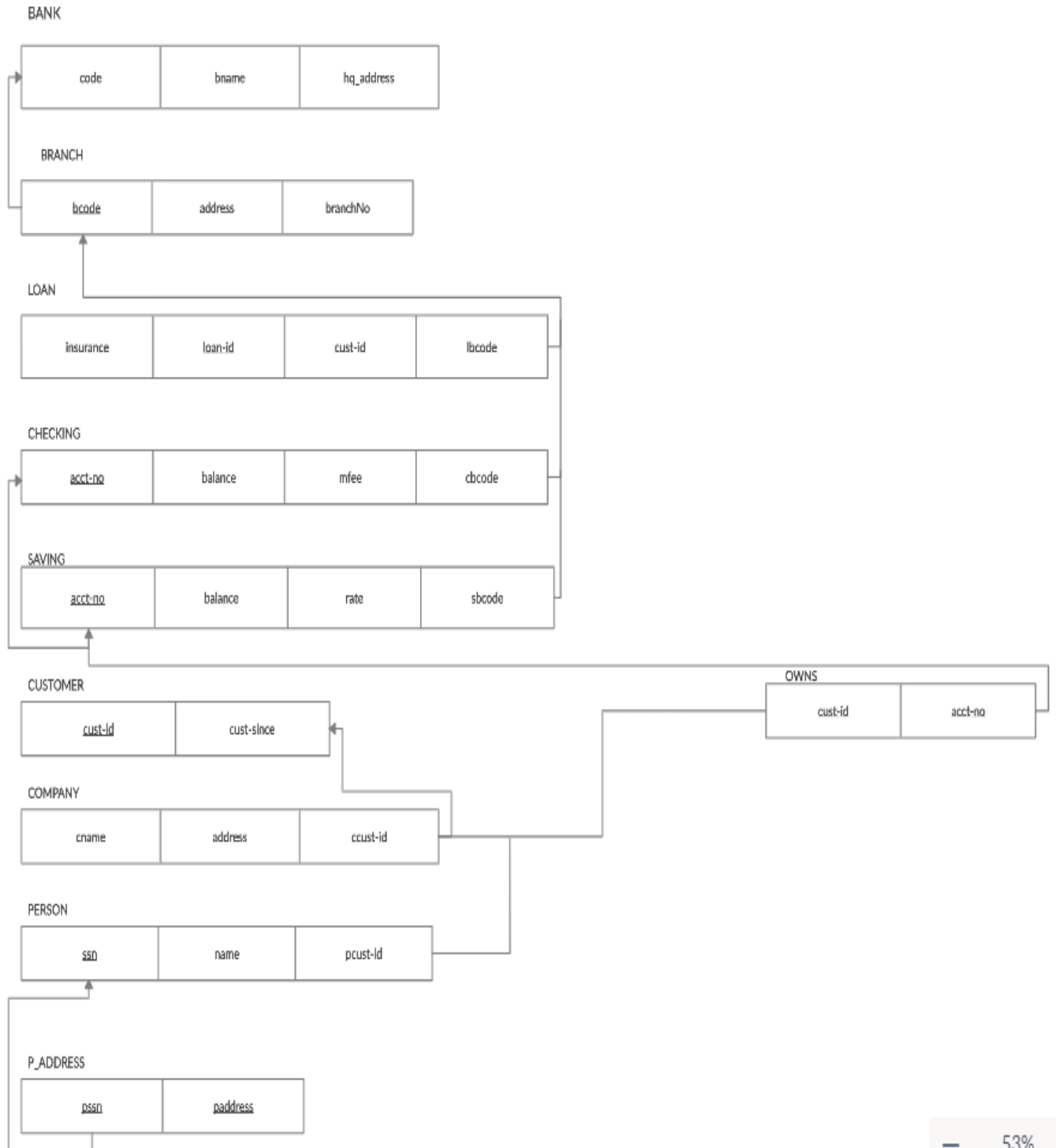


Question 1

<https://app.creately.com/diagram/yBL7tHeZU0V/view>



Jamal Ashby

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HW2

Question 2

1. All Create Table Queries

```
C:\Users\Jamal\Desktop\School Work\DatabaseSystemHW2\HW2-schema.sql - Notepad++ [Administrator]
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
HW2-schema.sql HW2-data.sql HW2-queries.sql
1 drop table if exists bank;
2 CREATE TABLE bank (
3     code INT(4),
4     bname varchar(15) not null,
5     hq_address varchar(50) not null,
6     primary key(code)
7 );
8
9 drop table if exists branch;
10 CREATE TABLE branch (
11     boode INT(4) not null,
12     address varchar(50),
13     branchNo INT(4) not null,
14     foreign key(boode) references bank(code)
15 );
16
17 drop table if exists loan;
18 CREATE TABLE loan(
19     insurance varchar(24),
20     loan_id INT(3) not null,
21     lcust_id INT(4),
22     lbcode INT(4) not null,
23     primary key(loan_id),
24     foreign key(lbcode) references bank(code)
25 );
26
27 drop table if exists checking;
28 CREATE TABLE checking(
29     acct_no INT(4) not null,
30     balance INT(6),
31     mfee DECIMAL(9,2),
32     cbcode INT(4) not null,
33     primary key(acct_no),
34     unique(mfee),
35     foreign key(cbcode) references bank(code)
36 );
37
38 drop table if exists saving;
39 CREATE TABLE saving(
40     acct_no INT(4) not null,
```

Structured Query Language file length: 1,902 lines: 93 Ln: 58 Col: 21 Sel: 0 | 0 Windows (CR LF) UTF-8 INS

```
C:\Users\Jamal\Desktop\School Work\DatabaseSystemHW2\HW2-schema.sql - Notepad++ [Administrator]
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
HW2-schema.sql HW2-data.sql HW2-queries.sql
41     balance INT(6),
42     rate INT(2),
43     sbcode INT(4) not null,
44     primary key(acct_no),
45     unique(rate),
46     foreign key(sbcode) references bank(code)
47 );
48
49 drop table if exists customer;
50 CREATE TABLE customer(
51     cust_id INT(4),
52     cust_since INT(4) not null,
53     primary key(cust_id)
54 );
55
56 drop table if exists company;
57 CREATE TABLE company(
58     cname varchar(50) not null,
59     address varchar(50),
60     ccust_id INT(4),
61     primary key(cname)
62 );
63
64 drop table if exists person;
65 CREATE TABLE person(
66     ssn char(9),
67     name varchar(50) not null,
68     pcust_id INT(4),
69     primary key(ssn)
70 );
71
72 ALTER TABLE customer ADD(
73     foreign key(cust_id) references company(ccust_id),
74     foreign key(cust_id) references person(pcust_id)
75 );
76
77 drop table if exists p_address;
78 CREATE TABLE p_address(
79     pssn char(9),
80     address varchar(50),
```

Structured Query Language file length: 1,902 lines: 93 Ln: 58 Col: 21 Sel: 0 | 0 Windows (CR LF) UTF-8 INS

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```
C:\Users\Jamal\Desktop\School Work\DatabaseSystemHW2\HW2-schema.sql - Notepad++ [Administrator]
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
HW2-schema.sql HW2-data.sql HW2-queries.sql
54 };
55
56 drop table if exists company;
57 CREATE TABLE company(
58     cname varchar(50) not null,
59     address varchar(50),
60     ccust_id INT(4),
61     primary key(cname)
62 );
63
64 drop table if exists person;
65 CREATE TABLE person(
66     ssn char(9),
67     name varchar(50) not null,
68     pcust_id INT(4),
69     primary key(ssn)
70 );
71
72 ALTER TABLE customer ADD(
73     foreign key(ccust_id) references company(ccust_id),
74     foreign key(pcust_id) references person(pcust_id)
75 );
76
77 drop table if exists p_address;
78 CREATE TABLE p_address(
79     psn char(9),
80     paddress varchar(50),
81     primary key(paddress)
82 );
83
84 ALTER TABLE p_address ADD(
85     foreign key(psn) references person(ssn)
86 );
87
88 drop table if exists owns;
89 CREATE TABLE owns(
90     cust_id INT(4),
91     acct_no INT(4),
92     primary key(cust_id,acct_no)
93 );
94
Structured Query Language file length: 1,902 lines: 93 Ln: 58 Col: 21 Sel: 0 | 0 Windows (CR LF) UTF-8 INS
```

3. All Insert Queries

```
C:\Users\Jamal\Desktop\School Work\DatabaseSystemHW2\HW2-data.sql - Notepad++ [Administrator]
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
HW2-schema.sql HW2-data.sql HW2-queries.sql
2 /*Basic templates for 10 values for each entity, just copy paste and add new,reasonable, data.*/
3 INSERT into bank values(1,'Federal Credit Union','6548 Blazing Ave, Atlanta, GA');
4 INSERT into bank values(2,'Wells Fargo','8590 Rex Ct, Rome, GA');
5 INSERT into bank values(3,'American Trustee','3241 Double Bridge Rd, Seattle, WA');
6 INSERT into bank values(4,'Federal National Bank','7745 Morrow Ave, Detroit, MA');
7 INSERT into bank values(5,'United Central Bank','3225 Curiosity Rd, Chicago, IL');
8 INSERT into bank values(6,'Sketchy Bank','7216 Micha Cir, Dallas, TX');
9 INSERT into bank values(7,'Suntrust','9807 Daylight Blvd, Miami, FL');
10 INSERT into bank values(8,'BB&T','1576 Helpfull Dr, Philadelphia, PA');
11 INSERT into bank values(9,'Bank of America','3211 Darkness Ekwy, Las Vegas, NV');
12 INSERT into bank values(10,'Capital One','1076 Light St, Honolulu, HI');
13
14 INSERT into branch values(1,'1234 Hunter Dr, Chicago, IL',1);
15 INSERT into branch values(2,'3456 Woodsman Ct, Miami, FL',2);
16 INSERT into branch values(5,'5678 Blacksmith Rd, Detroit, MA',3);
17 INSERT into branch values(1,'9101 Palmeto Ave, Seattle, WA',4);
18 INSERT into branch values(5,'1112 Ashby Cir, Dallas, TX',5);
19 INSERT into branch values(5,'1314 Movado Blvd, Honolulu, HI',6);
20 INSERT into branch values(1,'2690 Brightness Rd, Philadelphia, PA',7);
21 INSERT into branch values(5,'7124 Milton Dr, New Orleans, LA',8);
22 INSERT into branch values(1,'8351 Union Ave, San Francisco, CA',9);
23 INSERT into branch values(6,'2231 Cyclone St, Austin, TX',10);
24
25 INSERT into loan values('Student Insurance',1,20,1);
26 INSERT into loan values('Private Insurance',2,22,4);
27 INSERT into loan values('Business Insurance',3,1,3);
28 INSERT into loan values('Student Insurance',4,24,4);
29 INSERT into loan values('Private Insurance',5,6,2);
30 INSERT into loan values('Private Insurance',6,8,6);
31 INSERT into loan values('Business Insurance',7,2,5);
32 INSERT into loan values('Student Insurance',8,23,3);
33 INSERT into loan values('Private Insurance',9,28,10);
34 INSERT into loan values('Business Insurance',10,3,7);
35
36 /*checking acct_no 1000-1999, saving acct_no 2000-2999*/
37 INSERT into checking values(1000,3245,9,60,1);
38 INSERT into checking values(1001,34,5,00,2);
39 INSERT into checking values(1002,4000,2,50,1);
40 INSERT into checking values(1003,25000,2,75,2);
41
Structured Query Language file length: 5,951 lines: 114 Ln: 92 Col: 36 Sel: 0 | 0 Windows (CR LF) UTF-8 INS
```

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HW2

```
C:\Users\Jamal\Desktop\School Work\DatabaseSystemHW2\HW2-data.sql - Notepad++ [Administrator]
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
HW2-schema.sql HW2-data.sql HW2-queries.sql
41 INSERT into checking values(1004,5,4.50,1);
42 INSERT into checking values(1005,150000,7.89,2);
43 INSERT into checking values(1006,24678,1.50,1);
44 INSERT into checking values(1007,2345,8.70,2);
45 INSERT into checking values(1008,956,7.55,3);
46 INSERT into checking values(1009,524,4.55,4);
47
48 INSERT into saving values(2000,24000,1,7);
49 INSERT into saving values(2001,100000,8,8);
50 INSERT into saving values(2002,15000,2,9);
51 INSERT into saving values(2003,1500,4,5);
52 INSERT into saving values(2004,24,5,6);
53 INSERT into saving values(2005,2000,4,8);
54 INSERT into saving values(2006,200,8,10);
55 INSERT into saving values(2007,4000,2,4);
56 INSERT into saving values(2008,3500,3,7);
57 INSERT into saving values(2009,30000,6,3);
58
59 INSERT into customer values(22,1987);
60 INSERT into customer values(2,2018);
61 INSERT into customer values(25,2017);
62 INSERT into customer values(20,1990);
63 INSERT into customer values(5,1996);
64 INSERT into customer values(21,2014);
65 INSERT into customer values(7,2010);
66 INSERT into customer values(23,2009);
67 INSERT into customer values(9,2008);
68 INSERT into customer values(10,1994);
69
70 INSERT into company values('Bell South','2341 Anxious Ct, Seattle, WA',1);
71 INSERT into company values('Boost Mobile','5467 Crazy Rd, Chicago, IL',2);
72 INSERT into company values('AT&T','3458 Happy St, Detroit, MI',3);
73 INSERT into company values('Comcast','9768 Sad Ave, Philadelphia, PA',4);
74 INSERT into company values('McDonalds','7089 Splendid Ct, Miami, FL',5);
75 INSERT into company values('Apple','2465 Turncoat Dr, Los Santos, NV',6);
76 INSERT into company values('Google','6657 Intense Blvd, Los Vegas, NV',7);
77 INSERT into company values('Twitch','2134 Awesome Rd, Austin, TX',8);
78 INSERT into company values('Youtube','9077 Thrilling St, Dallas, TX',9);
79 INSERT into company values('Microsoft','4545 Joyous Blvd, Honolulu, HI',10);
80
Structured Query Language file length: 5,951 lines: 114 Ln: 92 Col: 36 Sel: 0 | 0 Windows (CR LF) UTF-8 INS
```

```
C:\Users\Jamal\Desktop\School Work\DatabaseSystemHW2\HW2-data.sql - Notepad++ [Administrator]
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
HW2-schema.sql HW2-data.sql HW2-queries.sql
76 INSERT into company values('Google','6657 Intense Blvd, Los Vegas, NV',7);
77 INSERT into company values('Twitch','2134 Awesome Rd, Austin, TX',8);
78 INSERT into company values('Youtube','9077 Thrilling St, Dallas, TX',9);
79 INSERT into company values('Microsoft','4545 Joyous Blvd, Honolulu, HI',10);
80
81 INSERT into person values('234567890','Leeroy Jenkins',20);
82 INSERT into person values('546789345','Jamal Ashby',21);
83 INSERT into person values('223445678','Nicole Simpsons',22);
84 INSERT into person values('889900332','Andrew Roberts',23);
85 INSERT into person values('112554467','Julio Rodriguez',24);
86 INSERT into person values('980006554','Jessica Parkinson',25);
87 INSERT into person values('126657893','Eddie Griffith',26);
88 INSERT into person values('234567893','Thadious Mccullough',27);
89 INSERT into person values('114433558','Chance Moses',28);
90 INSERT into person values('988077651','Mercedes Johnson',29);
91
92 INSERT into p_address values('234567890','6789 Day Cir, Dallas, TX');
93 INSERT into p_address values('546789345','1234 Night St, Austin, TX');
94 INSERT into p_address values('223445678','4567 MidDay Blvd, Houston, TX');
95 INSERT into p_address values('889900332','5634 Noon St, Philadelphia, PA');
96 INSERT into p_address values('112554467','7812 Bayers Ave, Honolulu, HI');
97 INSERT into p_address values('980006554','8934 Coal St, Detroit, MI');
98 INSERT into p_address values('126657893','1290 Maintain St, Los Santos, TX');
99 INSERT into p_address values('234567893','3498 Peace Blvd, San Francisco, CA');
100 INSERT into p_address values('114433558','0921 Rueful Cir, Atlanta, GA');
101 INSERT into p_address values('988077651','6509 Dang Rd, Rome, GA');
102
103 /*Which Person/Company owns whichever account*/
104 INSERT into owns values(10,1000);
105 INSERT into owns values(6,1002);
106 INSERT into owns values(4,1003);
107 INSERT into owns values(10,1004);
108 INSERT into owns values(3,1005);
109 INSERT into owns values(20,2001);
110 INSERT into owns values(22,2002);
111 INSERT into owns values(9,2003);
112 INSERT into owns values(29,2004);
113 INSERT into owns values(21,2005);
114
Structured Query Language file length: 5,951 lines: 114 Ln: 92 Col: 36 Sel: 0 | 0 Windows (CR LF) UTF-8 INS
```

Question 3

1. select code, bname

from bank

where code in (select bcode from branch group by bcode having count(bcode) > 3);

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HW2

```
MariaDB [hw2test]> select code, bname
-> from bank
-> where code in (select bcode from branch group by bcode having count(bcode) > 3);
```

code	bname
1	Federal Credit
5	United Central

```
2 rows in set (0.155 sec)
```

2. select name

from person

where name like '%s';

```
MariaDB [hw2test]> select name
-> from person
-> where name like '%s';
```

name
Chance Moses
Nicole Simpsons
Leeroy Jenkins
Andrew Roberts

```
4 rows in set (0.042 sec)
```

3. select count(*) as total_customer

from customer;

```
MariaDB [hw2test]> select count(*) as total_customer
-> from customer;
```

total_customer
10

```
1 row in set (0.020 sec)
```

```
MariaDB [hw2test]> _
```

4. select name, pcust_id

from person

where pcust_id in (select lcust_id from loan group by lcust_id having lcust_id > 19)

and not pcust_id in (select cust_id from owns);

```
MariaDB [hw2test]> select name, pcust_id
-> from person
-> where pcust_id in (select lcust_id from loan group by lcust_id having lcust_id > 19)
-> and not pcust_id in (select cust_id from owns );
```

name	pcust_id
Julio Rodriguez	24
Chance Moses	28
Andrew Roberts	23

```
3 rows in set (0.036 sec)
```

```
MariaDB [hw2test]>
```

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HW2

5. select address, branchNo

from branch

where branchNo in (1,2)

order by branchNo desc;

```
MariaDB [hw2test]> select address,branchNo
-> from branch
-> where branchNo in (1,2)
-> order by branchNo desc;
+-----+-----+
| address | branchNo |
+-----+-----+
| 3456 Woodsman Ct, Miami, FL | 2 |
| 3456 Woodsman Ct, Miami, FL | 2 |
| 1234 Hunter Dr, Chicago, IL | 1 |
| 1234 Hunter Dr, Chicago, IL | 1 |
+-----+-----+
4 rows in set (0.032 sec)

MariaDB [hw2test]> _
```

6. (select name

from person

where pcust_id in(select cust_id from owns where acct_no in(select acct_no from saving where rate > 2)))

union

(select cname

from company

where ccust_id in (select cust_id from owns where acct_no in(select acct_no from saving where rate > 2)));

```
MariaDB [hw2test]> (select name
-> from person
-> where pcust_id in(select cust_id from owns where acct_no in(select acct_no from saving where rate > 2)))
-> union
-> (select cname
-> from company
-> where ccust_id in (select cust_id from owns where acct_no in(select acct_no from saving where rate > 2)));
+-----+
| name |
+-----+
| Leeroy Jenkins |
| Mercedes Johnson |
| Youtube |
+-----+
3 rows in set (0.002 sec)

MariaDB [hw2test]>
```

7. select name

from person

where pcust_id in (select cust_id from owns where acct_no in (select acct_no from saving where balance > 10000));

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```
MariaDB [hw2test]> select name
-> from person
-> where pcust_id in (select cust_id from owns where acct_no in (select acct_no from saving where balance > 10000));

+-----+
| name          |
+-----+
| Nicole Simpsons |
| Leeroy Jenkins |
+-----+
2 rows in set (0.001 sec)

MariaDB [hw2test]>
```

8. select cname, ccust_id

from company

where ccust_id in (select cust_id from owns where cust_id = 10);

```
MariaDB [hw2test]> select cname,ccust_id
-> from company
-> where ccust_id in (select cust_id from owns where cust_id = 10);

+-----+-----+
| cname      | ccust_id |
+-----+-----+
| Microsoft  | 10       |
+-----+-----+
1 row in set (0.170 sec)

MariaDB [hw2test]>
```

9. select name, pcust_id

from person

where pcust_id in(select lcust_id from loan);

```
MariaDB [hw2test]> select name, pcust_id
-> from person
-> where pcust_id in(select lcust_id from loan);

+-----+-----+
| name          | pcust_id |
+-----+-----+
| Julio Rodriguez | 24       |
| Chance Moses   | 28       |
| Nicole Simpsons | 22       |
| Leeroy Jenkins | 20       |
| Andrew Roberts | 23       |
+-----+-----+
5 rows in set (0.001 sec)

MariaDB [hw2test]> _
```

10. select avg(balance)

from saving

where acct_no in (select acct_no from owns where cust_id in (select pcust_id from person));

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HW2

```
MariaDB [hw2test]> select avg(balance)
-> from saving
-> where acct_no in (select acct_no from owns where cust_id in (select pcust_id from person));
+-----+
| avg(balance) |
+-----+
| 38341.3333 |
+-----+
1 row in set (0.001 sec)

MariaDB [hw2test]>
```

11. (select cname as maxMFeeCustomer

from company

where ccust_id in(select cust_id from owns where acct_no in(select acct_no from checking where mfee = (select max(mfee) from checking) group by acct_no)))

UNION

(select acct_no

from checking

where mfee = (select max(mfee) from checking) group by acct_no);

```
MariaDB [hw2test]> (select cname as maxMFeeCustomer
-> from company
-> where ccust_id in(select cust_id from owns where acct_no in(select acct_no from checking where mfee = (select max
(mfee) from checking) group by acct_no)))
-> UNION
-> (select acct_no
-> from checking
-> where mfee = (select max(mfee) from checking) group by acct_no);
+-----+
| maxMFeeCustomer |
+-----+
| Microsoft |
| 1000 |
+-----+
2 rows in set (0.065 sec)

MariaDB [hw2test]> _
```

- **EXPLANATIONS FOR CODE WILL BE INCLUDED IN THE COMMENT SECTION OF THE QUERY SQL FILE -**