Technical Solution

Logiweb project @ JavaSchool#14

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https://github.com/AndrewBaliushin/Logiweb

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Project goals

Develop software that represents information system for some fictional transportation company.

System must be able to manage Trucks, Drivers, Orders and Cargoes.

Requirements

- Through UI for managers:
  - Add, edit and show Trucks and Drivers
  - Add and show Orders ensuring that:
    - All cargoes have destination and origin points
  - Show statuses for cargoes and orders
  - Show list of Trucks that are suitable for order if they are:
    - in unbroken state
    - fit by cargo capacity
    - free from other orders
  - Search for and assign Drivers to Trucks by crew size limit and time, that is required to complete Order (calculated by map with the cities)
    - Drivers monthly working hours limit (176 hours) should not be exceeded.
    - Drivers are not busy by other Orders.
    - Drivers are in same city as Truck.
- Through UI for Drivers:
  - Provide your personal employee id and get info on your assignments:
    - Personal employee id
    - Co-drivers personal ids
    - Truck license plate number
    - Order id
    - Way-points list
- For Drivers through WS/RS interface:
  - Driver started new shift
    - Driver personal employee id

        - Driver status (main driver or resting)
    - Driver changed status
        - Driver personal employee id
        - Driver status
    - Driver finished the shift
        - Driver personal id
    - Order status have changed
        - Cargo id
        - Status (Picked up, Delivered)

Development tools

- Eclipse IDE
- Maven
- Tomcat
- WildFly
- Git
- MySQL Workbench
- Astah*
- Cobertura
- Sonar

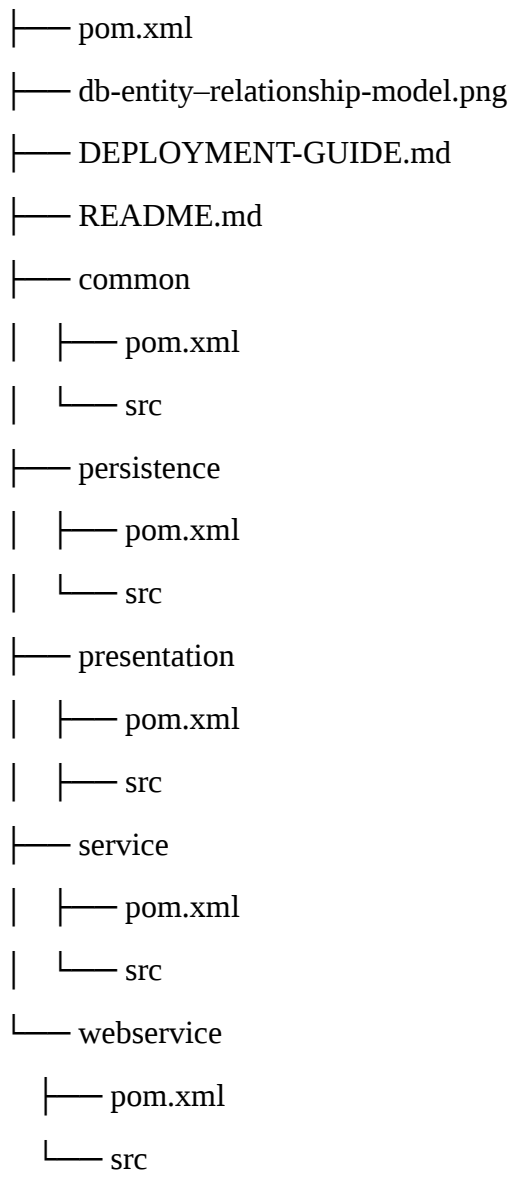
Technologies

- Java 1.7
- JPA 2.0
- EJB
- JSF
- MySQL
- JAX-WS (CXF)
- JUnit
- Log4J
- Spring Framework
- Bootstrap Framework
- JQuery

Architecture

Project relies on 3-tire architecture (presentation, services, persistence). Project is divided to modules accordingly. There is addition module for web-services.

Project tree:

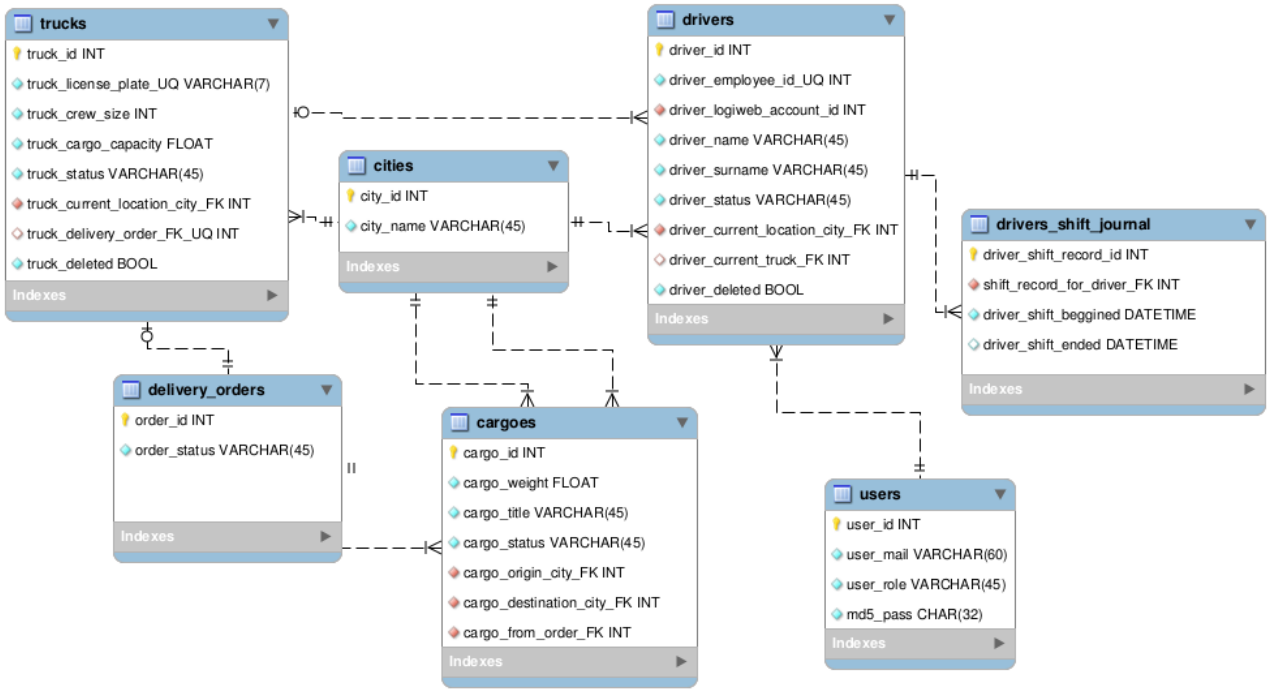


Class diagram

Class diagram is not attached to this document due to it's size, but it can be found here:

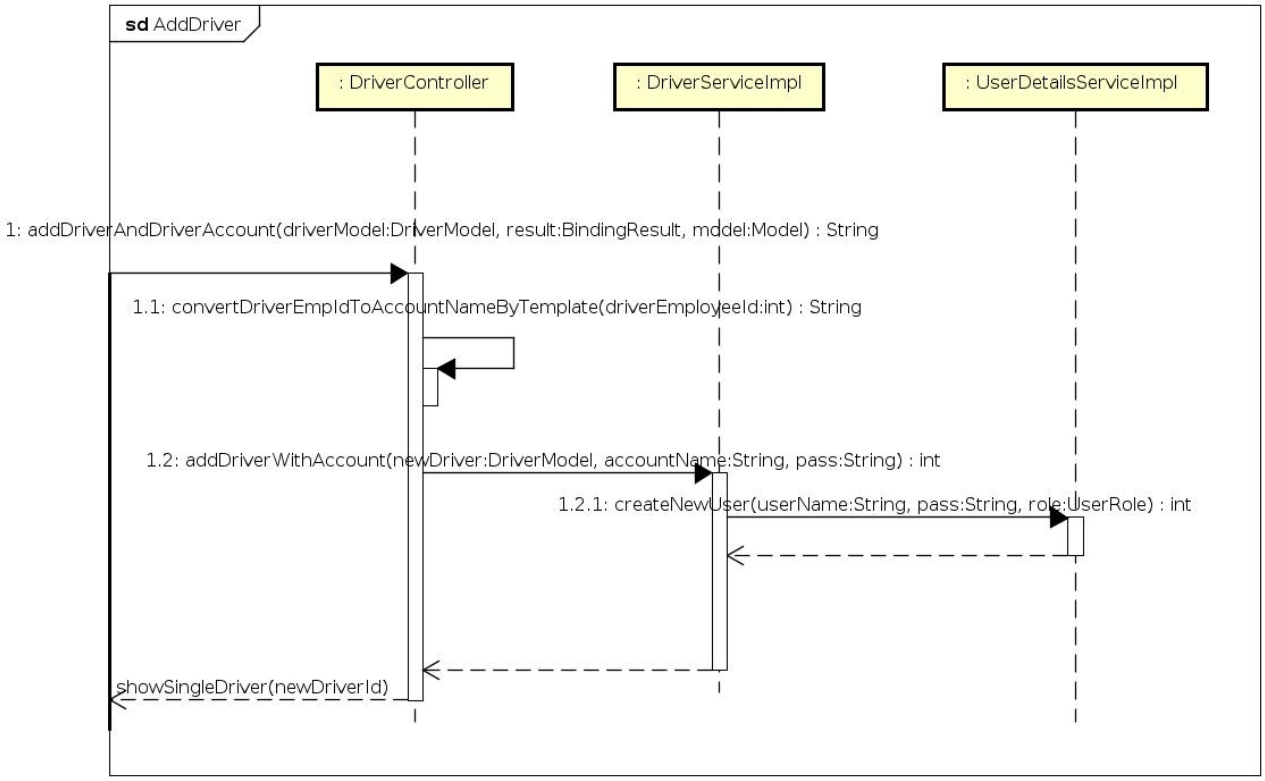
https://github.com/AndrewBaliushin/Logiweb/blob/master/class-diagram.jpg (2.2MB)

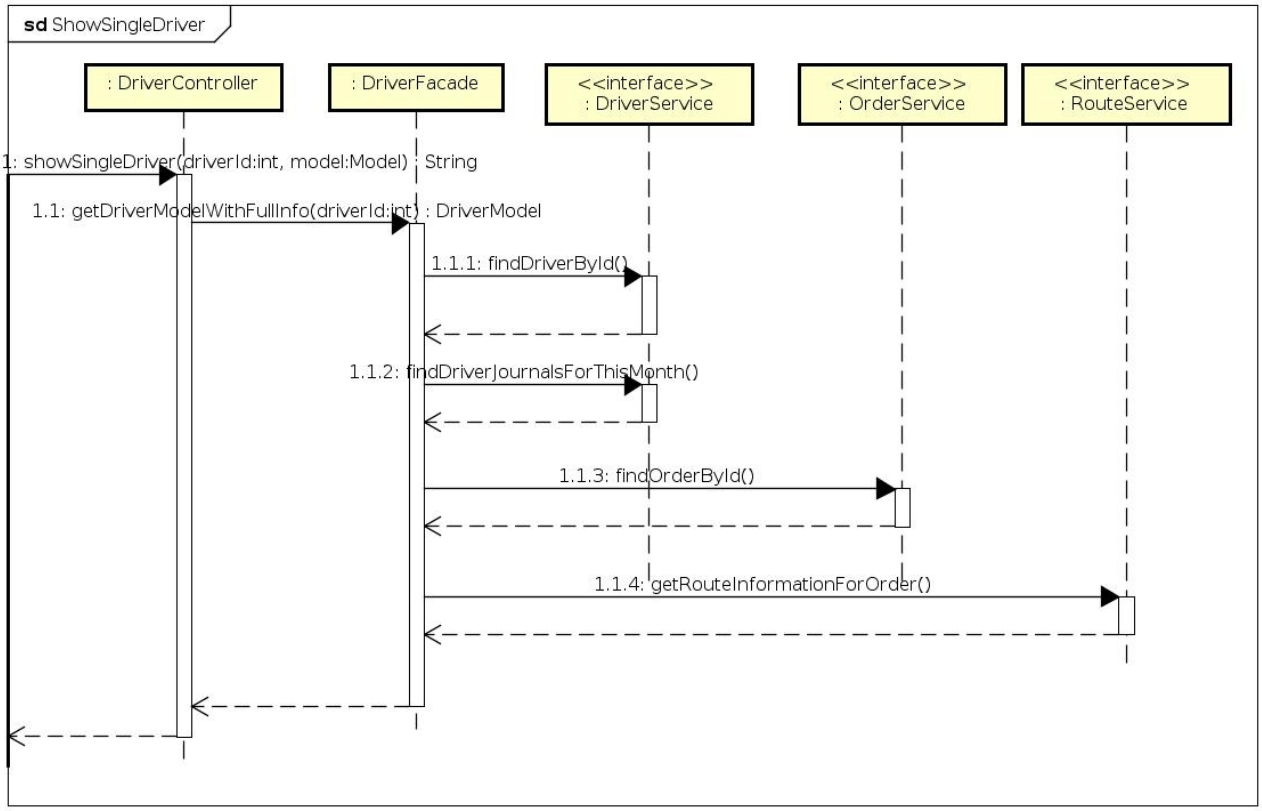
Entity–relationship model

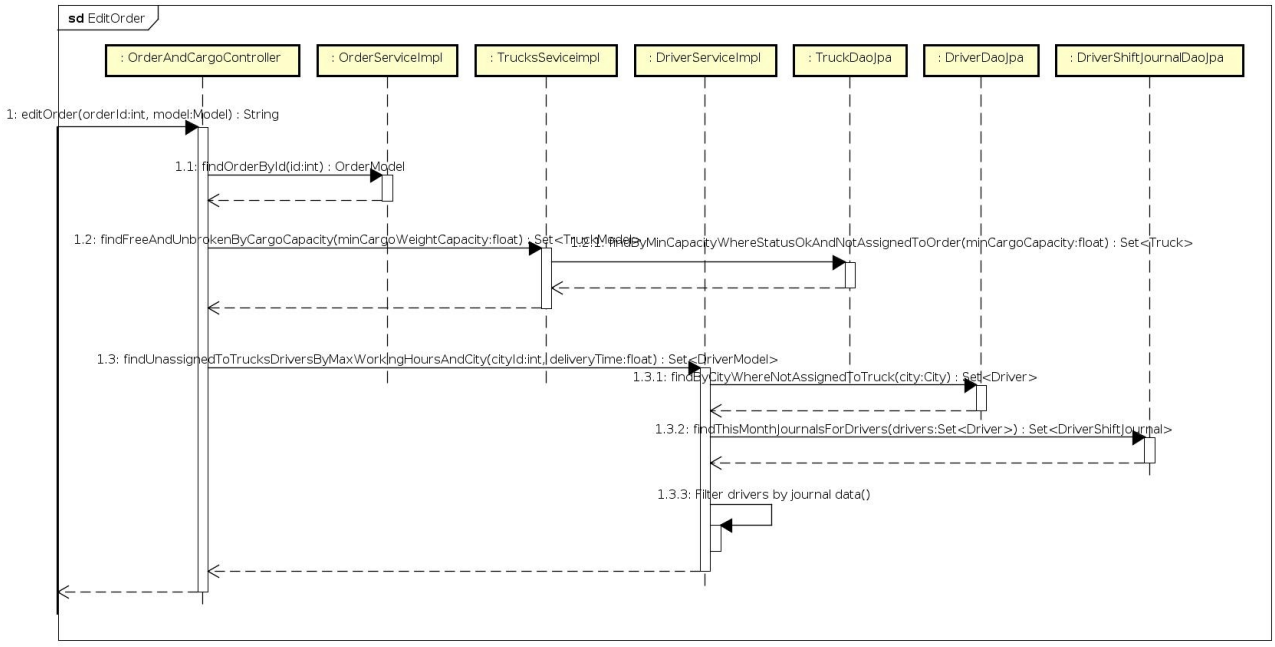


Sequence diagrams

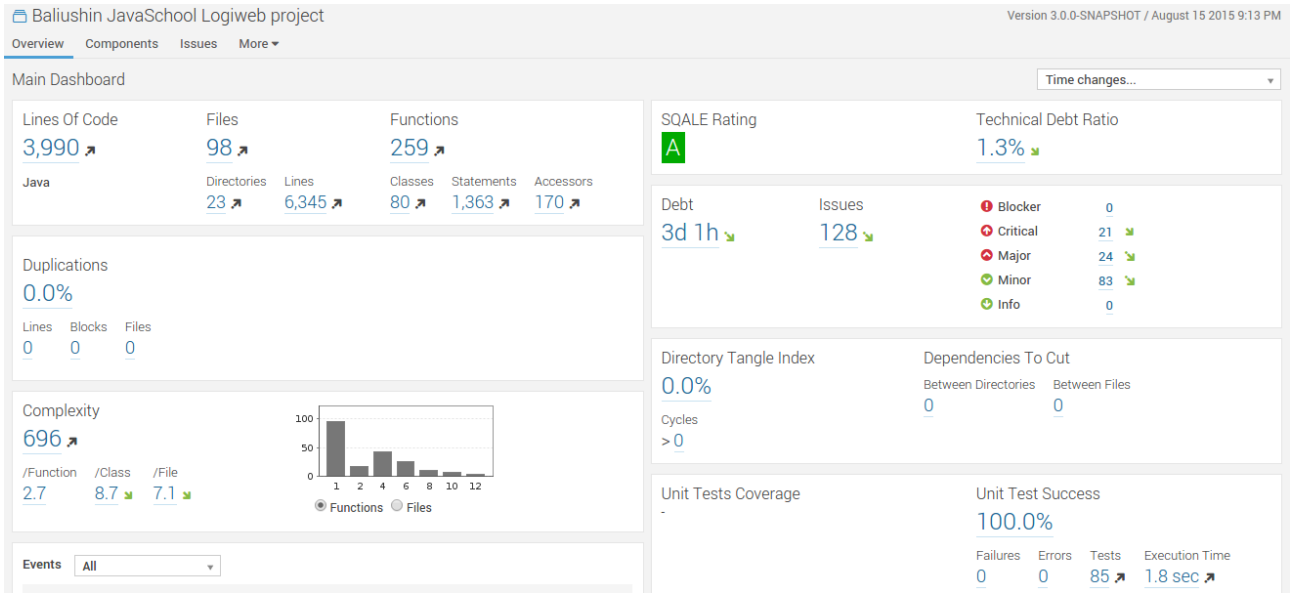
Below are diagrams for non-trivial cases.




sd ShowSingleDriver
: DriverController
: DriverFacade
<<interface>>
: DriverService
<<interface>>
: OrderService
<<interface>>
: RouteService
1: showSingleDriver(driverId:int, model:Model) : String
1.1: getDriverModelWithFullInfo(driverId:int) : DriverModel
1.1.1: findDriverById()
1.1.2: findDriverJournalsForThisMonth()
1.1.3: findOrderById()
1.1.4: getRouteInformationForOrder()


sd EditOrder
: OrderAndCargoController
: OrderServiceImpl
: TrucksSeviceImpl
: DriverServiceImpl
: TruckDaoJpa
: DriverDaoJpa
: DriverShiftJournalDaoJpa
1: editOrder(orderId:int, model:Model) : String
1.1: findOrderById(id:int) : OrderModel
1.2: findFreeAndUnbrokenByCargoCapacity(minCargoWeightCapacity:float) : Set<TruckModel>
1.2.1: findByMinCapacityWhereStatusOkAndNotAssignedToOrder(minCargoCapacity:float) : Set<Truck>
1.3: findUnassignedToTrucksDriversByMaxWorkingHoursAndCity(cityId:int, deliveryTime:float) : Set<DriverModel>
1.3.1: findByCityWhereNotAssignedToTruck(city:City) : Set<Driver>
1.3.2: findThisMonthJournalsForDrivers(drivers:Set<Driver>) : Set<DriverShiftJournal>
1.3.3: Filter drivers by journal data()

Quality report



Service layer test coverage:

Package	# Classes	Line Coverage		Branch Coverage		Complexity
All Packages	33	48%	469/973	58%	151/260	2.474
com.tsystems.javaschool.logiweb.model	6	61%	64/104	N/A	N/A	1
com.tsystems.javaschool.logiweb.model.ext	1	27%	33/118	20%	7/34	2.417
com.tsystems.javaschool.logiweb.service	7	N/A	N/A	N/A	N/A	1
com.tsystems.javaschool.logiweb.service.aspects	1	0%	0/18	0%	0/6	3
com.tsystems.javaschool.logiweb.service.exceptions	4	17%	6/34	N/A	N/A	1
com.tsystems.javaschool.logiweb.service.ext	3	0%	0/33	N/A	N/A	1
com.tsystems.javaschool.logiweb.service.facades	1	0%	0/18	0%	0/4	3
com.tsystems.javaschool.logiweb.service.impl	8	56%	360/642	66%	140/212	5.721
com.tsystems.javaschool.logiweb.service.validators	2	100%	6/6	100%	4/4	3

Classes in this Package	Line Coverage		Branch Coverage		Complexity
CargoServiceImpl	46%	40/86	44%	15/34	6.75
CityServiceImpl	0%	0/12	N/A	N/A	3
DriverServiceImpl	75%	165/218	87%	54/62	5.05
OrderServiceImpl	65%	64/97	85%	34/40	7.75
RouteServiceStub	0%	0/49	0%	0/16	3.5
RouteServiceStub$1	0%	0/2	N/A	N/A	3.5
TrucksSeviceImpl	71%	91/128	77%	37/48	7.4
UserDetailsServiceImpl	0%	0/50	0%	0/12	4.667