

eCare project

Technical Solution Description

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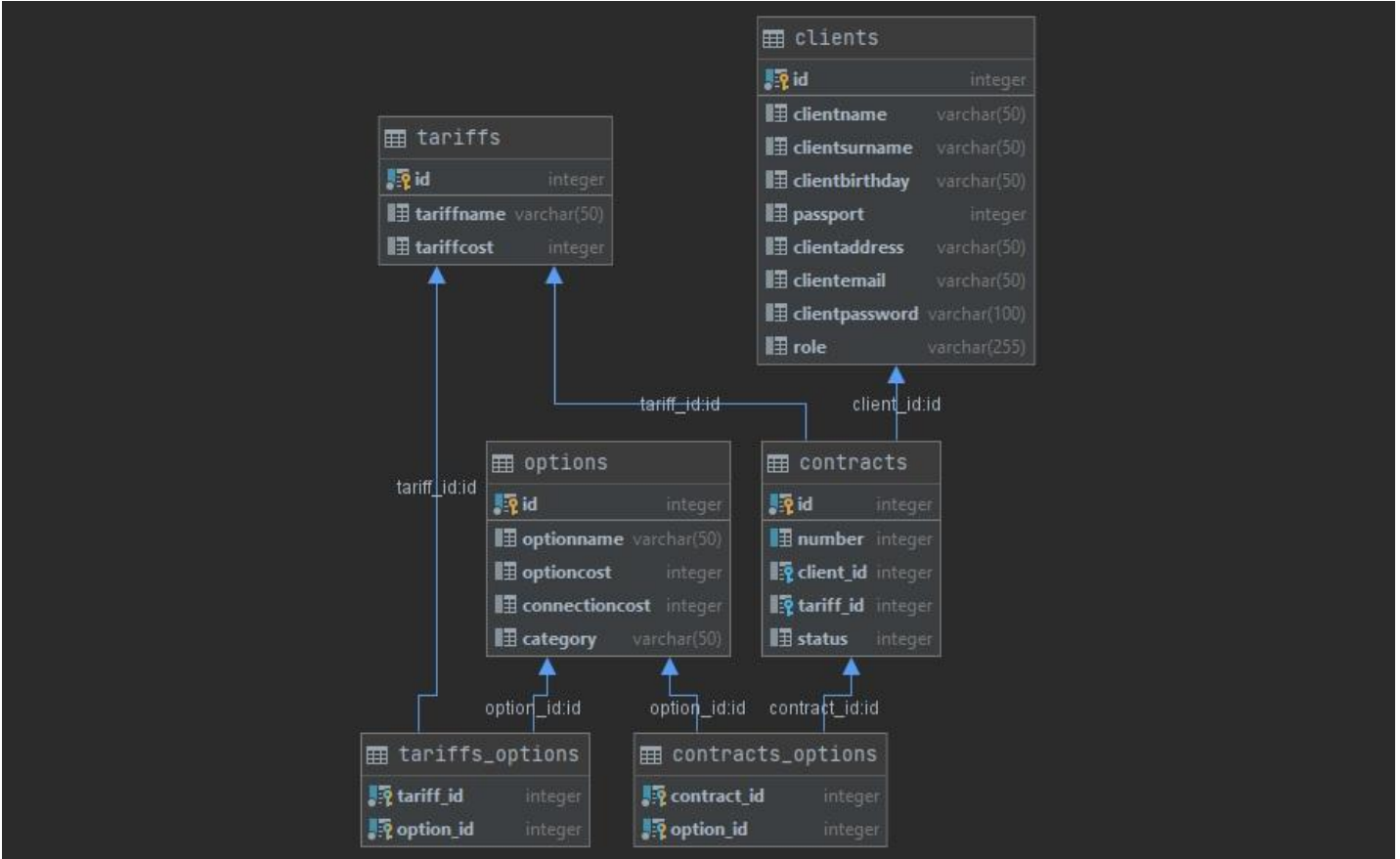
Introduction

eCare project – web application for mobile operator. This project allow to manage contracts, clients, tariffs and options. Users with administrator privileges can create new clients and contracts, editing and blocking of clients contracts. Usual users have a right to manage their personal contract, inspect options and tariffs.

Technologies and frameworks

- Spring
 - Spring MVC
 - JPA
 - Spring security
- Hibernate
- css
- EJB
- JSF
- Maven
- WildFly

Database



Description

Main table

Table	Description
Clients	Client’s information. Contains name, surname, email, password, etc.
Contracts	Contracts information. Contains number, block statusl, etc.
Tariffs	Tariffs information. Contains name, cost.
Options	Options information. Contains name, cost, connection cost, etc.

Relationships table

Table	Description
Tariffs_options	Tariffs – Options many-to-many relationship. Defines options, that available for tariff.
Contracts_options	Contract – Options many-to-many relationship. Defines the options connected to the contract.

Description of the model

Client - the registered user of the service. Clients with the User role can manage their profile, change tariffs and enable / disable options. Clients with the Administrator role can additionally create, edit and delete other clients, contracts, tariffs and options.

Contract - or the customer's phone number. Tariffs and options are connected to the contract. The contract can be blocked. This disables the ability to perform actions with tariffs and options. If the contract is blocked by the Administrator, then the User cannot remove the blocking.

Tariff - has a customizable list of options.. Every contract has exactly one tariff.

Option - divided into categories. When connecting an option to a contract, you can select only one option from a category.

Role - defines the user's role. Depending on the role, the registered user has different rights.

User interface

List of available pages

- login – login to service
- Administrator pages
 - Shows a personal profile
 - Shows a list of clients
 - Shows a list of contracts
 - Shows a list of tariffs
 - Shows a list of options

From each list, you can go to the entity page, where editing, adding and deleting functions are available.

- User pages
 - Shows a personal profile
 - Shows a list of tariffs available for transition
 - Shows a list of available and connected options.

Unlike the Administrator, the User does not have the ability to edit, delete and add entities.

Services

The application contains four services :

- Client service
- Contract service
- Tariff service
- Options service

All services have interfaces and it's implementation.

In service layer take place DTO – Entity convention.

List of methods

ClientService

Method	Description
showAll	Find all clients
showById	Find client by Id
showByName	Find client by name
save	Save new client
update	Update client
delete	Delete client
toEntity	Transform clientDTO to entity

ContractService

Method	Description
showAll	Find all contracts
showById	Find contract by Id
save	Save new contract
update	Update contract
delete	Delete contract
toEntity	Transform contractDTO to entity
showClientByNumber	Search client by number
contractBlock	Allow to block/unblock contract
confirmCartContract	Confirm changes in cart
deleteOptionFromCart	Delete Option From Cart
addOptionToCart	Add option to cart
showAvailableOptions	Show available options for contract
changeTariffOnContract	Change tariff
deleteOptionFromContract	Delete option from contract

OptionService

Method	Description
showAll	Find all options
showById	Find option by Id
save	Save new option
update	Update option
delete	Delete option
toEntity	Transform optionDTO to entity

TariffService

Method	Description
showAll	Find all tariffs
showById	Find tariff by Id
save	Save new tariff
update	Update tariff
delete	Delete tariff
toEntity	Transform tariffDTO to entity
loadTariffs	Prepared tariffs for REST controller

Entities and repository

Entities

Entities package contains 5 classes

- Contract
- Customer
- Option
- Role
- Tariff

Client – service user.

Field	Description
id	Id of client. Auto generated by DB
name	Client's name
surname	Client's surname
dateOfBirth	Client's date Of Birth
numberOfPassport	Client's number of passport
address	Client's address
email	Client's email. Main identification field. Must be unique
contractSet	Client's Must be unique
password	Client's password
role	Client's role. Defines clients rights

Contract – represents contract. Has unique phone numbers. Has only one customer.

Field	Description
id	ID of contract. Auto generated by database
number	Contract phone number. Must be unique
status	Define block level of contract
tariff	Connected tariff
client	Contract's owner
optionSet	Connected options

Option – represents options. Have one or more contracts.

Field	Description
id	ID of option. Auto generated by database
optionName	Name of option. Must be unique
optionCost	Cost per month of option
connectionCost	Cost of option switching-on
category	Option's category
tariffSet	Set of tariffs. Define "required from" relationships
contractSet	Set of contracts. Define "incompatible" relationships

Tariff – represents tariffs. Has zero or more options.

Field	Description
id	ID of tariff. Auto generated by database
tariffName	Name of tariff. Must be unique
tariffCost	Cost per month of tariff
contractSet	Set of contracts. Define “incompatible” relationships
optionAvailableSet	Set of options. Define available options for tariff.
isHot	Define most usable tariff

Repository

Application created with Spring framework and JPA Hibernate implementation.

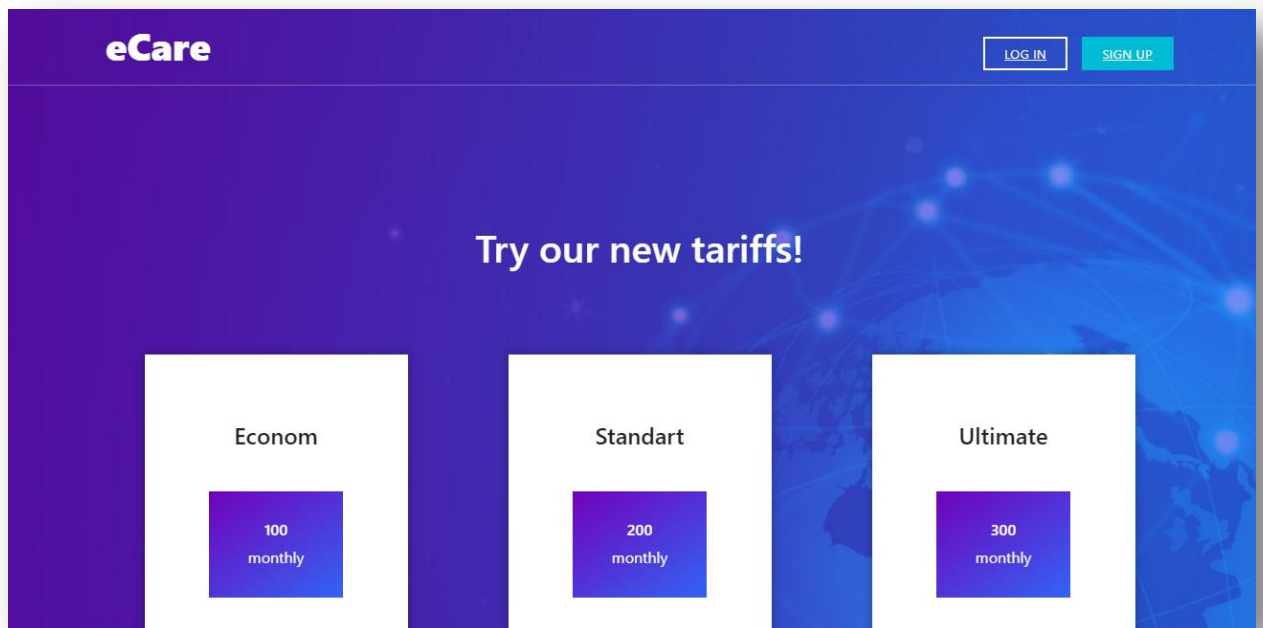
Data source defined by JNDI on server.

Full repository package represented as interfaces with implementation of interfaces. All interfaces extended by GenericDao.

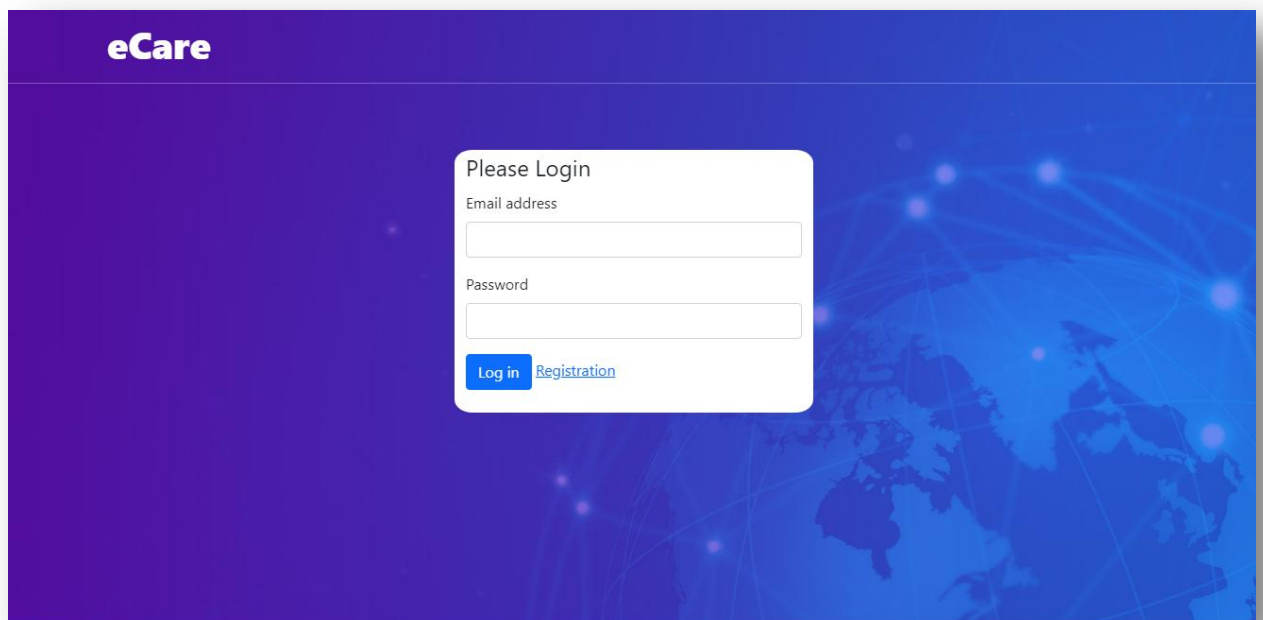
Some interfaces have additional methods.

Screenshots

Main page




Login page



Admin's page

eCare



Clients

Contracts

Tariffs

Options

Edit profile

Name: Admin

Surname: Admin

Birthday: 1985-03-10

Passport: 777

Address: St-Petersburg

e-mail: admin


Contracts:

55555

New contract

Client's page

eCare



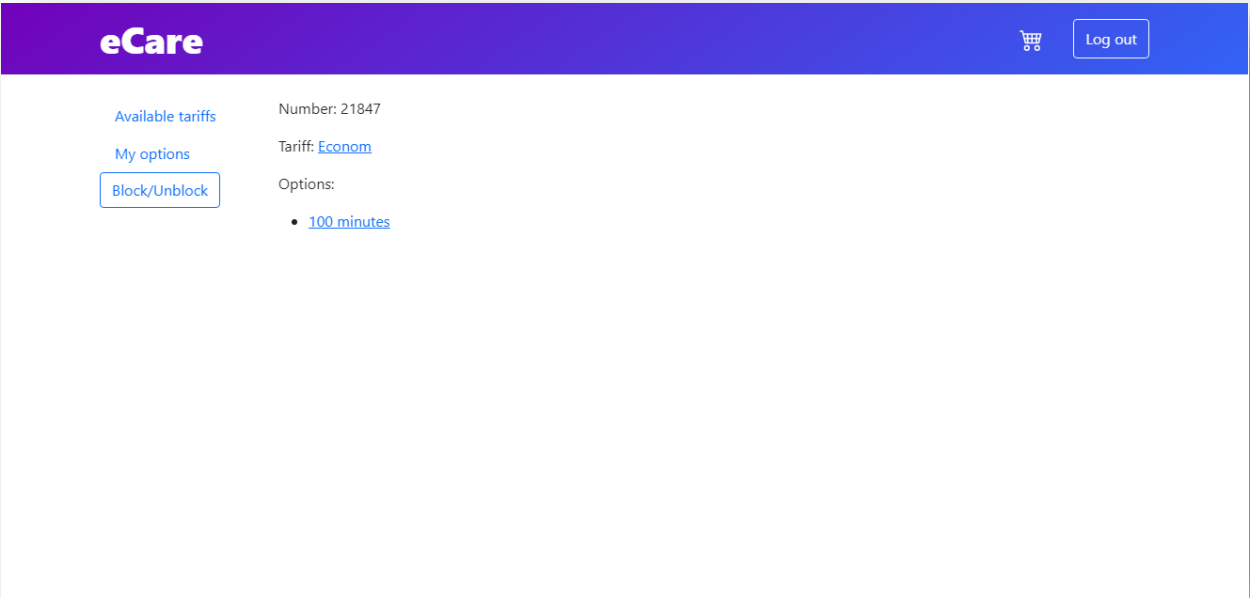
Log out

Edit profile

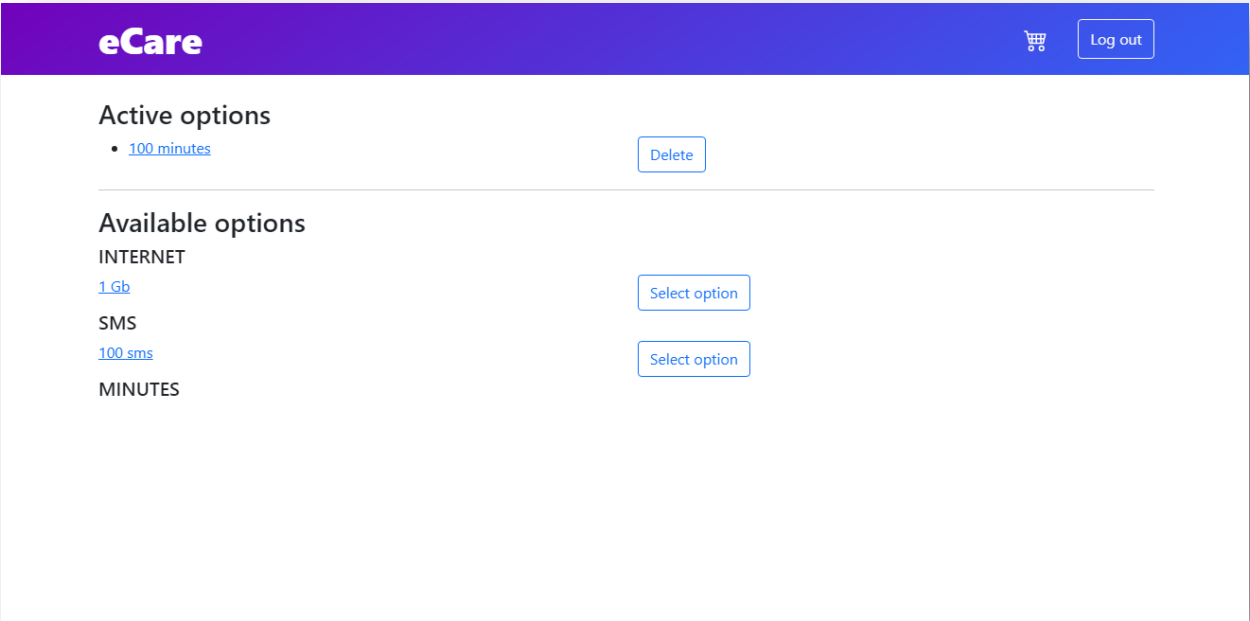
Name: Fedya
Surname: Sidorov
Birthday: 1998-02-13
Passport: 654321
Address: Budenogo st
e-mail: user

Contracts:
[21847](#)
[88888](#)

Contract's page




Options page



Cart

eCare



Log out

Selected options:

• 1 Gb

Delete

• 100 sms

Delete

Confirm!