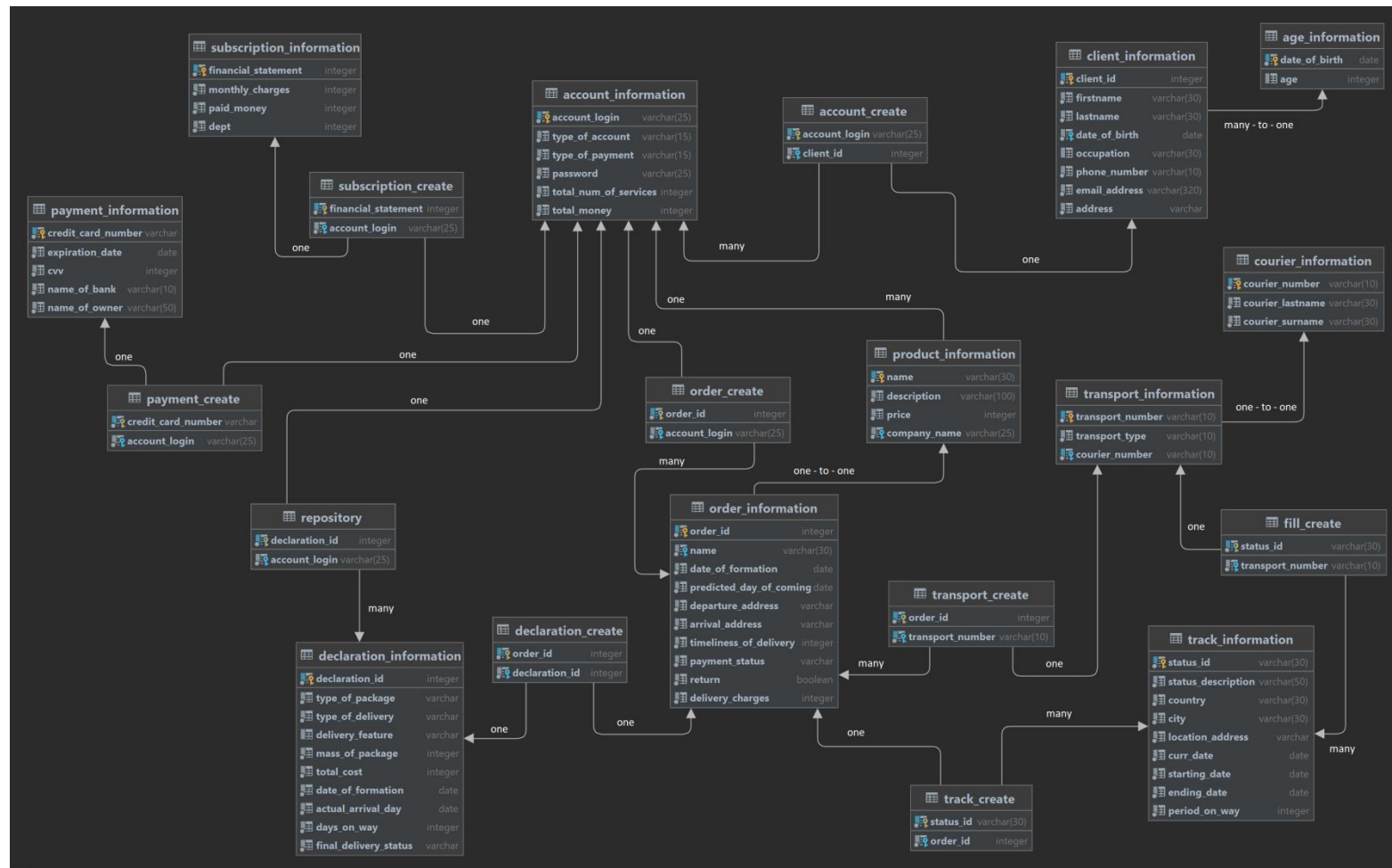


TASK1. ER – Diagram



TASK2. Relational Model

```
create table client_information
(
    client_id      integer primary key not null,
    firstname      varchar(30)         not null,
    lastname       varchar(30)         not null,
    date_of_birth  date                 not null,
    occupation     varchar(30),
    phone_number   varchar(10)         not null,
    email_address  varchar(320)        not null,
    address        varchar              not null,
    foreign key (date_of_birth) references age_information (date_of_birth)
);

create table age_information
(
    date_of_birth  date primary key not null,
    age            integer check (age > 14)
);

create table account_create
(
    account_login  varchar(25) primary key not null,
    client_id      integer          not null,
    foreign key (client_id) references client_information (client_id),
    foreign key (account_login) references account_information (account_login)
);

create table account_information
(
    account_login      varchar(25) primary key not null,
    type_of_account    varchar(15) check (type_of_account = 'company' or type_of_account = 'customer') not null,
    type_of_payment    varchar(15) check (type_of_payment = 'regular' or type_of_payment = 'subscription') not null,
    password           varchar(25) not null,
    check (length(password) >= 8),
    total_num_of_services integer not null,
    check (total_money >= 0),
    total_money        integer not null,
    check (total_money >= 0)
);

create table payment_create
```

```

(
    credit_card_number varchar primary key not null check (length(credit_card_number) = 16),
    account_login       varchar(25)         not null,
    foreign key (account_login) references account_information (account_login),
    foreign key (credit_card_number) references payment_information (credit_card_number)
);

create table payment_information
(
    credit_card_number varchar primary key not null check (length(credit_card_number) = 16),
    expiration_date    date              not null,
    CVV                integer           not null,
    name_of_bank        varchar(10)       not null,
    name_of_owner       varchar(50)       not null
);

create table subscription_create
(
    financial_statement integer primary key not null,
    account_login       varchar(25)         not null,
    foreign key (account_login) references account_information (account_login),
    foreign key (financial_statement) references subscription_information (financial_statement)
);

create table subscription_information
(
    financial_statement integer primary key not null,
    monthly_charges     integer             not null check (monthly_charges > 0),
    paid_money          integer             not null check (paid_money >= 0),
    dept                integer             not null check (dept >= 0)
);

create table order_create
(
    order_id           integer primary key not null,
    account_login      varchar(25)         not null,
    foreign key (account_login) references account_information (account_login),
    foreign key (order_id) references order_information (order_id)
);

create table order_information
(

```

```

order_id          integer primary key not null,
name              varchar(30)          not null,
date_of_formation date                not null,
predicted_day_of_coming date          not null,
departure_address varchar              not null,
arrival_address   varchar              not null,
timeliness_of_delivery integer        not null,
payment_status    varchar              not null check (payment_status = 'paid' or payment_status = 'not paid' ),
return            boolean              not null check ((return = 'true' and payment_status = 'paid') or return =
'false'),
delivery_charges  integer              not null check (delivery_charges > 0),
foreign key (name) references product_information (name)
);

create table product_information
(
    name          varchar(30) primary key not null,
    description    varchar(100)          not null,
    price          integer              not null check (price > 0),
    company_name   varchar(25)          not null,
    foreign key (company_name) references account_information (account_login)
);

create table transport_create
(
    order_id      integer primary key not null,
    transport_number varchar(10)      not null unique,
    foreign key (transport_number) references transport_information (transport_number),
    foreign key (order_id) references order_information (order_id)
);

create table transport_information
(
    transport_number varchar(10) primary key not null,
    transport_type    varchar(10)          not null,
    courier_number    varchar(10)          not null unique check (length(courier_number) = 10),
    foreign key (courier_number) references courier_information(courier_number)
);

create table courier_information
(
    courier_number  varchar(10) primary key not null,

```

```

    courier_lastname varchar(30)          not null,
    courier_surname  varchar(30)          not null
);

create table track_create
(
    status_id varchar(30) primary key not null,
    order_id  integer      not null,
    foreign key (order_id) references order_information (order_id),
    foreign key (status_id) references track_information (status_id)
);

create table track_information
(
    status_id          varchar(30) primary key not null,
    status_description varchar(50)          not null,
    country            varchar(30)          not null,
    city               varchar(30)          not null,
    location_address   varchar              not null,
    curr_date          date                  not null,
    starting_date      date                  not null,
    ending_date        date                  not null,
    period_on_way      integer               not null check (period_on_way >= 0)
);

create table fill_create
(
    status_id          varchar(30) primary key not null,
    transport_number   varchar(10)          not null,
    foreign key (status_id) references track_information (status_id),
    foreign key (transport_number) references transport_information (transport_number)
);

create table declaration_create
(
    order_id          integer primary key not null,
    declaration_id    integer              not null,
    foreign key (order_id) references order_information (order_id),
    foreign key (declaration_id) references declaration_information (declaration_id)
);

create table declaration_information

```

```

(
    declaration_id      integer primary key not null,
    type_of_package     varchar           not null,
    type_of_delivery     varchar           not null check (type_of_package = 'local' or type_of_package =
'international'),
    delivery_feature     varchar,
    mass_of_package      integer           not null check (mass_of_package > 0),
    total_cost           integer           not null check (total_cost > 0),
    date_of_formation    date              not null,
    actual_arrival_day   date              not null,
    days_on_way          integer           not null check (days_on_way > 0),
    final_delivery_status varchar           not null check (final_delivery_status = 'successfully' or
                                                             final_delivery_status = 'done.not in time' or
                                                             final_delivery_status = 'failed')
);

create table repository
(
    declaration_id integer primary key not null,
    account_login  varchar(25) not null,
    foreign key (declaration_id) references declaration_information (declaration_id),
    foreign key (account_login) references account_information (account_login)
);

```

TASK3. Data Generation

```

insert into age_information
values ('2001-09-01', age_count('2001-09-01'));
insert into age_information
values ('2000-09-09', age_count('2000-09-09'));
insert into age_information
values ('2003-05-17', age_count('2003-05-17'));
insert into age_information
values ('1997-01-16', age_count('1997-01-16'));
insert into age_information
values ('1995-07-29', age_count('1995-07-29'));
insert into age_information
values ('1998-07-29', age_count('1998-07-29'));
insert into age_information
values ('1972-07-21', age_count('1972-07-21'));

```

```

insert into age_information
values ('1999-05-15', age_count('1999-05-15'));
insert into age_information
values ('1998-09-19', age_count('1998-09-19'));
insert into age_information
values ('2001-09-19', age_count('2001-09-19'));

insert into client_information (client_id, firstname, lastname, date_of_birth, occupation, phone_number, email_address,
                                address)
values ('1', 'A', 'B', '2001-09-01', 'Comedian', '7771234567', 'ab@gmail.com', 'KZ, Almaty, Zharokova st');
insert into client_information (client_id, firstname, lastname, date_of_birth, occupation, phone_number, email_address,
                                address)
values ('2', 'R', 'B', '2000-09-09', 'Developer', '7771234561', 'rb@gmail.com', 'KZ, Astana, Abay st');
insert into client_information (client_id, firstname, lastname, date_of_birth, occupation, phone_number, email_address,
                                address)
values ('3', 'R', 'G', '2003-05-17', 'Student', '7771231212', 'zg@gmail.com', 'KZ, Almaty, Lenina st');
insert into client_information (client_id, firstname, lastname, date_of_birth, occupation, phone_number, email_address,
                                address)
values ('4', 'T', 'R', '1997-01-16', 'Writer', '7771231313', 'tr@gmail.com', 'KZ, Kostanay, 9 st');
insert into client_information (client_id, firstname, lastname, date_of_birth, occupation, phone_number, email_address,
                                address)
values ('5', 'A', 'Richard', '1995-07-29', 'Boxer', '7771231314', 'richard@gmail.com', 'KZ, Kostanay, 9 st');
insert into client_information (client_id, firstname, lastname, date_of_birth, occupation, phone_number, email_address,
                                address)
values ('6', 'Ann', 'Davidson', '1998-07-29', 'Unemployed', '7771231714', 'ann@gmail.com', 'KZ, Almaty, Tole BI st');
insert into client_information (client_id, firstname, lastname, date_of_birth, occupation, phone_number, email_address,
                                address)
values ('7', 'Eliza', 'Pall', '1972-07-21', 'Teacher', '7771221714', 'tea@gmail.com', 'KZ, Astana, Marite st');
insert into client_information (client_id, firstname, lastname, date_of_birth, occupation, phone_number, email_address,
                                address)
values ('8', 'Rustam', 'RE', '1999-05-15', 'Programmer', '7771222714', 'rust@gmail.com', 'KZ, Almaty, Tole BI st');
insert into client_information (client_id, firstname, lastname, date_of_birth, occupation, phone_number, email_address,
                                address)
values ('9', 'Ars', 'Bissen', '1998-09-19', 'Film Director', '7771272714', 'abissen@gmail.com', 'KZ, Almaty, Zharokova
st');
insert into client_information (client_id, firstname, lastname, date_of_birth, occupation, phone_number, email_address,
                                address)
values ('10', 'Ara', 'Mamedova', '2001-09-19', 'Creator', '7771272719', 'ara@gmail.com', 'KZ, Almaty, Zharokova st');

insert into account_information(account_login, type of account, type of payment, password, total_num of services,

```

```
total_money)
    values('AB', 'customer', 'regular', '123456789', '2', '52000');
insert into account_create(account_login, client_id)
    values ('AB', '1');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
    values('Mango Company', 'company', 'subscription', '123456789', '5', '100000');
insert into account_create(account_login, client_id)
    values ('Mango Company', '1');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
    values('Flip Company', 'company', 'subscription', '123456789', '7', '150000');
insert into account_create(account_login, client_id)
    values ('Flip Company', '1');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
    values('RB', 'customer', 'regular', '12341569', '1', '20000');
insert into account_create(account_login, client_id)
    values ('RB', '2');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
    values('Ikki Store', 'company', 'subscription', '123456689', '4', '60000');
insert into account_create(account_login, client_id)
    values ('Ikki Store', '2');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
    values('Asos', 'company', 'subscription', '123456789', '4', '24000');
insert into account_create(account_login, client_id)
    values ('Asos', '3');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
    values('TR', 'customer', 'regular', '123456789', '1', '13000');
insert into account_create(account_login, client_id)
    values ('TR', '4');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
    values('Nike', 'company', 'subscription', '123456889', '4', '30000');
insert into account_create(account_login, client_id)
    values ('Nike', '4');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
    values('Richard', 'customer', 'regular', '126456789', '6', '26000');
```



```
insert into account_create(account_login, client_id)
  values ('Richard', '5');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
  values('Pull&Bear', 'company', 'subscription', '123456789', '6', '160000');
insert into account_create(account_login, client_id)
  values ('Pull&Bear', '5');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
  values('Ann', 'customer', 'regular', '122456789', '11', '72000');
insert into account_create(account_login, client_id)
  values ('Ann', '6');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
  values('Apple', 'company', 'subscription', '1223456789', '5', '1000000');
insert into account_create(account_login, client_id)
  values ('Apple', '6');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
  values('Eliza', 'customer', 'regular', '923456789', '4', '10000');
insert into account_create(account_login, client_id)
  values ('Eliza', '7');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
  values('Rustam', 'customer', 'regular', '533456789', '4', '223000');
insert into account_create(account_login, client_id)
  values ('Rustam', '8');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
  values('Ars', 'customer', 'regular', '98567849', '3', '451000');
insert into account_create(account_login, client_id)
  values ('Ars', '9');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
  values('Ordinary', 'company', 'subscription', '963456789', '15', '160000');
insert into account_create(account_login, client_id)
  values ('Ordinary', '10');
insert into account_information(account_login, type_of_account, type_of_payment, password, total_num_of_services,
total_money)
  values('Mamedova', 'customer', 'regular', '782456789', '5', '60000');
insert into account_create(account_login, client_id)
  values ('Mamedova', '10');
```

```
insert into payment_information(credit_card_number, expiration_date, CVV, name_of_bank, name_of_owner)
values('1234567891234567','2021-08-09','123','Halyk','A B');
insert into payment_create(credit_card_number, account_login)
values ('1234567891234567', 'AB');
insert into payment_information(credit_card_number, expiration_date, CVV, name_of_bank, name_of_owner)
values('2345678912345671','2024-02-09','234','Kaspi Gold','R B');
insert into payment_create(credit_card_number, account_login)
values ('2345678912345671', 'RB');
insert into payment_information(credit_card_number, expiration_date, CVV, name_of_bank, name_of_owner)
values('3456789123456712','2024-02-09','345','Kaspi Gold','T R');
insert into payment_create(credit_card_number, account_login)
values ('3456789123456712', 'TR');
insert into payment_information(credit_card_number, expiration_date, CVV, name_of_bank, name_of_owner)
values('4567891234567123','2024-02-09','456','Kaspi Gold','Richard');
insert into payment_create(credit_card_number, account_login)
values ('4567891234567123', 'Richard');
insert into payment_information(credit_card_number, expiration_date, CVV, name_of_bank, name_of_owner)
values('5678912345671234','2026-02-09','567','Jusan','Ann');
insert into payment_create(credit_card_number, account_login)
values ('5678912345671234', 'Ann');
insert into payment_information(credit_card_number, expiration_date, CVV, name_of_bank, name_of_owner)
values('6789123456712345','2023-04-01','678','Kaspi Gold','Eliza');
insert into payment_create(credit_card_number, account_login)
values ('6789123456712345', 'Eliza');
insert into payment_information(credit_card_number, expiration_date, CVV, name_of_bank, name_of_owner)
values('7891234567123456','2021-07-01','789','Halyk +','Rustam');
insert into payment_create(credit_card_number, account_login)
values ('7891234567123456', 'Rustam');
insert into payment_information(credit_card_number, expiration_date, CVV, name_of_bank, name_of_owner)
values('8912345671234567','2025-04-14','891','Halyk +','Ars');
insert into payment_create(credit_card_number, account_login)
values ('8912345671234567', 'Ars');
insert into payment_information(credit_card_number, expiration_date, CVV, name_of_bank, name_of_owner)
values('9123456712345678','2024-04-15','912','ATF +','Mamedova');
insert into payment_create(credit_card_number, account_login)
values ('9123456712345678', 'Mamedova');
```

```
insert into courier_information(courier_number, courier_lastname, courier_surname)
```

```
values ('1234567890', 'A','Za');
insert into courier_information(courier_number, courier_lastname, courier_surname)
values ('2345678901', 'S','Xs');
insert into courier_information(courier_number, courier_lastname, courier_surname)
values ('3456789012', 'D','Cd');
insert into courier_information(courier_number, courier_lastname, courier_surname)
values ('4567890123', 'F','Vf');
insert into courier_information(courier_number, courier_lastname, courier_surname)
values ('5678901234', 'G','Bg');

insert into transport_information(transport_number, transport_type, courier_number)
values ('T1721', 'truck', '1234567890');
insert into transport_information(transport_number, transport_type, courier_number)
values ('C1921', 'car', '2345678901');
insert into transport_information(transport_number, transport_type, courier_number)
values ('M2016', 'motobike', '3456789012');
insert into transport_information(transport_number, transport_type, courier_number)
values ('T1621', 'truck', '4567890123');
insert into transport_information(transport_number, transport_type, courier_number)
values ('C7777', 'car', '5678901234');

insert into subscription_create(financial_statement, account_login)
values ('1111', 'Pull&Bear');
insert into subscription_information(financial_statement, monthly_charges, paid_money, dept)
values ('1111', 5000, 16000, 4000 );
insert into subscription_information(financial_statement, monthly_charges, paid_money, dept)
values ('2222', 5000, 25000, 0 );
insert into subscription_create(financial_statement, account_login)
values ('2222', 'Ikki Store');
insert into subscription_information(financial_statement, monthly_charges, paid_money, dept)
values ('3333', 5000, 5000, 5000 );
insert into subscription_create(financial_statement, account_login)
values ('3333', 'Apple');
insert into subscription_information(financial_statement, monthly_charges, paid_money, dept)
values ('4444', 5000, 24000, 1000 );
insert into subscription_create(financial_statement, account_login)
values ('4444', 'Asos');
insert into subscription_information(financial_statement, monthly_charges, paid_money, dept)
values ('5555', 5000, 63000, 2000 );
insert into subscription_create(financial_statement, account_login)
values ('5555', 'Flip Company');
insert into subscription_information(financial_statement, monthly_charges, paid_money, dept)
```

```

    values ('6666', 5000, 0, 15000 );
insert into subscription_create(financial_statement, account_login)
    values ('6666', 'Nike');
insert into subscription_information(financial_statement, monthly_charges, paid_money, dept)
    values ('7777', 5000, 27000, 3000 );
insert into subscription_create(financial_statement, account_login)
    values ('7777', 'Ordinary');
insert into subscription_information(financial_statement, monthly_charges, paid_money, dept)
    values ('8888', 5000, 32000, 3000 );
insert into subscription_create(financial_statement, account_login)
    values ('8888', 'Mango Company');

"ORDER1"
insert into product_information(name, description, price, company_name)
    values ('J159', 'mom jeans', '15000', 'Ikki Store');
insert into order_information(order_id, name, date_of_formation, predicted_day_of_coming, departure_address,
arrival_address, timeliness_of_delivery, payment_status, return, delivery_charges)
    values ('123', 'J159', '2020-12-20', '2020-12-31', 'Almaty Post', 'KZ, Almaty, Zharokova st', '11', 'paid', 'False',
1500);
insert into order_create(order_id, account_login)
    values ('123', 'AB');

insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('AST01', 'Astana Post', 'KZ', 'AST', 'Post Office', '2020-12-27', '2020-12-20', '2020-12-31', 7);
insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('ALA01', 'Almaty Post', 'KZ', 'ALA', 'Post Office', '2020-12-30', '2020-12-20', '2020-12-31', 10);
insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('ALA02', 'Almaty City', 'KZ', 'AST', 'KZ, Almaty, Zharokova st', '2020-12-31', '2020-12-20', '2020-12-31',
11);

insert into track_create(status_id, order_id)
    values ('AST01', '123');
insert into track_create(status_id, order_id)
    values ('ALA01', '123');
insert into track_create(status_id, order_id)
    values ('ALA02', '123');

insert into transport_create(order_id, transport_number)

```

```

    values ('123', 'T1721');

insert into fill_create(status_id, transport_number)
    values ('AST01', 'T1721');
insert into fill_create(status_id, transport_number)
    values ('ALA01', 'T1721');
insert into fill_create(status_id, transport_number)
    values ('ALA02', 'T1721');

insert into declaration_information(declaration_id, type_of_package, type_of_delivery, delivery_feature, mass_of_package,
total_cost, date_of_formation, actual_arrival_day, days_on_way, final_delivery_status)
    values ('0123', 'smallbox', 'local', null, 1, 16500, '2020-12-20', '2020-12-31', 11, 'successfully');
insert into declaration_create(order_id, declaration_id)
    values ('123', '0123');
insert into repository(declaration_id, account_login)
    values ('0123', 'AB')

"ORDER2"
insert into product_information(name, description, price, company_name)
    values ('B111', 'sketchbook', '5000', 'Flip Company');
insert into order_information(order_id, name, date_of_formation, predicted_day_of_coming, departure_address,
arrival_address, timeliness_of_delivery, payment_status, return, delivery_charges)
    values ('101', 'B111', '2020-07-23', '2020-07-25', 'Astana Post', 'KZ, Astana, Abay st', '2', 'paid', 'False', 700);
insert into order_create(order_id, account_login)
    values ('101', 'RB');

insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('101-1', 'Astana Post', 'KZ', 'AST', 'Post Office', '2020-07-24', '2020-07-23', '2020-07-25', 1);
insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('101-2', 'Astana Post', 'KZ', 'AST', 'KZ, Astana, Abay st', '2020-07-25', '2020-07-23', '2020-07-25', 2);

insert into track_create(status_id, order_id)
    values ('101-1', '101');
insert into track_create(status_id, order_id)
    values ('101-2', '101');

insert into transport_create(order_id, transport_number)
    values ('101', 'T1721');

insert into fill_create(status_id, transport_number)

```

```

    values ('101-1', 'T1721');
insert into fill_create(status_id, transport_number)
    values ('101-2', 'T1721');

insert into declaration_information(declaration_id, type_of_package, type_of_delivery, delivery_feature, mass_of_package,
total_cost, date_of_formation, actual_arrival_day, days_on_way, final_delivery_status)
    values ('1010', 'smallbox', 'local', null, 1, 5700, '2020-07-23', '2020-07-25', 2, 'successfully');
insert into declaration_create(order_id, declaration_id)
    values ('101', '1010');
insert into repository(declaration_id, account_login)
    values ('1010', 'RB');

"ORDER3"
insert into order_information(order_id, name, date_of_formation, predicted_day_of_coming, departure_address,
arrival_address, timeliness_of_delivery, payment_status, return, delivery_charges)
    values ('102', 'B111', '2020-08-15', '2020-08-18', 'Almaty Post', 'KZ, Almaty, Zharokova st', '3', 'not paid',
'False', 2600);
insert into order_create(order_id, account_login)
    values ('102', 'Mamedova');

insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('102-1', 'Almaty Post', 'KZ', 'ALA', 'Post Office', '2020-08-16', '2020-08-15', '2020-08-18', 1);
insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('102-2', 'Almaty Post', 'KZ', 'ALA', 'KZ, Almaty, Zharokova st', '2020-08-17', '2020-08-15', '2020-08-18',
2);

insert into track_create(status_id, order_id)
    values ('102-1', '102');
insert into track_create(status_id, order_id)
    values ('102-2', '102');

insert into transport_create(order_id, transport_number)
    values ('102', 'C1921');

insert into fill_create(status_id, transport_number)
    values ('102-1', 'C1921');
insert into fill_create(status_id, transport_number)
    values ('102-2', 'C1921');

```

```

insert into declaration_information(declaration_id, type_of_package, type_of_delivery, delivery_feature, mass_of_package,
total_cost, date_of_formation, actual_arrival_day, days_on_way, final_delivery_status)
    values ('1020', 'largebox', 'local', null, 3, 67600, '2020-08-15', '2020-08-17', 2, 'successfully');
insert into declaration_create(order_id, declaration_id)
    values ('102', '1020');
insert into repository(declaration_id, account_login)
    values ('1020', 'Mamedova');

"ORDER4"
insert into product_information(name, description, price, company_name)
    values ('H1316', 'total look', '65000', 'Pull&Bear');
insert into order_information(order_id, name, date_of_formation, predicted_day_of_coming, departure_address,
arrival_address, timeliness_of_delivery, payment_status, return, delivery_charges)
    values ('103', 'H1316', '2021-11-09', '2021-11-23', 'Almaty Post', 'KZ, Kostanay, 9 st', '14', 'paid', 'False',
5000);
insert into order_create(order_id, account_login)
    values ('103', 'TR');

insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('103-1', 'Almaty Post', 'KZ', 'ALA', 'Post Office', '2021-11-10', '2021-11-09', '2021-11-23', 1);
insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('103-2', 'Astana Post', 'KZ', 'AST', 'Post Office', '2021-11-17', '2021-11-09', '2021-11-23', 8);
insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('103-3', 'Kostanay Post', 'KZ', 'KST', 'KZ, Kostanay, 9 st', '2021-11-24', '2021-11-09', '2021-11-23', 15);

insert into track_create(status_id, order_id)
    values ('103-1', '103');
insert into track_create(status_id, order_id)
    values ('103-2', '103');
insert into track_create(status_id, order_id)
    values ('103-3', '103');

insert into transport_create(order_id, transport_number)
    values ('103', 'T1621');

insert into fill_create(status_id, transport_number)
    values ('103-1', 'T1621');

```

```

insert into fill_create(status_id, transport_number)
  values ('103-2', 'T1621');
insert into fill_create(status_id, transport_number)
  values ('103-3', 'T1621');

insert into declaration_information(declaration_id, type_of_package, type_of_delivery, delivery_feature, mass_of_package,
total_cost, date_of_formation, actual_arrival_day, days_on_way, final_delivery_status)
  values ('1030', 'largebox', 'local', null, 5, 70000, '2021-11-09', '2021-11-24', 15, 'done.not in time');
insert into declaration_create(order_id, declaration_id)
  values ('103', '1030');
insert into repository(declaration_id, account_login)
  values ('1030', 'TR');

"ORDER5"
insert into product_information(name, description, price, company_name)
  values ('A34', 'airpods', '56000', 'Apple');
insert into order_information(order_id, name, date_of_formation, predicted_day_of_coming, departure_address,
arrival_address, timeliness_of_delivery, payment_status, return, delivery_charges)
  values ('104', 'A34', '2021-11-15', '2021-11-30', 'Almaty Post', 'KZ, Kostanay, 9 st', '15', 'paid', 'False', 10000);
insert into order_create(order_id, account_login)
  values ('104', 'Richard');

insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
  values ('104-1', 'Almaty Post', 'KZ', 'ALA', 'Post Office', '2021-11-16', '2021-11-15', '2021-11-30', 1);
insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
  values ('104-2', 'Astana Post', 'KZ', 'AST', 'Post Office', '2021-11-22', '2021-11-15', '2021-11-30', 7);
insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
  values ('104-3', 'Kostanay Post', 'KZ', 'KST', 'KZ, Kostanay, 9 st', '2021-11-29', '2021-11-15', '2021-11-30', 14);

insert into track_create(status_id, order_id)
  values ('104-1', '104');
insert into track_create(status_id, order_id)
  values ('104-2', '104');
insert into track_create(status_id, order_id)
  values ('104-3', '104');

insert into transport_create(order_id, transport_number)
  values ('104', 'C1921');

```



```

insert into fill_create(status_id, transport_number)
  values ('104-1', 'C1921');
insert into fill_create(status_id, transport_number)
  values ('104-2', 'C1921');
insert into fill_create(status_id, transport_number)
  values ('104-3', 'C1921');

insert into declaration_information(declaration_id, type_of_package, type_of_delivery, delivery_feature, mass_of_package,
total_cost, date_of_formation, actual_arrival_day, days_on_way, final_delivery_status)
  values ('1040', 'middle box', 'international', 'hazardous', 1, 66000, '2021-11-15', '2021-11-29', 14,
'successfully');
insert into declaration_create(order_id, declaration_id)
  values ('104', '1040');
insert into repository(declaration_id, account_login)
  values ('1040', 'Richard');

"ORDER6"
insert into product_information(name, description, price, company_name)
  values ('H934', 'sport shoes', '34000', 'Asos');
insert into order_information(order_id, name, date_of_formation, predicted_day_of_coming, departure_address,
arrival_address, timeliness_of_delivery, payment_status, return, delivery_charges)
  values ('105', 'H934', '2021-12-03', '2021-12-05', 'Almaty Post', 'KZ, Almaty, Tole BI st', '2', 'paid', 'False',
1200);
insert into order_create(order_id, account_login)
  values ('105', 'Ann');

insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
  values ('105-1', 'Almaty Post', 'KZ', 'ALA', 'Post Office', '2021-12-04', '2021-12-03', '2021-12-05', 1);

insert into track_create(status_id, order_id)
  values ('105-1', '105');

insert into transport_create(order_id, transport_number)
  values ('105', 'T1721');

insert into fill_create(status_id, transport_number)
  values ('105-1', 'T1721');

insert into declaration_information(declaration_id, type_of_package, type_of_delivery, delivery_feature, mass_of_package,

```

```

total_cost, date_of_formation, actual_arrival_day, days_on_way, final_delivery_status)
    values ('1050', 'middle box', 'local', 'no', 3, 35200, '2021-12-03', '2021-12-04', 1, 'failed');
insert into declaration_create(order_id, declaration_id)
    values ('105', '1050');
insert into repository(declaration_id, account_login)
    values ('1050', 'Ann');

"ORDER7"
insert into product_information(name, description, price, company_name)
    values ('S934', 'shirt', '16500', 'Nike');
insert into order_information(order_id, name, date_of_formation, predicted_day_of_coming, departure_address,
arrival_address, timeliness_of_delivery, payment_status, return, delivery_charges)
    values ('106', 'S934', '2021-12-03', '2021-12-05', 'Almaty Post', 'KZ, Almaty, Tole BI st', '2', 'paid', 'False',
1000);
insert into order_create(order_id, account_login)
    values ('106', 'Rustam');

insert into track_information(status_id, status_description, country, city, location_address, curr_date, starting_date,
ending_date, period_on_way)
    values ('106-1', 'Almaty Post', 'KZ', 'ALA', 'Post Office', '2021-12-04', '2021-12-03', '2021-12-05', 1);

insert into track_create(status_id, order_id)
    values ('106-1', '106');

insert into transport_create(order_id, transport_number)
    values ('106', 'T1721');

insert into fill_create(status_id, transport_number)
    values ('106-1', 'T1721');

insert into declaration_information(declaration_id, type_of_package, type_of_delivery, delivery_feature, mass_of_package,
total_cost, date_of_formation, actual_arrival_day, days_on_way, final_delivery_status)
    values ('1060', 'small box', 'local', 'not necessary', 1, 17500, '2021-12-03', '2021-12-04', 1, 'failed');
insert into declaration_create(order_id, declaration_id)
    values ('106', '1060');
insert into repository(declaration_id, account_login)
    values ('1060', 'Rustam');

```

TASK4. Queries

```
"TASK4.1_A - Find all customers who had a package on that truck at the time of the crash."
with t as (select account_login, o as order_id, transport_number, name, date_of_formation from
            (select transport_create.order_id as o, transport_number, date_of_formation, name
              from transport_create inner join order_information oi on oi.order_id = transport_create.order_id)
            as t1 inner join order_create on o = order_create.order_id)
select * from t
where date_of_formation = '2021-12-03' and transport_number = 'T1721';
```

```
"TASK4.1_B - Find all recipients who had a package on that truck at the time of the crash."
with t as (select company_name, product_information.name, o as order_id, transport_number, date_of_formation from
            (select transport_create.order_id as o, transport_number, date_of_formation, name
              from transport_create inner join order_information oi on oi.order_id = transport_create.order_id)
            as t1 inner join product_information on t1.name = product_information.name)
select * from t
where date_of_formation = '2021-12-03' and transport_number = 'T1721';
```

```
"TASK4.1_C - Find the last successful delivery by that truck prior to the crash"
with t as (select oi as order_id, type_of_delivery, type_of_package, total_cost, actual_arrival_day,
                final_delivery_status, transport_number from
            (select declaration_create.order_id as oi, transport_number, declaration_id from
              declaration_create inner join transport_create
                on transport_create.order_id = declaration_create.order_id) as t1 inner join declaration_information
                on t1.declaration_id = declaration_information.declaration_id)
select * from t where transport_number = 'T1721' and final_delivery_status = 'successfully'
and actual_arrival_day <= '2021-12-04' order by actual_arrival_day desc limit 1;
```

```
"TASK4.2 - Find the customer who has shipped the most packages in the past year"
with t1 as (select order_id, final_delivery_status, actual_arrival_day
            from declaration_information inner join declaration_create
              on declaration_information.declaration_id = declaration_create.declaration_id),
t2 as (select company_name, order_id
       from product_information inner join order_information
         on product_information.name = order_information.name)
select company_name, count(company_name) as number_of_packages from t2 group by company_name
having count(company_name) = (select max(cnt) from
 (select count(company_name) as cnt from
```

```
t1 inner join t2 on (t1.order_id = t2.order_id)
where (actual_arrival_day between '2020-01-01' and '2020-12-31' and (final_delivery_status <> 'failed'))
group by company_name) as t3 );
```

"TASK4.3 - Find the customer who has spent the most money on shipping in the past year"

```
with t as (select account_login, t1.order_id, final_delivery_status, actual_arrival_day, total_cost from
            (select * from declaration_information inner join declaration_create
              on declaration_information.declaration_id = declaration_create.declaration_id) as t1 inner join order_create
              on order_create.order_id = t1.order_id)
select account_login, sum(total_cost) as total_money_spent from t group by account_login
having sum(total_cost) = (select max(cnt) from (select sum(total_cost) as cnt from t
where (actual_arrival_day between '2020-01-01' and '2020-12-31' and (final_delivery_status <> 'failed'))
group by account_login) as t2);
```

"TASK4.4 - Find the street with the most customers."

```
select address, count(address) as number_of_customers from client_information group by address
having count(address) = (select max(cnt) from
(select count(address) as cnt from client_information group by address) as t1);
```

"TASK4.5 - Find those packages that were not delivered within the promised time."

```
select order_id, final_delivery_status from
declaration_create inner join declaration_information di on di.declaration_id = declaration_create.declaration_id
where final_delivery_status <> 'successfully';
```

"TASK4.6_A - A simple bill: customer, address, and amount owed"

```
with t1 as (select account_login, order_create.order_id as order_id, name, arrival_address, delivery_charges from
            order_create inner join order_information oi on oi.order_id = order_create.order_id),
t2 as (select order_id, total_cost, final_delivery_status, actual_arrival_day from declaration_create
        inner join declaration_information di on di.declaration_id = declaration_create.declaration_id)
select account_login, t1.order_id, arrival_address, delivery_charges, total_cost, final_delivery_status from
t1 inner join t2 on t1.order_id = t2.order_id
where (((select CAST((SELECT(TO_CHAR(current_date, 'MM')) as t) AS INT)) - 1 ) =
        (select CAST((SELECT(TO_CHAR(actual_arrival_day, 'MM')) as t) AS INT)));
```

```
"TASK4.6_B - A bill listing charges by type of service"
with t1 as (select order_create.order_id as order_id, delivery_charges, timeliness_of_delivery from
            order_create inner join order_information oi on oi.order_id = order_create.order_id),
            t2 as (select order_id, type_of_package, mass_of_package, type_of_delivery, actual_arrival_day from
            declaration_create
            inner join declaration_information di on di.declaration_id = declaration_create.declaration_id)
select type_of_delivery, type_of_package, mass_of_package, timeliness_of_delivery, delivery_charges from
t1 inner join t2 on t1.order_id = t2.order_id
where (((select CAST((SELECT(TO_CHAR(current_date, 'MM')) as t) AS INT)) - 1 ) =
        (select CAST((SELECT(TO_CHAR(actual_arrival_day, 'MM')) as t) AS INT)) );
```

```
"TASK4.6_C - An itemize billing listing each individual shipment and the charges for it"
with t as (select order_information.order_id as order_id, declaration_id, name, date_of_formation,
predicted_day_of_coming, departure_address, arrival_address, timeliness_of_delivery, delivery_charges from
order_information inner join
            declaration_create on order_information.order_id = declaration_create.order_id)
select order_id, name, t.date_of_formation, predicted_day_of_coming, departure_address, arrival_address,
timeliness_of_delivery, delivery_charges, type_of_package, type_of_delivery, final_delivery_status, total_cost
from t inner join declaration_information on t.declaration_id = declaration_information.declaration_id
where (((select CAST((SELECT(TO_CHAR(current_date, 'MM')) as t) AS INT)) - 1 ) =
        (select CAST((SELECT(TO_CHAR(actual_arrival_day, 'MM')) as t) AS INT)) );
```