System description:

This project presents my vision of educational task “e-care”. This project presents the system to administrate the work of mobile operator. System allows you to control, administrators, clients, client’s contracts and operator’s goods.

Used technologies and frameworks:

Application server: Tomcat, WildFly

Database: MySQL, Hibernate

Data transfer protocols: HTTP, WebSocket

Frontend: JSP + Bootstrap + JSTL, Angular, CSS

Testing: Junit, Mockito, Selenium

MQ server: RabbitMQ

Frameworks: EJB, Spring (Web, Security, Core, AOP)

Additional: Lombok, Maven

My features:

As additional features, we added notification to user by email, when creates user’s account. And another feature was prototype of money system. This feature include functions to add money on user’s balance, count monthly fee for contract (counts tariff and connected options), and debited money when connect new options.

Database scheme:

In database we have 8 tables. 6 of them represents different entities and 2 supporting ones to provide Many to Many relationships.

Option types table represents options category. It was added to execute the rule, that says we have some options which we can’t connect with each other. In my realization this rule transformed in we can connect to one contract only one option from one option’s category.

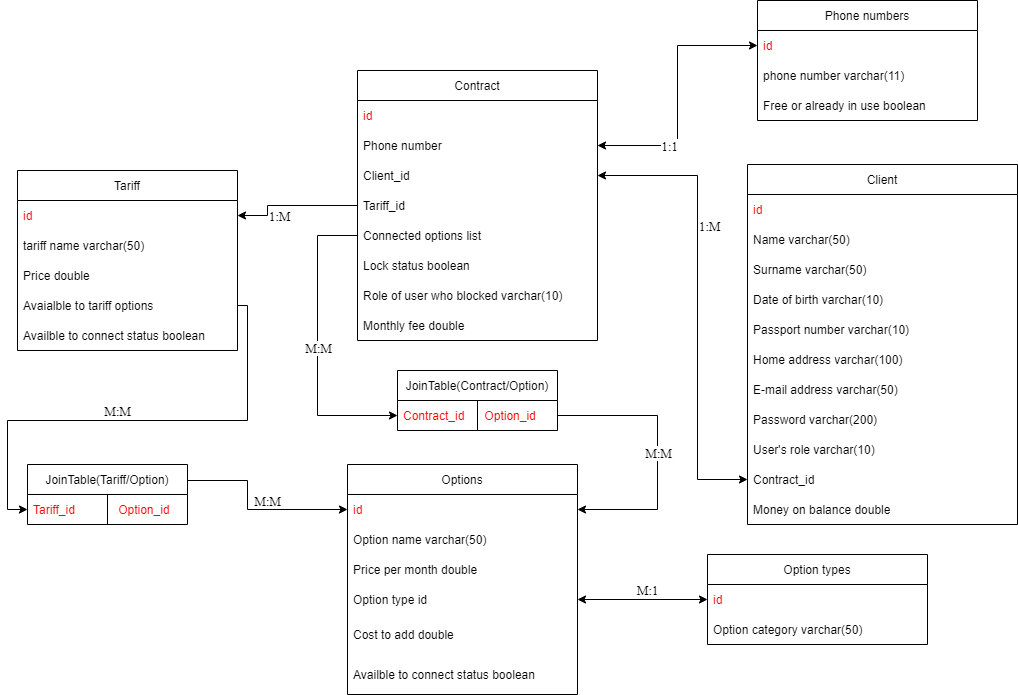
Options table represents model of option for tariffs. Option main fields was given in the task. Options and options types have many to one relationship, because we define that one option can belongs to one option’s type, but in system could be many options with the same option’s type

Tariff table represents model of tariff. Main fields for this entity were given in the task. Tariff and Options have many to many relationship because one tariff could have many options available to connect to him, and one option could be connected to many tariffs.

Phone numbers table was added, because we need to know which phone numbers already in use, and for this task we decided to take it out to another table. For make searching info about phone numbers easier than search info about them on every contract.

Client table represents the client’s model in this system. Main fields of the clients were given in the task

Contract table represents the model of client’s contract in the system. Contract and Phone numbers tables have one to one relationship because one phone number can be used only with one contract. Contract and Client tables have one to many relationship because contract could have only one client, but client could have many contracts connected to him. Contract and Tariff tables have one to many relationship because contract could have only one tariff connected and one tariff could be connected to many contracts. Contract and Options have many to many relationship, because many options could be connected to one contract, and one option could be connected to many contracts.



Picture 1 – Database scheme

Implementation of the models from the task:

Tariff model contains name, price, tariff connect status (could it be connected by new clients or not) and list of options which could be connected to the contract with this tariff.

Option model contains name, price per month, price to connect it to the tariff and connect status (could it be connected by new clients or not).

Client model contains name, surname, date of birth, passport number, home address, client’s contracts id, email and password.

Contract model contains many relationships to other models. It has links to phone number, client who belongs this contract, id of the connected tariff, and link to the list of connected options for this contract.

Modules and their interaction:

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