



INFORMATION COMMUNICATION TECHNOLOGIES

INDIVIDUAL FINAL PROJECT

TOPIC: **SBERBANK**



Student name: Sagengaliyev Adil

Group: TS-1902

Tutor name: Assel Smaiyl

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**1)**

Tables:client,account,credit,deposit,employee,bank,transfer.

The goal of the project is to show the banking system and their relationship

As you know each bank has of course his clients, own powerful staff. Bank can give to client credit and deposit. Although bank may has many branches. Then we have account, each client has only one account.

2)

```
1 create table account (
2   account_id int,
3   account_type varchar (255),
4   account_date date,
5   account_balance real,
6   constraint account_id primary key (account_id)
7 );
8 select * from account;
```

|  | account_id<br>[PK] integer | account_type<br>character varying (255) | account_date<br>date | account_balance<br>real |
|--|----------------------------|---|----------------------|-------------------------|
|  |                            |   |                      |                         |

```
1 create table client (  
2     client_id int,  
3     client_lname varchar (255),  
4         client_fname varchar (255),  
5         client_mname varchar (255),  
6     client_age real,  
7     client_location varchar (255),  
8     client_place_of_work varchar (255),  
9     client_salary real,  
10    acc_id int,  
11    constraint client_id primary key (client_id),  
12    constraint acc_id_fk foreign key (acc_id) references account (acc_id)  
13 );  
14  
15 select * from client;
```

| Data Output               | Explain                                 | Messages                                | Notifications                           |                    |  |   |                       |  |  |
|---------------------------|---|---|---|--------------------|--|---|-----------------------|--|--|
| client_id<br>[PK] integer | client_lname<br>character varying (255) | client_fname<br>character varying (255) | client_mname<br>character varying (255) | client_age<br>real | client_location<br>character varying (255) | client_place_of_work<br>character varying (255) | client_salary<br>real |  |  |

```

create table bank (
bank_id int,
bank_name varchar (255),
bank_location varchar (255),
bank_ranking_place real,
constraint bank_id primary key (bank_id)
);

```

```

45 select * from bank;
46

```

Data Output Explain Messages Notifications

|  | bank_id<br>[PK] integer | bank_name<br>character varying (255) | bank_location<br>character varying (255) | bank_ranking_place<br>real |
|--|-------------------------|--------------------------------------|--|----------------------------|
|  |                         |                                      |  |                            |

```

create table credit (
credit_id int,
client_id int,
credit_type varchar (255),
credit_term varchar(255),
credit_percent real,
type_of_currency varchar(255),
constraint credit_id primary key (credit_id),
constraint clid_fk foreign key (client_id) references client (client_id)
);

```

```

12 select * from credit;

```

Data Output Explain Messages Notifications

|  | credit_id<br>[PK] integer | client_id<br>integer | credit_type<br>character varying (255) | credit_term<br>character varying (255) | credit_percent<br>real | type_of_currency<br>character varying (255) |
|--|---------------------------|----------------------|--|--|------------------------|---|
|  |                           |                      |  |  |                        |   |

```

create table deposit (
deposit_id int,
client_id int,
deposit_type varchar (255),
deposit_term varchar(255),
deposit_percent real,
type_of_currency varchar (255),
constraint deposit_id primary key (deposit_id),
constraint clid_fk foreign key (client_id) references client (client_id)
);

```

```

23 select * from deposit;

```

Data Output Explain Messages Notifications

|  | deposit_id<br>[PK] integer | client_id<br>integer | deposit_type<br>character varying (255) | deposit_term<br>character varying (255) | deposit_percent<br>real | type_of_currency<br>character varying (255) |
|--|----------------------------|----------------------|---|---|-------------------------|---|
|  |                            |                      |   |   |                         |   |

```
create table employee (
emp_id int,
emp_full_name varchar(255),
emp_position varchar(255),
emp_age real,
emp_salary real,
emp_experience real,
constraint emp_id primary key (emp_id)
);
```

```
11 select * from employee;
```

Data Output Explain Messages Notifications

|  | emp_id<br>[PK] integer | emp_full_name<br>character varying (255) | emp_position<br>character varying (255) | emp_age<br>real | emp_salary<br>real | emp_experience<br>real |
|--|------------------------|--|---|-----------------|--------------------|------------------------|
|  |                        |  |   |                 |                    |                        |

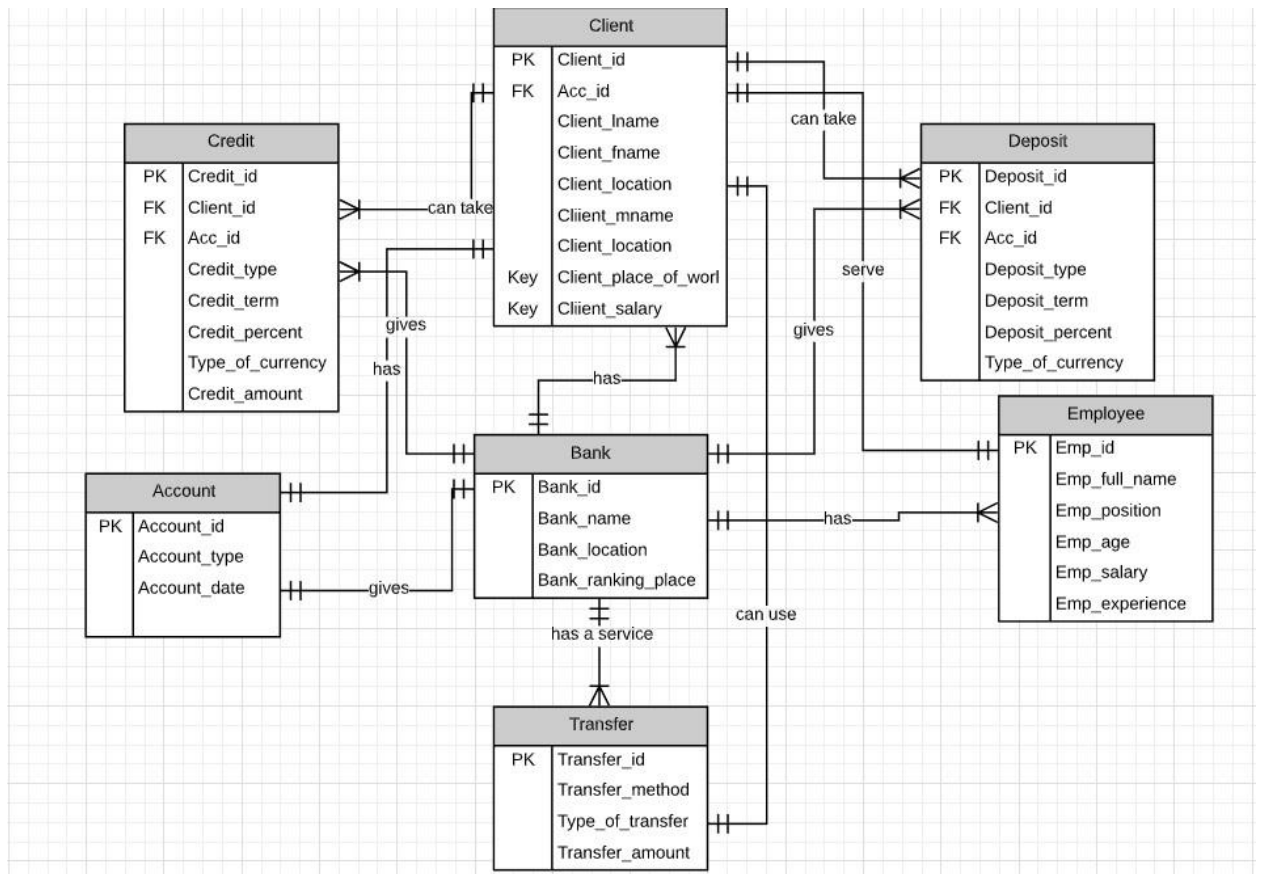
```
create table transfer (
transfer_id int,
transfer_method varchar (255),
type_of_transfer varchar (255),
transfer_amount real,
constraint transfer_id primary key (transfer_id)
);
```

```
23 select * from transfer;
```

Data Output Explain Messages Notifications

|  | transfer_id<br>[PK] integer | transfer_method<br>character varying (255) | type_of_transfer<br>character varying (255) | transfer_amount<br>real |
|--|-----------------------------|--|---|-------------------------|
|  |                             |  |   |                         |

3)



4)

```
25 select * from bank;
26
27 alter table bank add column bank_branches varchar(255);
```

[Data Output](#) [Explain](#) [Messages](#) [Notifications](#)

|  | bank_id<br>[PK] integer | bank_name<br>character varying (255) | bank_location<br>character varying (255) | bank_ranking_place<br>real | bank_branches<br>character varying (255) |
|--|-------------------------|--------------------------------------|--|----------------------------|--|
|  |                         |                                      |  |                            |  |

```
25 select * from bank;
26
27 alter table bank drop column bank_branches;
```

Data Output Explain Messages Notifications

|  | bank_id<br>[PK] integer | bank_name<br>character varying (255) | bank_location<br>character varying (255) | bank_ranking_place<br>real |
|--|-------------------------|--------------------------------------|--|----------------------------|
|  |                         |                                      |  |                            |

```
25 select * from employee;
26 alter table employee drop constraint emp_id;
```

Data Output Explain Messages Notifications

|   | emp_id<br>integer | emp_full_name<br>character varying (255) | emp_position<br>character varying (255) | emp_age<br>real | emp_salary<br>real | emp_experience<br>real |
|---|-------------------|--|---|-----------------|--------------------|------------------------|
| 1 | 1901              | Алексеев Родион Сергеевич                | Менеджер                                | 25              | 150000             | 3                      |
| 2 | 1902              | Бахтиярова Дана Аманкелд...              | Бухгалтер                               | 22              | 100000             | 2                      |
| 3 | 1903              | Жиенбаев Елдар Жанабергү...              | Инженер Департамента Тех...             | 26              | 180000             | 4                      |
| 4 | 1904              | Султанов Бейбарыс Темирл...              | Аналитик                                | 20              | 95000              | 1                      |
| 5 | 1905              | Туржанова Молдир Дастано...              | IT специалист                           | 26              | 200000             | 6                      |



```

25 select * from employee;
26 alter table employee add constraint emp_id primary key (emp_id);

```

Data Output Explain Messages Notifications

|   | emp_id<br>[PK] integer | emp_full_name<br>character varying (255) | emp_position<br>character varying (255) | emp_age<br>real | emp_salary<br>real | emp_experience<br>real |
|---|------------------------|--|---|-----------------|--------------------|------------------------|
| 1 | 1901                   | Алексеев Родион Сергеевич                | Менеджер                                | 25              | 150000             | 3                      |
| 2 | 1902                   | Бахтиярова Дана Аманкелд...              | Бухгалтер                               | 22              | 100000             | 2                      |
| 3 | 1903                   | Жиенбаев Елдар Жанабергү...              | Инженер Департамента Тех...             | 26              | 180000             | 4                      |
| 4 | 1904                   | Султанов Бейбарыс Темирл...              | Аналитик                                | 20              | 95000              |                        |
| 5 | 1905                   | Туржанова Молдир Дастано...              | IT специалист                           | 26              | 200000             |                        |

✓ Success

## 5) INSERT

```

30 select * from account;
31
32 insert into account values (1,'For credits','02-05-2012',150000),
33 (2,'For deposits','13-09-2010',200000),
34 (3,'Both','12-12-2012',75000),
35 (4,'For credits','10-10-2010',120000),
36 (5,'For all services','08-08-2008',95000);

```

Data Output Explain Messages Notifications

|   | account_id<br>[PK] integer | account_type<br>character varying (255) | account_date<br>date | account_balance<br>real |
|---|----------------------------|---|----------------------|-------------------------|
| 1 | 1                          | For credits                             | 2012-05-02           | 150000                  |
| 2 | 2                          | For deposits                            | 2010-09-13           | 200000                  |
| 3 | 3                          | Both                                    | 2012-12-12           | 75000                   |
| 4 | 4                          | For credits                             | 2010-10-10           | 120000                  |
| 5 | 5                          | For all services                        | 2008-08-08           | 95000                   |

```

117 insert into bank values ('Sberbank',201901);
118 select * from bank;
119

```

Data Output Explain Messages Notifications

|   | bank_name<br>character varying (255) | bank_id<br>[PK] integer | bank_location<br>character varying (255) | bank_ranking_place<br>integer |
|---|--------------------------------------|-------------------------|--|-------------------------------|
| 1 | Sberbank                             | 201901                  | РФ,Москва, Гоголя 15                     | 2                             |

```

15 select * from client;
16
17 insert into client values (1,'Baqtygali', 'Azamat', 'Serikuly',28,'Almaty,Rozybakieva 48','Megaline',150000,1),
18 (2,'Alekseev', 'Sergei', 'Andreevich',19,'Astana,Kabanbai batyr 48','Astana HUB',200000,2),
19 (3,'Kanatova', 'Sabina', 'Genadiiqzy',23,'Shymkent, Tole bi 156','Shymkent Plaza',140000,3),
20 (4,'Shimbergenova', 'Naira', 'Baurjanqzy',21,'Aktobe, Masanchina 55','CNPC Aktobe',250000,4),
21 (5,'Erhanai', 'Sultan', 'Daniyaruly',27,'Qostanai, Aiteke bi 100','FC Tobyl',200000,5);

```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_name<br>character varying (255) | client_fname<br>character varying (255) | client_mname<br>character varying (255) | client_age<br>real | client_location<br>character varying (255) | client_place_of_work<br>character varying (255) | client_salary<br>real |
|---|---------------------------|--|---|---|--------------------|--|---|-----------------------|
| 1 | 1                         | Baqtygali                              | Azamat                                  | Serikuly                                | 28                 | Almaty,Rozybakieva 48                      | Megaline  | 150000                |
| 2 | 2                         | Alekseev                               | Sergei                                  | Andreevich                              | 19                 | Astana,Kabanbai batyr 48                   | Astana HUB                                      | 200000                |
| 3 | 3                         | Kanatova                               | Sabina                                  | Genadiiqzy                              | 23                 | Shymkent, Tole bi 156                      | Shymkent Plaza                                  | 140000                |
| 4 | 4                         | Shimbergenova                          | Naira                                   | Baurjanqzy                              | 21                 | Aktobe, Masanchina 55                      | CNPC Aktobe                                     | 250000                |
| 5 | 5                         | Erhanai                                | Sultan                                  | Daniyaruly                              | 27                 | Qostanai, Aiteke bi 100                    | FC Tobyl  | 200000                |

```

104 insert into credit values (1,1,1,'Без залога','24 месяца',13,'Тенге'),
105 (2,2,2,'Под залог','12 месяца',3,'Тенге'),
106 (3,3,3,'Доверительный кредит без взимания комиссий и иных платежей','3 года',21,'Тенге'),
107 (4,4,4,'Кредит под залог депозита без взимания комиссий и иных платежей','Не более срока депозита',8,'Тенге'),
108 (5,5,5,'Кредит на неотложные нужды','48 месяцев',16,'Тенге');
109
110 select * from credit;
111
112
113
114

```

| Data Output |                           | Explain              | Messages          | Notifications                          |  |   |   |
|-------------|---------------------------|----------------------|-------------------|--|--|---|---|
|             | credit_id<br>[PK] integer | client_id<br>integer | acc_id<br>integer | credit_type<br>character varying (255) | credit_term<br>character varying (255) | credit_percent<br>character varying (255) | type_of_currency<br>character varying (255) |
| 1           |                           | 1                    | 1                 | Без залога                             | 24 месяца                              | 13  | Тенге                                       |
| 2           |                           | 2                    | 2                 | Под залог                              | 12 месяца                              | 3   | Тенге                                       |
| 3           |                           | 3                    | 3                 | Доверительный кредит без ...           | 3 года                                 | 21  | Тенге                                       |
| 4           |                           | 4                    | 4                 | Кредит под залог депозита ...          | Не более срока депозита                | 8   | Тенге                                       |
| 5           |                           | 5                    | 5                 | Кредит на неотложные нуж...            | 48 месяцев                             | 16  | Тенге                                       |
|             |                           |                      |                   |  |  |   |   |

```

95 insert into deposit values (1,1,1,'Мобильный','От 90 до 1096 дней','в зависимости от суммы и срока вклада','Тенге'),
96 (2,2,2,'Стандартный','от 30 до 1 096 дней','в зависимости от суммы и срока вклада','Тенге'),
97 (3,3,3,'Корпоративный','от 1 до 1 096 дней','в зависимости от суммы и срока вклада','Тенге'),
98 (4,4,4,'Накопительный','от 30 до 732 дней','в зависимости от суммы и срока вклада','Тенге'),
99 (5,5,5,'Стандартный','от 30 до 1 096 дней','в зависимости от суммы и срока вклада','Тенге');
100
101 select * from deposit;
102
103
104
105

```

| Data Output   | Explain   | Messages   | Notifications  |  |   |  |
|---|---|--|--|--|---|--|
|  deposit_id [PK] integer  | client_id integer  | acc_id integer  | deposit_type character varying (255)  | deposit_term character varying (255)  | deposit_percent character varying (255)  | type_of_currency character varying (255)  |
| 1   | 1   | 1  | Мобильный  | От 90 до 1096 дней   | в зависимости от суммы и с...   | Тенге  |
| 2   | 2   | 2  | Стандартный  | от 30 до 1 096 дней  | в зависимости от суммы и с...   | Тенге  |
| 3   | 3   | 3  | Корпоративный  | от 1 до 1 096 дней   | в зависимости от суммы и с...   | Тенге  |
| 4   | 4   | 4  | Накопительный  | от 30 до 732 дней  | в зависимости от суммы и с...   | Тенге  |
| 5   | 5   | 5  | Стандартный  | от 30 до 1 096 дней  | в зависимости от суммы и с...   | Тенге  |
|   |   |  |  |  |   |  |

```

1 select * from employee;
2
3 insert into employee values (1901,'Алексеев Родион Сергеевич','Менеджер',25,150000,3),
4 (1902,'Бахтиярова Дана Аманкелдиевна','Бухгалтер',22,100000,2),
5 (1903,'Жиенбаев Елдар Жанабергұлы','Инженер Департамента Технической поддержки',26,180000,4),
6 (1904,'Султанов Бейбарыс Темирланович','Аналитик',20,95000,1),
7 (1905,'Туржанова Молдир Дастановна','IT специалист',26,200000,6);
8

```

Data Output Explain Messages Notifications

|   | emp_id<br>[PK] integer | emp_full_name<br>character varying (255) | emp_position<br>character varying (255) | emp_age<br>real | emp_salary<br>real | emp_experience<br>real |
|---|------------------------|--|---|-----------------|--------------------|------------------------|
| 1 | 1901                   | Алексеев Родион Сергеевич                | Менеджер                                | 25              | 150000             | 3                      |
| 2 | 1902                   | Бахтиярова Дана Аманкелд...              | Бухгалтер                               | 22              | 100000             | 2                      |
| 3 | 1903                   | Жиенбаев Елдар Жанабергұ...              | Инженер Департамента Тех...             | 26              | 180000             | 4                      |
| 4 | 1904                   | Султанов Бейбарыс Темирл...              | Аналитик                                | 20              | 95000              | 1                      |
| 5 | 1905                   | Туржанова Молдир Дастано...              | IT специалист                           | 26              | 200000             | 6                      |

```

9 select * from transfer;
10
11 insert into transfer values (101,'наличными','Срочный перевод «Колибри»',2000000,'02-09-2019',1),
12 (102,'наличными','Срочные переводы «Золотая корона»',1500000,'01-08-2015',2),
13 (103,'наличными','Международные срочные переводы «Колибри» ',900000,'02-05-2013',3),
14 (104,'Безналичные ','Перевод с карты на свои карты и счета
15 ',850000,'16-10-2014',4),
16 (105,'Безналичные ','Перевод с карты на карты других клиентов Сбербанк',1650000,'12-12-2016',5);

```

Data Output Explain Messages Notifications

|   | transfer_id<br>[PK] integer | transfer_method<br>character varying (255) | type_of_transfer<br>character varying (255) | transfer_amount<br>real | transfer_date<br>date | acc_id<br>integer |
|---|-----------------------------|--|---|-------------------------|-----------------------|-------------------|
| 1 | 101                         | Наличными                                  | Срочный перевод «Колибри»                   | 2e+06                   | 2019-09-02            | 1                 |
| 2 | 102                         | Наличными                                  | Срочные переводы «Золота...                 | 1.5e+06                 | 2015-08-01            | 2                 |
| 3 | 103                         | Наличными                                  | Международные срочные п...                  | 900000                  | 2013-05-02            | 3                 |
| 4 | 104                         | Безналичные                                | Перевод с карты на свои ка...               | 850000                  | 2014-10-16            | 4                 |
| 5 | 105                         | Безналичные                                | Перевод с карты на карты д...               | 1.65e+06                | 2016-12-12            | 5                 |

UPDATE



```

29 select * from account;
30
31 insert into account values
32 (7,'For all services','08-08-2008',95000);
33
34 update account set acc_id = 5
35 where acc_type = 'For all services';
36

```

Data Output Explain Messages Notifications

|   | acc_id<br>[PK] integer | acc_type<br>character varying (255) | acc_date<br>date | acc_balance<br>real |
|---|------------------------|-------------------------------------|------------------|---------------------|
| 1 | 1                      | For credits                         | 2012-05-02       | 150000              |
| 2 | 2                      | For deposits                        | 2010-09-13       | 200000              |
| 3 | 3                      | Both                                | 2012-12-12       | 75000               |
| 4 | 4                      | For credits                         | 2010-10-10       | 120000              |
| 5 | 7                      | For all services                    | 2008-08-08       | 95000               |
|   |                        |                                     |                  |                     |

```

29 select * from account;
30
31 update account set acc_id = 5
32 where acc_type = 'For all services';
33

```

Data Output Explain Messages Notifications

|   | acc_id<br>[PK] integer | acc_type<br>character varying (255) | acc_date<br>date | acc_balance<br>real |
|---|------------------------|-------------------------------------|------------------|---------------------|
| 1 | 1                      | For credits                         | 2012-05-02       | 150000              |
| 2 | 2                      | For deposits                        | 2010-09-13       | 200000              |
| 3 | 3                      | Both                                | 2012-12-12       | 75000               |
| 4 | 4                      | For credits                         | 2010-10-10       | 120000              |
| 5 | 5                      | For all services                    | 2008-08-08       | 95000               |
|   |                        |                                     |                  |                     |

```
56 select * from bank;
```

Data Output Explain Messages Notifications

|   | bank_name<br>character varying (255) | bank_id<br>[PK] integer | bank_location<br>character varying (255) | bank_ranking_place<br>integer |
|---|--------------------------------------|-------------------------|--|-------------------------------|
| 1 | Kaspi                                | 201901                  | РФ,Москва, Гоголя 15                     | 2                             |
|   |                                      |                         |  |                               |

```
56 select * from bank;
```

```
57
```

```
58 update bank set bank_name = 'Сбербанк' where bank_id = 201901;
```

Data Output Explain Messages Notifications

|   | bank_name<br>character varying (255) | bank_id<br>[PK] integer | bank_location<br>character varying (255) | bank_ranking_place<br>integer |
|---|--------------------------------------|-------------------------|--|-------------------------------|
| 1 | Сбербанк                             | 201901                  | РФ,Москва, Гоголя 15                     | 2                             |

```
36 insert into client values
```

```
37 (5,'Erhanai Sultan Daniyaruly',100,'Qostanai, Aiteke bi 100','FC Tobyl',200000,5);
```

```
38
```

```
39
```

```
40
```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_full_name<br>character varying (255) | client_age<br>real | client_location<br>character varying (255) | client_place_of_work<br>character varying (255) | client_salary<br>real | acc_id<br>integer |
|---|---------------------------|---|--------------------|--|---|-----------------------|-------------------|
| 1 | 1                         | Baqtygali Azamat Serikuly                   | 28                 | Almaty,Rozybakieva 48                      | Megaline  | 150000                | 1                 |
| 2 | 2                         | Alekseev Sergei Andreevich                  | 19                 | Astana,Kabanbai batyr 48                   | Astana HUB                                      | 200000                | 2                 |
| 3 | 3                         | Kanatova Sabina Genadiiqzy                  | 23                 | Shymkent, Tole bi 156                      | Shymkent Plaza                                  | 140000                | 3                 |
| 4 | 4                         | Shimbergenova Naira Baurjan...              | 21                 | Aktobe, Masanchina 55                      | CNPC Aktobe                                     | 250000                | 4                 |
| 5 | 5                         | Erhanai Sultan Daniyaruly                   | 100                | Qostanai, Aiteke bi 100                    | FC Tobyl  | 200000                | 5                 |

```
34 select * from client;
```

```
35 update client set client_age = 27 where client_id =5;
```

```
36
```








Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_full_name<br>character varying (255) | client_age<br>real | client_location<br>character varying (255) | client_place_of_work<br>character varying (255) | client_salary<br>real | acc_id<br>integer |
|---|---------------------------|---|--------------------|--|---|-----------------------|-------------------|
| 1 | 1                         | Baqtygali Azamat Serikuly                   | 28                 | Almaty,Rozybakieva 48                      | Megaline  | 150000                | 1                 |
| 2 | 2                         | Alekseev Sergei Andreevich                  | 19                 | Astana,Kabanbai batyr 48                   | Astana HUB                                      | 200000                | 2                 |
| 3 | 3                         | Kanatova Sabina Genadiiqzy                  | 23                 | Shymkent, Tole bi 156                      | Shymkent Plaza                                  | 140000                | 3                 |
| 4 | 4                         | Shimbergenova Naira Baurjan...              | 21                 | Aktobe, Masanchina 55                      | CNPC Aktobe                                     | 250000                | 4                 |
| 5 | 5                         | Erhanai Sultan Daniyaruly                   | 27                 | Qostanai, Aiteke bi 100                    | FC Tobyl  | 200000                | 5                 |
| 5 | 5                         | Erhanai Sultan Daniyaruly                   | 100                | Qostanai, Aiteke bi 100                    | FC Tobyl  | 200000                | 5                 |

```

39 insert into credit values
40 (5,5,5,'Кредит на неотложные нужды','48 месяцев',16,'Рубль');
41
42

```

| Data Output   |   | Explain  | Messages  | Notifications  |  |   |   |
|---|---|--|---|--|--|---|---|
|  | credit_id<br>[PK] integer  | client_id<br>integer  | acc_id<br>integer  | credit_type<br>character varying (255)  | credit_term<br>character varying (255)  | credit_percent<br>character varying (255)  | type_of_currency<br>character varying (255)  |
| 1   | 1   | 1  | 1   | Без залога   | 24 месяца  | 13  | Тенге   |
| 2   | 2   | 2  | 2   | Под залог  | 12 месяца  | 3   | Тенге   |
| 3   | 3   | 3  | 3   | Доверительный кредит без ...   | 3 года   | 21  | Тенге   |
| 4   | 4   | 4  | 4   | Кредит под залог депозита ...  | Не более срока депозита  | 8   | Тенге   |
| 5   | 5   | 5  | 5   | Кредит на неотложные нуж...  | 48 месяцев   | 16  | Рубль   |
| 5   | 5   | Erhanal Sultan Daniyaruly  |   | 100  | Qostanal, Aiteke bi 100  | FC Tobyl  | 200000  |
|   |   |  |   |  |  |   | 5   |

```

37 select * from credit;
38
39 update credit set type_of_currency = 'Тенге' where credit_id = 5;








```

| Data Output                                  | Explain                                 | Messages                             | Notifications   |   |  |  |
|--|---|--------------------------------------|---|---|--|--|
| <div>credit_id</div> <div>[PK] integer</div> | <div>client_id</div> <div>integer</div> | <div>acc_id</div> <div>integer</div> | <div>credit_type</div> <div>character varying (255)</div> | <div>credit_term</div> <div>character varying (255)</div> | <div>credit_percent</div> <div>character varying (255)</div> | <div>type_of_currency</div> <div>character varying (255)</div> |
| 1  | 1                                       | 1                                    | Без залога  | 24 месяца   | 13   | Тенге  |
| 2  | 2                                       | 2                                    | Под залог   | 12 месяца   | 3  | Тенге  |
| 3  | 3                                       | 3                                    | Доверительный кредит без ...                              | 3 года  | 21   | Тенге  |
| 4  | 4                                       | 4                                    | Кредит под залог депозита ...                             | Не более срока депозита                                   | 8  | Тенге  |
| 5  | 5                                       | 5                                    | Кредит на неотложные нуж...                               | 48 месяцев  | 16   | Тенге  |

```

43 insert into deposit values
44 (7,5,5,'Стандартный','от 30 до 1 096 дней','в зависимости от суммы и срока вклада','Тенге');
45
46 select * from deposit;
47









```

| Data Output   |  | Explain   | Messages  | Notifications   |  |   |
|---|--|---|---|---|--|---|
|  deposit_id<br>[PK] integer |  client_id<br>integer |  acc_id<br>integer |  deposit_type<br>character varying (255) |  deposit_term<br>character varying (255) |  deposit_percent<br>character varying (255) |  type_of_currency<br>character varying (255) |
| 1   | 1  | 1   | 1 Мобильный   | От 90 до 1096 дней  | в зависимости от суммы и с...  | Тенге   |
| 2   | 2  | 2   | 2 Стандартный   | от 30 до 1 096 дней   | в зависимости от суммы и с...  | Тенге   |
| 3   | 3  | 3   | 3 Корпоративный   | от 1 до 1 096 дней  | в зависимости от суммы и с...  | Тенге   |
| 4   | 4  | 4   | 4 Накопительный   | от 30 до 732 дней   | в зависимости от суммы и с...  | Тенге   |
| 5   | 7  | 5   | 5 Стандартный   | от 30 до 1 096 дней   | в зависимости от суммы и с...  | Тенге   |

```

46 select * from deposit;
47 update deposit set deposit_id = 5 where client_id = 5;

```

| Data Output  |  | Explain   | Messages  | Notifications   |  |   |
|--|--|---|---|---|--|---|
|  deposit_id<br>[PK] integer  | client_id<br>integer  | acc_id<br>integer  | deposit_type<br>character varying (255)  | deposit_term<br>character varying (255)  | deposit_percent<br>character varying (255)  | type_of_currency<br>character varying (255)  |
| 1  | 1  | 1   | 1 Мобильный   | От 90 до 1096 дней  | в зависимости от суммы и с...  | Тенге   |
| 2  | 2  | 2   | 2 Стандартный   | от 30 до 1 096 дней   | в зависимости от суммы и с...  | Тенге   |
| 3  | 3  | 3   | 3 Корпоративный   | от 1 до 1 096 дней  | в зависимости от суммы и с...  | Тенге   |
| 4  | 4  | 4   | 4 Накопительный   | от 30 до 732 дней   | в зависимости от суммы и с...  | Тенге   |
| 5  | 5  | 5   | 5 Стандартный   | от 30 до 1 096 дней   | в зависимости от суммы и с...  | Тенге   |

```

49 select * from employee;
50
51 insert into employee values
52 (1905, 'Туржанов Молдир Дастановна', 'IT специалист', 26, 200000, 6);

```

Data Output Explain Messages Notifications

|   | emp_id<br>[PK] integer | emp_full_name<br>character varying (255) | emp_position<br>character varying (255) | emp_age<br>real | emp_salary<br>real | emp_experience<br>real |
|---|------------------------|--|---|-----------------|--------------------|------------------------|
| 1 | 1901                   | Алексеев Родион Сергеевич                | Менеджер                                | 25              | 150000             | 3                      |
| 2 | 1902                   | Бахтиярова Дана Аманкелд...              | Бухгалтер                               | 22              | 100000             | 2                      |
| 3 | 1903                   | Жиенбаев Елдар Жанабергү...              | Инженер Департамента Тех...             | 26              | 180000             | 4                      |
| 4 | 1904                   | Султанов Бейбарыс Темирл...              | Аналитик                                | 20              | 95000              | 1                      |
| 5 | 1905                   | Туржанов Молдир Дастано...               | IT специалист                           | 26              | 200000             | 6                      |

```

49 select * from employee;
50
51 update employee set emp_full_name='Туржанова Молдир Дастановна' where emp_id = 1905;

```

Data Output Explain Messages Notifications

|   | emp_id<br>[PK] integer | emp_full_name<br>character varying (255) | emp_position<br>character varying (255) | emp_age<br>real | emp_salary<br>real | emp_experience<br>real |
|---|------------------------|--|---|-----------------|--------------------|------------------------|
| 1 | 1901                   | Алексеев Родион Сергеевич                | Менеджер                                | 25              | 150000             | 3                      |
| 2 | 1902                   | Бахтиярова Дана Аманкелд...              | Бухгалтер                               | 22              | 100000             | 2                      |
| 3 | 1903                   | Жиенбаев Елдар Жанабергү...              | Инженер Департамента Тех...             | 26              | 180000             | 4                      |
| 4 | 1904                   | Султанов Бейбарыс Темирл...              | Аналитик                                | 20              | 95000              | 1                      |
| 5 | 1905                   | Туржанова Молдир Дастано...              | IT специалист                           | 26              | 200000             | 6                      |

```

60 select *from transfer;
61
62 insert into transfer values
63 (105, 'Безналичные ', 'Перевод с карты на карты других клиентов Сбербанка', 1650000, '12-12-2061', 5);

```

Data Output Explain Messages Notifications

|   | transfer_id<br>[PK] integer | transfer_method<br>character varying (255) | type_of_transfer<br>character varying (255) | transfer_amount<br>real | transfer_date<br>date | acc_id<br>integer |
|---|-----------------------------|--|---|-------------------------|-----------------------|-------------------|
| 1 | 101                         | Наличными                                  | Срочный перевод «Колибри»                   | 2e+06                   | 2019-09-02            | 1                 |
| 2 | 102                         | Наличными                                  | Срочные переводы «Золота...                 | 1.5e+06                 | 2015-08-01            | 2                 |
| 3 | 103                         | Наличными                                  | Международные срочные п...                  | 900000                  | 2013-05-02            | 3                 |
| 4 | 104                         | Безналичные                                | Перевод с карты на свои ка...               | 850000                  | 2014-10-16            | 4                 |
| 5 | 105                         | Безналичные                                | Перевод с карты на карты д...               | 1.65e+06                | 2061-12-12            | 5                 |

```

60 select *from transfer;
61
62 update transfer set transfer_date = '12-12-2016' where transfer_id = 105;

```

Data Output Explain Messages Notifications

|   | transfer_id<br>[PK] integer | transfer_method<br>character varying (255) | type_of_transfer<br>character varying (255) | transfer_amount<br>real | transfer_date<br>date | acc_id<br>integer |
|---|-----------------------------|--|---|-------------------------|-----------------------|-------------------|
| 1 | 101                         | Наличными                                  | Срочный перевод «Колибри»                   | 2e+06                   | 2019-09-02            | 1                 |
| 2 | 102                         | Наличными                                  | Срочные переводы «Золота...                 | 1.5e+06                 | 2015-08-01            | 2                 |
| 3 | 103                         | Наличными                                  | Международные срочные п...                  | 900000                  | 2013-05-02            | 3                 |
| 4 | 104                         | Безналичные                                | Перевод с карты на свои ка...               | 850000                  | 2014-10-16            | 4                 |
| 5 | 105                         | Безналичные                                | Перевод с карты на карты д...               | 1.65e+06                | 2016-12-12            | 5                 |

## DELETE

```

26 delete from account where acc_type = 'For all services';
27
28
29 select * from account;
30

```

Data Output Explain Messages Notifications

|   | acc_id<br>[PK] integer | acc_type<br>character varying (255) | acc_date<br>date | acc_balance<br>real |
|---|------------------------|-------------------------------------|------------------|---------------------|
| 1 | 1                      | For credits                         | 2012-05-02       | 150000              |
| 2 | 2                      | For deposits                        | 2010-09-13       | 200000              |
| 3 | 3                      | Both                                | 2012-12-12       | 75000               |
| 4 | 4                      | For credits                         | 2010-10-10       | 120000              |
|   |                        |                                     |                  |                     |

```

26 delete from bank where bank_ranking_place = 2;
27
28
29 select * from bank;
30

```

Data Output Explain Messages Notifications

|  | bank_name<br>character varying (255) | bank_id<br>[PK] integer | bank_location<br>character varying (255) | bank_ranking_place<br>integer |
|--|--------------------------------------|-------------------------|--|-------------------------------|
|  |                                      |                         |  |                               |

```

22 delete from client where client_id = 5;
23
24 select * from client;
25

```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_full_name<br>character varying (255) | client_age<br>real | client_location<br>character varying (255) | client_place_of_work<br>character varying (255) | client_salary<br>real | acc_id<br>integer |
|---|---------------------------|---|--------------------|--|---|-----------------------|-------------------|
| 1 | 1                         | Baqtygali Azamat Serikuly                   | 28                 | Almaty,Rozybakieva 48                      | Megaline  | 150000                | 1                 |
| 2 | 2                         | Alekseev Sergei Andreevich                  | 19                 | Astana,Kabanbai batyr 48                   | Astana HUB                                      | 200000                | 2                 |
| 3 | 3                         | Kanatova Sabina Genadiygyzy                 | 23                 | Shymkent, Tole bi 156                      | Shymkent Plaza                                  | 140000                | 3                 |
| 4 | 4                         | Shimbergenova Naira Baurjan...              | 21                 | Aktobe, Masanchina 55                      | CNPC Aktobe                                     | 250000                | 4                 |
|   |                           |   |                    |  |   |                       |                   |

```

26 delete from credit where credit_term = '48 месяцев';
27
28
29 select * from credit;
30

```

Data Output Explain Messages Notifications

|   | credit_id<br>[PK] integer | client_id<br>integer | acc_id<br>integer | credit_type<br>character varying (255) | credit_term<br>character varying (255) | credit_percent<br>character varying (255) | type_of_currency<br>character varying (255) |
|---|---------------------------|----------------------|-------------------|--|--|---|---|
| 1 | 1                         | 1                    | 1                 | Без залога                             | 24 месяца                              | 13  | Тенге                                       |
| 2 | 2                         | 2                    | 2                 | Под залог                              | 12 месяца                              | 3   | Тенге                                       |
| 3 | 3                         | 3                    | 3                 | Доверительный кредит без ...           | 3 года                                 | 21  | Тенге                                       |
| 4 | 4                         | 4                    | 4                 | Кредит под залог депозита ...          | Не более срока депозита                | 8   | Тенге                                       |
|   |                           |                      |                   |  |  |   |   |



```

26 delete from deposit where deposit_id = 5;
27
28
29 select * from deposit;
30

```

Data Output Explain Messages Notifications

|   | deposit_id<br>[PK] integer | client_id<br>integer | acc_id<br>integer | deposit_type<br>character varying (255) | deposit_term<br>character varying (255) | deposit_percent<br>character varying (255) | type_of_currency<br>character varying (255) |
|---|----------------------------|----------------------|-------------------|---|---|--|---|
| 1 |                            | 1                    | 1                 | 1 Мобильный                             | От 90 до 1096 дней                      | в зависимости от суммы и с...              | Тенге                                       |
| 2 |                            | 2                    | 2                 | 2 Стандартный                           | от 30 до 1 096 дней                     | в зависимости от суммы и с...              | Тенге                                       |
| 3 |                            | 3                    | 3                 | 3 Корпоративный                         | от 1 до 1 096 дней                      | в зависимости от суммы и с...              | Тенге                                       |
| 4 |                            | 4                    | 4                 | 4 Накопительный                         | от 30 до 732 дней                       | в зависимости от суммы и с...              | Тенге                                       |

```

29 select * from employee;
30

```

Data Output Explain Messages Notifications

|   | emp_id<br>[PK] integer | emp_full_name<br>character varying (255) | emp_position<br>character varying (255) | emp_age<br>real | emp_salary<br>real | emp_experience<br>real |
|---|------------------------|--|---|-----------------|--------------------|------------------------|
| 1 | 1901                   | Алексеев Родион Сергеевич                | Менеджер                                | 25              | 150000             | 3                      |
| 2 | 1902                   | Бахтиярова Дана Аманкелд...              | Бухгалтер                               | 22              | 100000             | 2                      |
| 3 | 1903                   | Жиенбаев Елдар Жанабегү...               | Инженер Департамента Тех...             | 26              | 180000             | 4                      |
| 4 | 1904                   | Султанов Бейбарыс Темирл...              | Аналитик                                | 20              | 95000              | 1                      |

```

26 delete from transfer where transfer_id = 105 ;
27
28
29 select * from transfer;
30

```

Data Output Explain Messages Notifications

|   | transfer_id<br>[PK] integer | transfer_method<br>character varying (255) | type_of_transfer<br>character varying (255) | transfer_amount<br>real | transfer_date<br>date | acc_id<br>integer |
|---|-----------------------------|--|---|-------------------------|-----------------------|-------------------|
| 1 | 101                         | Наличными                                  | Срочный перевод «Колибри»                   | 2e+06                   | 2019-09-02            | 1                 |
| 2 | 102                         | Наличными                                  | Срочные переводы «Золота...                 | 1.5e+06                 | 2015-08-01            | 2                 |
| 3 | 103                         | Наличными                                  | Международные срочные п...                  | 900000                  | 2013-05-02            | 3                 |
| 4 | 104                         | Безналичные                                | Перевод с карты на свои ка...               | 850000                  | 2014-10-16            | 4                 |

## 6) Unnormalized

| Client_id | Client_lname     | Client_fname | Acc_id | Credit_term      | Credit_amount | Deposit_type    |
|-----------|------------------|--------------|--------|------------------|---------------|-----------------|
| 1         | <u>Baqtygali</u> | Azamat       | 1      | 24 <u>месяца</u> | 1-1000000     | 1-Мобильный     |
| 2         | Alekseev         | Sergei       | 2      | 12 <u>месяца</u> | 2-300000      | 2-Стандартный   |
| 3         | <u>Kanatova</u>  | Sabina       | 3      | 3 <u>года</u>    | 3-1250000     | 3-Корпоративный |

| <u>Emp_full_name</u>                    | <u>Bank_name</u> | <u>Transfer_date</u> |
|---|------------------|----------------------|
| 1901 - <u>Алексеев Родион Сергеевич</u> | 201901-Sberbank  | 101-02-09-2019       |
| 1901 - <u>Алексеев Родион Сергеевич</u> | 201901-Sberbank  | 102-01-08-2015       |
| 1901 - <u>Алексеев Родион Сергеевич</u> | 201901-Sberbank  | 103-02-05-2013       |

1NF

| Client_id | Client_lname     | Client_fname | Acc_id | Credit_term      | <u>Credit_id</u> | Credit_amount | Deposit_id | Deposit_type         |
|-----------|------------------|--------------|--------|------------------|------------------|---------------|------------|----------------------|
| 1         | <u>Baqtygali</u> | Azamat       | 1      | 24 <u>месяца</u> | 1                | 1000000       | 1          | <u>Мобильный</u>     |
| 2         | Alekseev         | Sergei       | 2      | 12 <u>месяца</u> | 2                | 300000        | 2          | <u>Стандартный</u>   |
| 3         | <u>Kanatova</u>  | Sabina       | 3      | 3 года           | 3                | 1250000       | 3          | <u>Корпоративный</u> |

| <u>Emp_id</u> | <u>Emp_full_name</u>             | <u>Bank_id</u> | <u>Bank_name</u> | <u>Transfer_id</u> | <u>Transfer_date</u> |
|---------------|----------------------------------|----------------|------------------|--------------------|----------------------|
| 1901          | <u>Алексеев Родион Сергеевич</u> | 201901         | Sberbank         | 101                | 02-09-2019           |
| 1901          | <u>Алексеев Родион Сергеевич</u> | 201901         | Sberbank         | 1021               | 01-08-2015           |
| 1901          | <u>Алексеев Родион Сергеевич</u> | 201901         | Sberbank         | 103                | 02-05-2013           |

2NF

## Client

| Client_id | Client_lname | Client_fname | Acc_id | Credit_id | Deposit_id | Bank_id | Bank_name |
|-----------|--------------|--------------|--------|-----------|------------|---------|-----------|
| 1         | Baqtygali    | Azamat       | 1      | 1         | 1          | 201901  | Sberbank  |
| 2         | Alekseev     | Sergei       | 2      | 2         | 2          | 201901  | Sberbank  |
| 3         | Kanatova     | Sabina       | 3      | 3         | 3          | 201901  | Sberbank  |

## Employee

| Emp_id | Emp_full_name             | Bank_id | Bank_name | Client_id | Credit_id | Credit_amount | Deposit_id | Deposit_type  |
|--------|---------------------------|---------|-----------|-----------|-----------|---------------|------------|---------------|
| 1901   | Алексеев Родion Сергеевич | 201901  | Sberbank  | 1         | 1         | 1000000       | 1          | Мобильный     |
| 1901   | Алексеев Родion Сергеевич | 201901  | Sberbank  | 2         | 2         | 300000        | 2          | Стандартный   |
| 1901   | Алексеев Родion Сергеевич | 201901  | Sberbank  | 3         | 3         | 1250000       | 3          | Корпоративный |

## Transfer

| Transfer_id | Transfer_date | Client_id | Bank_id | Bank_name |
|-------------|---------------|-----------|---------|-----------|
| 101         | 02-09-2019    | 1         | 201901  | Sberbank  |
| 102         | 01-08-2015    | 1         | 201901  | Sberbank  |
| 103         | 02-05-2013    | 1         | 201901  | Sberbank  |

## Bank

| Bank_id | Bank_name | Client_id | Client_fname | Client_lname | Employee_id | Employee_full_name        |
|---------|-----------|-----------|--------------|--------------|-------------|---------------------------|
| 1       | Sberbank  | 1         | Baqtygali    | Azamat       | 1901        | Алексеев Родion Сергеевич |
| 2       | Sberbank  | 2         | Alekseev     | Sergei       | 1901        | Алексеев Родion Сергеевич |
| 3       | Sberbank  | 3         | Kanatova     | Sabina       | 1901        | Алексеев Родion Сергеевич |

## Deposit

| Deposit_id | Deposit_type  | Client_id | Bank_id |
|------------|---------------|-----------|---------|
| 1          | Мобильный     | 1         | 201901  |
| 2          | Стандартный   | 1         | 201901  |
| 3          | Корпоративный | 1         | 201901  |

## Client

| Client_id | Credit_amount | Credit_term | Client_id | Bank_id |
|-----------|---------------|-------------|-----------|---------|
| 1         | 1000000       | 24 месяца   | 1         | 201901  |
| 2         | 300000        | 12 месяца   | 2         | 201901  |
| 3         | 1250000       | 3 года      | 3         | 201901  |

Client\_id←client\_lname,client\_fname,acc\_id,credit\_id,deposit\_id, bank\_id,bank\_name

If we delete client\_id, we will also delete:  
client\_lname, client\_fname, acc\_id, credit\_id, deposit\_id, bank\_id, bank\_name

-----  
Emp\_id ← Emp\_full\_name, Bank\_id, Bank\_name, Client\_id, Credit\_amount, Deposit\_id, Deposit\_type

If we delete emp\_id, we will also delete:

Emp\_full\_name, Bank\_id, Bank\_name, Client\_id, Credit\_amount, Deposit\_id, Deposit\_type

-----  
Transfer\_id ← Transfer\_date, Client\_id, Bank\_id, Bank\_name

If we delete transfer\_id, we will also delete: Transfer\_date, Client\_id, Bank\_id, Bank\_name

-----  
Bank\_id ← Bank\_id, Bank\_name, Client\_id, Client\_fname, Client\_lname, employee\_id, employee\_full\_name

If we delete bank\_id, we will also delete:

Bank\_id, Bank\_name, Client\_id, Client\_fname, Client\_lname, employee\_id, employee\_full\_name

---

Deposit\_id ← Deposit\_type, Client\_id, Bank\_id

If we delete deposit\_id, we will also delete:

Deposit\_type, Client\_id, Bank\_id

---

Client\_id ← Credit\_amount, Credit\_term, Client\_id, Bank\_id

If we delete credit\_id, we will also delete:

Credit\_amount, Credit\_term, Client\_id, Bank\_id

3NF

| Client_id | Transfer_id | Transfer_date |
|-----------|-------------|---------------|
|           |             |               |

FD:client\_id→transfer\_id→transfer\_date

| Client_id | Credit_id | Bank_id | Deposit_id |
|-----------|-----------|---------|------------|
|           |           |         |            |

$\wedge$   
/ \

| Client_id | Credit_id | Bank_id |
|-----------|-----------|---------|
|           |           |         |

| Client_id | Deposit_id | Bank_id |
|-----------|------------|---------|
|           |            |         |

FD:client\_id→credit\_id→bank\_id

FD:client\_id→deposit\_id→bank\_id

| Emp_id | Credit_id | Deposit_id | Client_id |
|--------|-----------|------------|-----------|
|        |           |            |           |

$\wedge$   
/ \

| Emp_id | Credit_id | Client_id |
|--------|-----------|-----------|
|        |           |           |

| Emp_id | Deposit_id | Client_id |
|--------|------------|-----------|
|        |            |           |

FD:client\_id→credit\_id→emp\_id

FD:client\_id→credit\_id→emp\_id

| Deposit_id | Deposit_term |
|------------|--------------|
|            |              |

FD:deposit\_id→deposit\_term

| Credit_id | Credit_amount |
|-----------|---------------|
|           |               |

FD:credit\_id→credit\_amount



7)

```
8 select client_lname,client_fname,transfer_amount from client join transfer on client.client_id = transfer.client_id;
9
```

Data Output Explain Messages Notifications

|   | client_lname<br>character varying (255) | client_fname<br>character varying (255) | transfer_amount<br>real |
|---|---|---|-------------------------|
| 1 | Baqtygali                               | Azamat                                  | 2e+06                   |
| 2 | Alekseev                                | Sergei                                  | 1.5e+06                 |
| 3 | Kanatova                                | Sabina                                  | 900000                  |
| 4 | Shimbergenova                           | Naira                                   | 850000                  |
| 5 | Erhanai                                 | Sultan                                  | 1.65e+06                |

```
8 select client_lname,client_fname,transfer_amount from client left join transfer on client.client_id = transfer.client_id;
9
```

Data Output Explain Messages Notifications

|   | client_lname<br>character varying (255) | client_fname<br>character varying (255) | transfer_amount<br>real |
|---|---|---|-------------------------|
| 1 | Baqtygali                               | Azamat                                  | 2e+06                   |
| 2 | Alekseev                                | Sergei                                  | 1.5e+06                 |
| 3 | Kanatova                                | Sabina                                  | 900000                  |
| 4 | Shimbergenova                           | Naira                                   | 850000                  |
| 5 | Erhanai                                 | Sultan                                  | 1.65e+06                |
| 6 | Mark                                    | Johnson                                 | [null]                  |
| 7 | Ahmetov                                 | Azamat                                  | [null]                  |
| 8 | Oliver                                  | Johnaton                                | [null]                  |
| 9 | Pavlov                                  | Sergei                                  | [null]                  |

```
8 select client_lname,client_fname,transfer_amount from client full join transfer on client.client_id = transfer.client_id;
9
```

Data Output Explain Messages Notifications

|   | client_lname<br>character varying (255) | client_fname<br>character varying (255) | transfer_amount<br>real |
|---|---|---|-------------------------|
| 1 | Baqtygali                               | Azamat                                  | 2e+06                   |
| 2 | Alekseev                                | Sergei                                  | 1.5e+06                 |
| 3 | Kanatova                                | Sabina                                  | 900000                  |
| 4 | Shimbergenova                           | Naira                                   | 850000                  |
| 5 | Erhanai                                 | Sultan                                  | 1.65e+06                |
| 6 | Mark                                    | Johnson                                 | [null]                  |
| 7 | Ahmetov                                 | Azamat                                  | [null]                  |
| 8 | Oliver                                  | Johnaton                                | [null]                  |
| 9 | Pavlov                                  | Sergei                                  | [null]                  |

```
105 select * from client where client_place_of_work = 'Astana HUB';
106
```

Data Output Explain Messages Notifications

| <div>client_id</div> <div>[PK] integer</div> | <div>client_lname</div> <div>character varying (255)</div> | <div>client_fname</div> <div>character varying (255)</div> | <div>client_mname</div> <div>character varying (255)</div> | <div>client_age</div> <div>real</div> | <div>client_location</div> <div>character varying (255)</div> | <div>client_place_of_work</div> <div>character varying (255)</div> |
|--|--|--|--|---------------------------------------|---|--|
| 1  | 2 Alekseev   | Sergei   | Andreevich   | 19                                    | Astana,Kabanbai batyr 48                                      | Astana HUB   |
| 2  | 6 Ahmetov  | Azamat   | Serikuly   | 20                                    | Astana, Gogolya 26  | Astana HUB   |

```
122 select avg(client_salary) from client;
```

Data Output Explain Messages Notifications

|   | avg<br>double precision |
|---|-------------------------|
| 1 | 189444.444444444        |

```
109 select client_id,client_lname,client_fname,client_mname,client_age from client where client_age between 21 and 27;
```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_lname<br>character varying (255) | client_fname<br>character varying (255) | client_mname<br>character varying (255) | client_age<br>real |  |
|---|---------------------------|---|---|---|--------------------|--|
| 1 | 3                         | Kanatova                                | Sabina                                  | Genadiqyzy                              | 23                 |  |
| 2 | 4                         | Shimbergenova                           | Naira                                   | Naurjanqyzy                             | 21                 |  |
| 3 | 5                         | Erhanai                                 | Sultan                                  | Daniyaruly                              | 27                 |  |
| 4 | 7                         | Pavlov                                  | Sergei                                  | Alekseevich                             | 26                 |  |

```
120 select count (*) as number_of_clients from client where client_age = 26;
```

Data Output Explain Messages Notifications

|   | number_of_clients<br>bigint |  |
|---|-----------------------------|--|
| 1 | 2                           |  |

```
111 select client_id,client_age,client_fname from client where client_fname in ('Sergei','Naira');
```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_age<br>real | client_fname<br>character varying (255) |  |
|---|---------------------------|--------------------|---|--|
| 1 | 2                         | 19                 | Sergei                                  |  |
| 2 | 4                         | 21                 | Naira                                   |  |
| 3 | 7                         | 26                 | Sergei                                  |  |

```
118 select * from client where length (client_lname) between 4 and 7;
```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_lname<br>character varying (255) | client_fname<br>character varying (255) | client_mname<br>character varying (255) | client_age<br>real | client_location<br>character varying (255) | client_place_of_work<br>character varying (255) |
|---|---------------------------|---|---|---|--------------------|--|---|
| 1 | 5                         | Erhanai                                 | Sultan                                  | Daniyaruly                              | 27                 | Qostanai, Aiteke bi 100                    | FC Tobyl  |
| 2 | 6                         | Ahmetov                                 | Azamat                                  | Serikuly                                | 20                 | Astana, Gogolya 26                         | Astana HUB                                      |
| 3 | 7                         | Pavlov                                  | Sergei                                  | Alekseevich                             | 26                 | Aktau, Qazybek bi 120                      | AIFC  |
| 4 | 8                         | Mark                                    | Johnson                                 | Fill                                    | 26                 | Semei, Smakov 8                            | Elim-ai   |
| 5 | 9                         | Oliver                                  | Johnaton                                | Connor                                  | 25                 | Atyrau, Konaev 95                          | FC Atyrau                                       |

```
105 select * from client where client_age <= 26;
```

```
106
```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_lname<br>character varying (255) | client_fname<br>character varying (255) | client_mname<br>character varying (255) | client_age<br>real | client_location<br>character varying (255) | client_place_of_work<br>character varying (255) |
|---|---------------------------|---|---|---|--------------------|--|---|
| 1 | 2                         | Alekseev                                | Sergei                                  | Andreevich                              | 19                 | Astana,Kabanbai batyr 48                   | Astana HUB                                      |
| 2 | 3                         | Kanatova                                | Sabina                                  | Genadiqyzy                              | 23                 | Shymkent, Tole bi 156                      | Shymkent Plaza                                  |
| 3 | 4                         | Shimbergenova                           | Naira                                   | Naurjanqyzy                             | 21                 | Aktobe,Masanchina 55                       | CNPC Aktobe                                     |
| 4 | 6                         | Ahmetov                                 | Azamat                                  | Serikuly                                | 20                 | Astana, Gogolya 26                         | Astana HUB                                      |
| 5 | 7                         | Pavlov                                  | Sergei                                  | Alekseevich                             | 26                 | Aktau, Qazybek bi 120                      | AIFC  |

```
116 select client_id,client_lname,client_fname,client_mname ,client_salary from client where client_fname like '%John%';
```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_lname<br>character varying (255) | client_fname<br>character varying (255) | client_mname<br>character varying (255) | client_salary<br>real |  |
|---|---------------------------|---|---|---|-----------------------|--|
| 1 | 8                         | Mark                                    | Johnson                                 | Fill                                    | 190000                |  |
| 2 | 9                         | Oliver                                  | Johnaton                                | Connor                                  | 250000                |  |

```
122 select max(client_salary) from client;
```

Data Output Explain Messages Notifications

|   | max<br>real |  |
|---|-------------|--|
| 1 | 250000      |  |

```
122 select min(client_salary) from client;
```

Data Output Explain Messages Notifications

|   | min    | real |
|---|--------|------|
| 1 | 140000 |      |

```
105 select * from client where client_salary >175000;
```

Data Output Explain Messages Notifications

| client_lname  | client_fname | client_mname | client_age | client_location          | client_place_of_work | client_salary |
|---------------|--------------|--------------|------------|--------------------------|----------------------|---------------|
| Alekseev      | Sergei       | Andreevich   | 19         | Astana,Kabanbai batyr 48 | Astana HUB           | 200000        |
| Shimbergenova | Naira        | Naurjanqyzy  | 21         | Aktobe,Masanchina 55     | CNPC Aktobe          | 250000        |
| Erhanai       | Sultan       | Daniyaruly   | 27         | Qostanai, Aiteke bi 100  | FC Tobyl             | 200000        |

```
107 select * from client where client_fname = 'Sergei' or client_fname = 'Sabina';
```

Data Output Explain Messages Notifications

|  client_id<br>[PK] integer |  client_lname<br>character varying (255) |  client_fname<br>character varying (255) |  client_mname<br>character varying (255) |  client_age<br>real |  client_location<br>character varying (255) |  client_place_of_work<br>character varying (255) |                |
|---|---|---|---|--|--|---|----------------|
| 1   | 2   | Alekseev  | Sergei  | Andreevich   | 19   | Astana,Kabanbai batyr 48  | Astana HUB     |
| 2   | 3   | Kanatova  | Sabina  | Genadiiqyzy  | 23   | Shymkent, Tole bi 156   | Shymkent Plaza |
| 3   | 7   | Pavlov  | Sergei  | Alekseevich  | 26   | Aktau, Qazybek bi 120   | AIFC           |

```
122 select sum(client_salary) from client;
```

Data Output Explain Messages Notifications

|   | sum       | real |
|---|-----------|------|
| 1 | 1.705e+06 |      |

```
8 select client_lname,client_fname,transfer_amount from client full join transfer on client.client_id = transfer.client_id;
```

Data Output Explain Messages Notifications

|   | client_lname<br>character varying (255) | client_fname<br>character varying (255) | transfer_amount<br>real |
|---|---|---|-------------------------|
| 1 | Baqtygali                               | Azamat                                  | 2e+06                   |
| 2 | Alekseev                                | Sergei                                  | 1.5e+06                 |
| 3 | Kanatova                                | Sabina                                  | 900000                  |
| 4 | Shimbergenova                           | Naira                                   | 850000                  |
| 5 | Erhanai                                 | Sultan                                  | 1.65e+06                |
| 6 | Mark                                    | Johnson                                 | [null]                  |
| 7 | Ahmetov                                 | Azamat                                  | [null]                  |
| 8 | Oliver                                  | Johnaton                                | [null]                  |
| 9 | Pavlov                                  | Sergei                                  | [null]                  |

8)

```
22 select client_id,client_fname,client_salary from client where client_salary >= all (select client_salary from client);
```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_fname<br>character varying (255) | client_salary<br>real |
|---|---------------------------|---|-----------------------|
| 1 | 4                         | Naira                                   | 250000                |
| 2 | 9                         | Johnaton                                | 250000                |

```
22 select client_id,client_fname,client_salary from client where client_salary > any (select client_salary from client);
```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_fname<br>character varying (255) | client_salary<br>real |
|---|---------------------------|---|-----------------------|
| 1 | 1                         | Azamat                                  | 150000                |
| 2 | 2                         | Sergei                                  | 200000                |
| 3 | 4                         | Naira                                   | 250000                |
| 4 | 5                         | Sultan                                  | 200000                |
| 5 | 6                         | Azamat                                  | 150000                |
| 6 | 7                         | Sergei                                  | 175000                |
| 7 | 8                         | Johnson                                 | 190000                |
| 8 | 9                         | Johnaton                                | 250000                |

```
18 SELECT client_fname
19 FROM client
20 WHERE EXISTS (SELECT transfer_method FROM transfer WHERE transfer.client_id = client.client_id AND transfer_amount < 1650000);
```

Data Output Explain Messages Notifications

|   | client_fname<br>character varying (255) |
|---|---|
| 1 | Sergei                                  |
| 2 | Sabina                                  |
| 3 | Naira                                   |

```
18 client_id, client_fname
19 lient
20 NOT EXISTS (SELECT transfer_method FROM transfer WHERE transfer.client_id = client.client_id AND transfer_method = 'Наличными');
21
```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_fname<br>character varying (255) |
|---|---------------------------|---|
| 1 | 4                         | Naira                                   |
| 2 | 5                         | Sultan                                  |
| 3 | 6                         | Azamat                                  |
| 4 | 7                         | Sergei                                  |
| 5 | 8                         | Johnson                                 |
| 6 | 9                         | Johnaton                                |

```
111 select client_id,client_age,client_fname from client where client_fname in ('Sergei','Naira');
```

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_age<br>real | client_fname<br>character varying (255) |
|---|---------------------------|--------------------|---|
| 1 | 2                         | 19                 | Sergei                                  |
| 2 | 4                         | 21                 | Naira                                   |
| 3 | 7                         | 26                 | Sergei                                  |

22 `select client_id,client_fname,client_salary from client where client_salary >= all (select client_salary from client);`

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_fname<br>character varying (255) | client_salary<br>real |
|---|---------------------------|---|-----------------------|
| 1 | 4                         | Naira                                   | 250000                |
| 2 | 9                         | Johnaton                                | 250000                |

22 `select client_id,client_fname,client_salary from client where client_salary > any (select client_salary from client);`

Data Output Explain Messages Notifications

|   | client_id<br>[PK] integer | client_fname<br>character varying (255) | client_salary<br>real |
|---|---------------------------|---|-----------------------|
| 1 | 1                         | Azamat                                  | 150000                |
| 2 | 2                         | Sergei                                  | 200000                |
| 3 | 4                         | Naira                                   | 250000                |
| 4 | 5                         | Sultan                                  | 200000                |
| 5 | 6                         | Azamat                                  | 150000                |
| 6 | 7                         | Sergei                                  | 175000                |
| 7 | 8                         | Johnson                                 | 190000                |
| 8 | 9                         | Johnaton                                | 250000                |