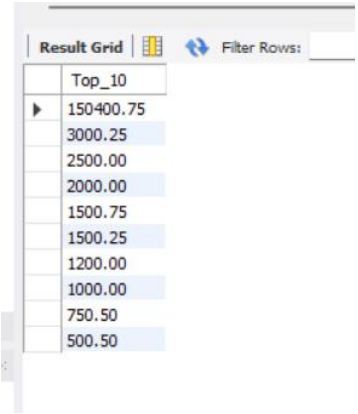
1. Write a SQL query to Find the average account balance for all customers.

   select avg(balance) As Average from Accounts;



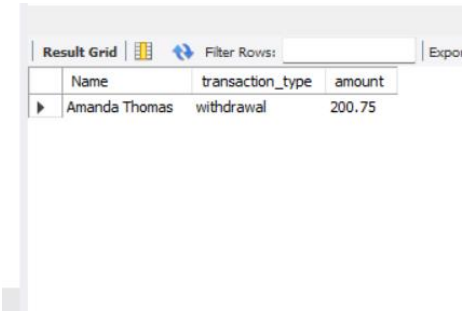
2. Write a SQL query to Retrieve the top 10 highest account balances.

   select balance as Top_10 from Accounts order by(balance) desc limit 10 ;



3. Write a SQL query to Calculate Total Deposits for All Customers in specific date.

```
select concat(first_name," ",last_name) as Name,transaction_type, amount from Custdet
join Accounts on Custdet.customer_id=Accounts.customer_id join Transactions on
Accounts.account_id=Transactions.account_id where transaction_date="2024-04-10";
```

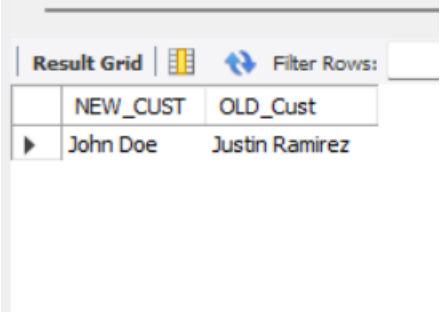


Result Grid | Filter Rows: | Expo

Name	transaction_type	amount
Amanda Thomas	withdrawal	200.75

4. Write a SQL query to Find the Oldest and Newest Customers.

```
SELECT MAX(CASE WHEN customer_id = min_id THEN CONCAT(first_name, ' ', last_name)
END) AS NEW_CUST, MAX(CASE WHEN customer_id = max_id THEN CONCAT(first_name, ' ',
last_name) END) AS OLD_Cust FROM Custdet
CROSS JOIN
   (SELECT MIN(customer_id) AS min_id, MAX(customer_id) AS max_id FROM Custdet) AS
subquery;
```

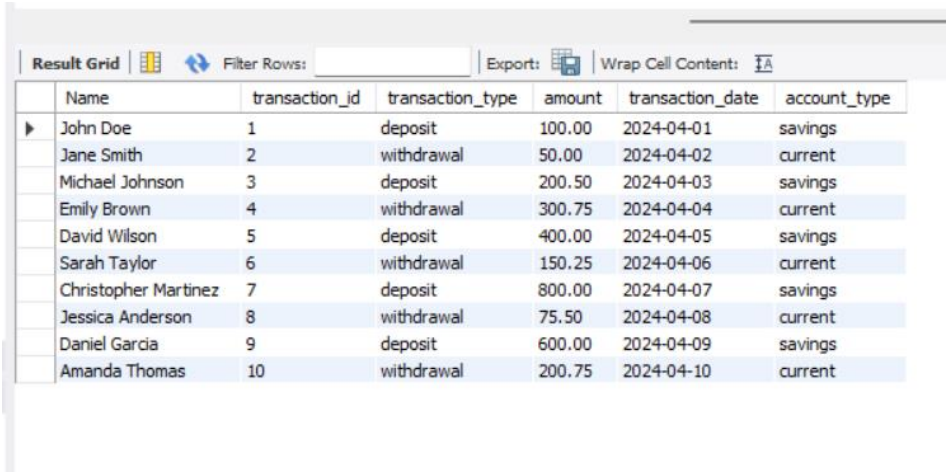


Result Grid | Filter Rows:

NEW_CUST	OLD_Cust
John Doe	Justin Ramirez

5. Write a SQL query to Retrieve transaction details along with the account type.

```
select concat(first_name," ",last_name) as Name,
transaction_id,transaction_type,amount,transaction_date, account_type from Custdet join
Accounts on Custdet.customer_id=Accounts.customer_id join Transactions on
Accounts.account_id=Transactions.account_id;
```

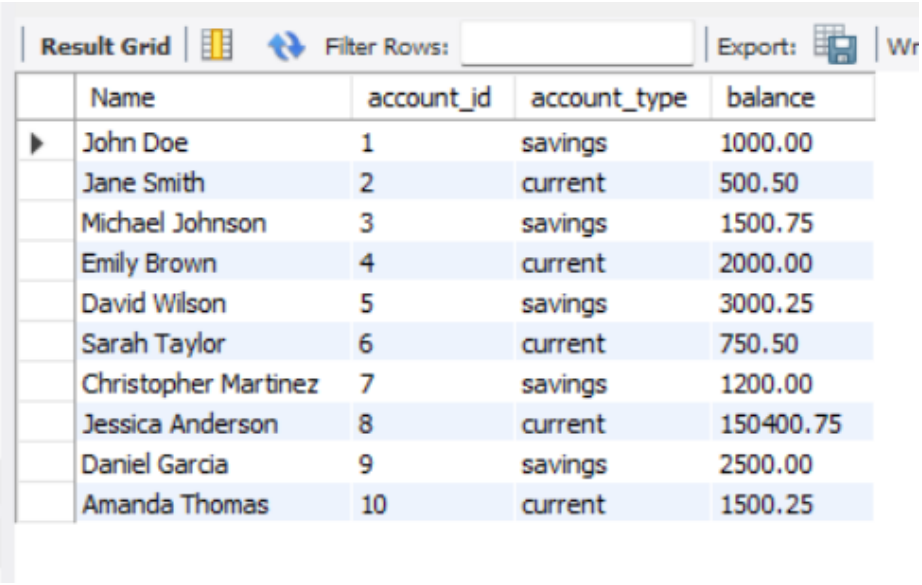


Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	transaction_id	transaction_type	amount	transaction_date	account_type
John Doe	1	deposit	100.00	2024-04-01	savings
Jane Smith	2	withdrawal	50.00	2024-04-02	current
Michael Johnson	3	deposit	200.50	2024-04-03	savings
Emily Brown	4	withdrawal	300.75	2024-04-04	current
David Wilson	5	deposit	400.00	2024-04-05	savings
Sarah Taylor	6	withdrawal	150.25	2024-04-06	current
Christopher Martinez	7	deposit	800.00	2024-04-07	savings
Jessica Anderson	8	withdrawal	75.50	2024-04-08	current
Daniel Garcia	9	deposit	600.00	2024-04-09	savings
Amanda Thomas	10	withdrawal	200.75	2024-04-10	current

6. Write a SQL query to Get a list of customers along with their account details.

```
select concat(first_name," ",last_name) as Name, account_id,account_type,balance from
Custdet join Accounts on Custdet.customer_id=Accounts.customer_id;
```



Result Grid | Filter Rows: | Export: | Wr

Name	account_id	account_type	balance
John Doe	1	savings	1000.00
Jane Smith	2	current	500.50
Michael Johnson	3	savings	1500.75
Emily Brown	4	current	2000.00
David Wilson	5	savings	3000.25
Sarah Taylor	6	current	750.50
Christopher Martinez	7	savings	1200.00
Jessica Anderson	8	current	150400.75
Daniel Garcia	9	savings	2500.00
Amanda Thomas	10	current	1500.25

7. Write a SQL query to Retrieve transaction details along with customer information for a specific account.

```
select distinct concat(first_name," ",last_name) as Name, Accounts.account_id,
transaction_id,transaction_type,amount,transaction_date from Custdet join Accounts on
Custdet.customer_id=Accounts.customer_id join Transactions on
Accounts.account_id=Transactions.account_id where Accounts.account_id="4";
```


Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	account_id	transaction_id	transaction_type	amount	transaction_date
Emily Brown	4	4	withdrawal	300.75	2024-04-04

8. Write a SQL query to Identify customers who have more than one account.

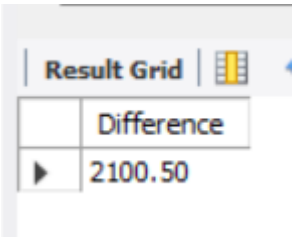
```
select customer_id from Accounts group by customer_id having count(*)>1;
```


Result Grid | Filt

customer_id

9. Write a SQL query to Calculate the difference in transaction amounts between deposits and withdrawals.

```
SELECT SUM(CASE WHEN transaction_type = 'Deposit' THEN amount
        WHEN transaction_type = 'Withdrawl' THEN -amount
        ELSE 0 END) AS Difference
FROM Transactions;
```


Result Grid

Difference
2100.50

10. Write a SQL query to Calculate the average daily balance for each account over a specified period.

```
select account_id , avg(balance) as Average_Balance from Accounts group by account_id;
```

Result Grid | Filter Rows:

account_id	Average_Balance
1	1000.000000
2	500.500000
3	1500.750000
4	2000.000000
5	3000.250000
6	750.500000
7	1200.000000
8	150400.750000
9	2500.000000
10	1500.250000

11. Calculate the total balance for each account type.

```
select account_type , sum(balance) from Accounts group by account_type;
```

Result Grid | Filter Rows:

account_type	sum(balance)
savings	9201.00
current	155152.00

12. Identify accounts with the highest number of transactions order by descending order.

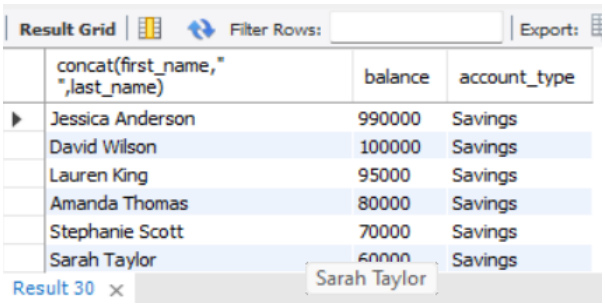
```
select account_id,count(account_id) as no_of_Transactions from Transactions group by
account_id order by no_of_Transactions desc;
```

Result Grid | Filter Rows:

account_id	no_of_Transactions
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1

13. List customers with high aggregate account balances, along with their account types.

```
select concat(first_name," ",last_name), balance , account_type from Custdet join Accounts
on Custdet.customer_id=Accounts.customer_id group by first_name order by balance desc;
```



Result Grid | Filter Rows: | Export:

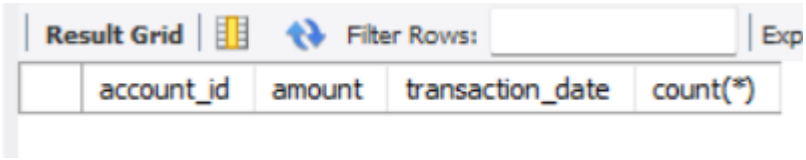
concat(first_name," ",last_name)	balance	account_type
Jessica Anderson	990000	Savings
David Wilson	100000	Savings
Lauren King	95000	Savings
Amanda Thomas	80000	Savings
Stephanie Scott	70000	Savings
Sarah Taylor	60000	Savings

Result 30 ×

Sarah Taylor

14. Identify and list duplicate transactions based on transaction amount, date, and account.

```
select account_id, amount,transaction_date, count(*) from Transactions group by
account_id, amount,transaction_date having count(*)>1;
```



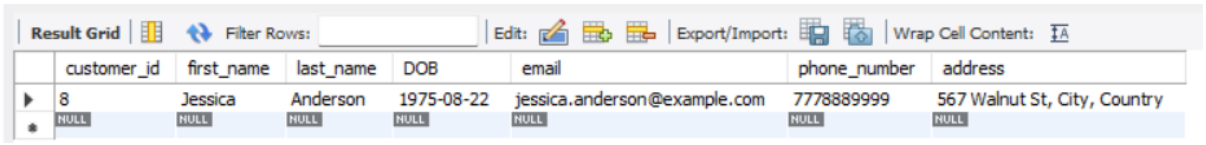
Result Grid | Filter Rows: | Exp

account_id	amount	transaction_date	count(*)

TASK 4

1.Retrieve the customer(s) with the highest account balance.

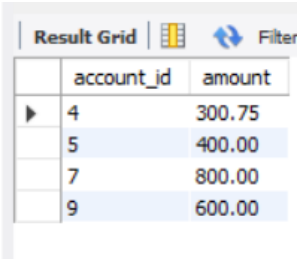
```
select * from Custdet where customer_id=(select customer_id from Accounts where
balance=(select max(balance) from Accounts));
```



customer_id	first_name	last_name	DOB	email	phone_number	address
8	Jessica	Anderson	1975-08-22	jessica.anderson@example.com	7778889999	567 Walnut St, City, Country
NULL	NULL	NULL	NULL	NULL	NULL	NULL

3.Retrieve accounts with transactions whose amounts exceed the average transaction amount.

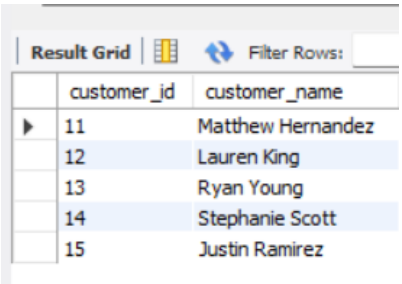
```
select account_id,amount from transactions

where  amount >(select  avg(amount) from transactions);
```



account_id	amount
4	300.75
5	400.00
7	800.00
9	600.00

4.Identify customers who have no recorded transactions.

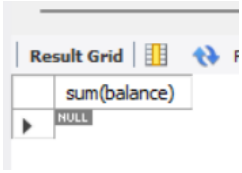
```
SELECT c.customer_id,CONCAT(c.first_name, ' ', c.last_name) AS customer_name
FROM Custdet c
LEFT JOIN Accounts a ON c.customer_id = a.customer_id LEFT JOIN Transactions t ON
a.account_id = t.account_id WHERE t.account_id IS NULL;
```



customer_id	customer_name
11	Matthew Hernandez
12	Lauren King
13	Ryan Young
14	Stephanie Scott
15	Justin Ramirez

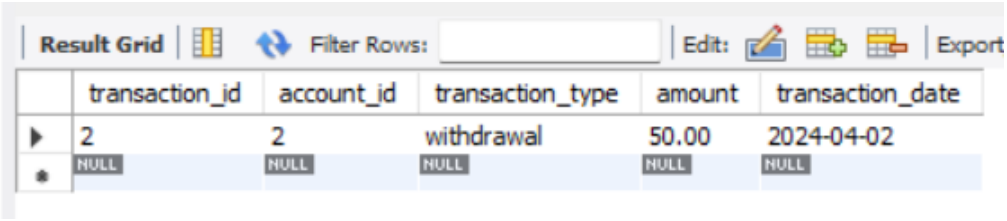
5.Calculate the total balance of accounts with no recorded transactions.

```
select sum(balance) from accounts
where account_id not in (select account_id from transactions);
```



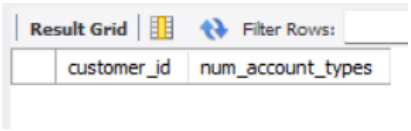
6. Retrieve transactions for accounts with the lowest balance.

```
SELECT *
FROM transactions
WHERE account_id
 IN (SELECT account_id FROM accounts WHERE balance = (SELECT MIN(balance)
FROM accounts));
```



7. Identify customers who have accounts of multiple types.

```
SELECT customer_id,COUNT(DISTINCT account_type) AS num_account_types
FROM Accounts
GROUP BY customer_id
HAVING COUNT(DISTINCT account_type) > 1;
```

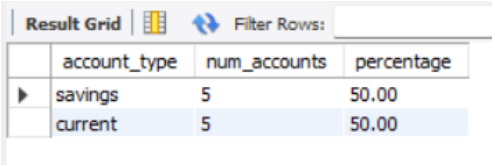


Result Grid | Filter Rows:

customer_id	num_account_types

8. Calculate the percentage of each account type out of the total number of accounts.

```
SELECT account_type,COUNT(*) AS num_accounts,
ROUND(COUNT(*) * 100.0 / (SELECT COUNT(*) FROM Accounts), 2) AS percentage
FROM Accounts
GROUP BY account_type;
```

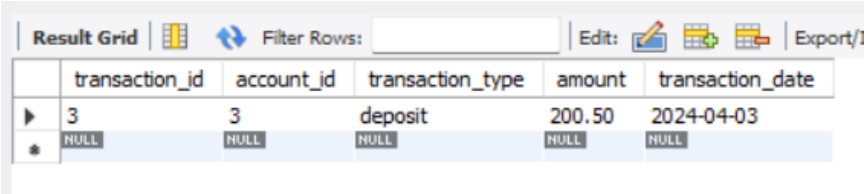


Result Grid | Filter Rows:

account_type	num_accounts	percentage
savings	5	50.00
current	5	50.00

9. Retrieve all transactions for a customer with a given customer_id.

```
SELECT * FROM Transactions WHERE  account_id IN (SELECT account_id FROM
Accounts WHERE customer_id = 3 );
```

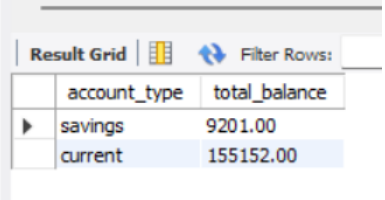


Result Grid | Filter Rows: | Edit: | Export/I

transaction_id	account_id	transaction_type	amount	transaction_date
3	3	deposit	200.50	2024-04-03
NULL	NULL	NULL	NULL	NULL

10. Calculate the total balance for each account type, including a subquery within the SELECT clause.

```
(SELECT SUM(balance) FROM Accounts WHERE account_type = a.account_type) AS total_balance
FROM (SELECT DISTINCT account_type FROM Accounts) AS a;
```



account_type	total_balance
savings	9201.00
current	155152.00