

Technical description



Clinic project

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1. Task.

The Web-application consists of 2 modules:

1. The first module automates the work of a medical organization. There are 2 types of users in the module:
 - senior medical staff (DOCTOR);
The users can read all information in the app. The users can add and update patients; fill in the patient's medical history; create new cases and close them; create, update and cancel prescriptions;
 - junior medical staff (NURSE)
The users can read all information in the app. The users can nurse perform a medical procedure and indicate in the app the result of the procedure with comments.
2. The second module is an electronic information board. The InfoBoard displays the queue to the treatment room and updates every time there are changes in 1 app (a nurse notes that the procedure has been completed or canceled, or the doctor adds a new prescription for today)

2. Project goals.

- The robust, useful and reliable system.
- Cohesive data model.
- User-friendly interface.
- Cohesive data model.
- Separate access to different system`s part.

3. Application description.

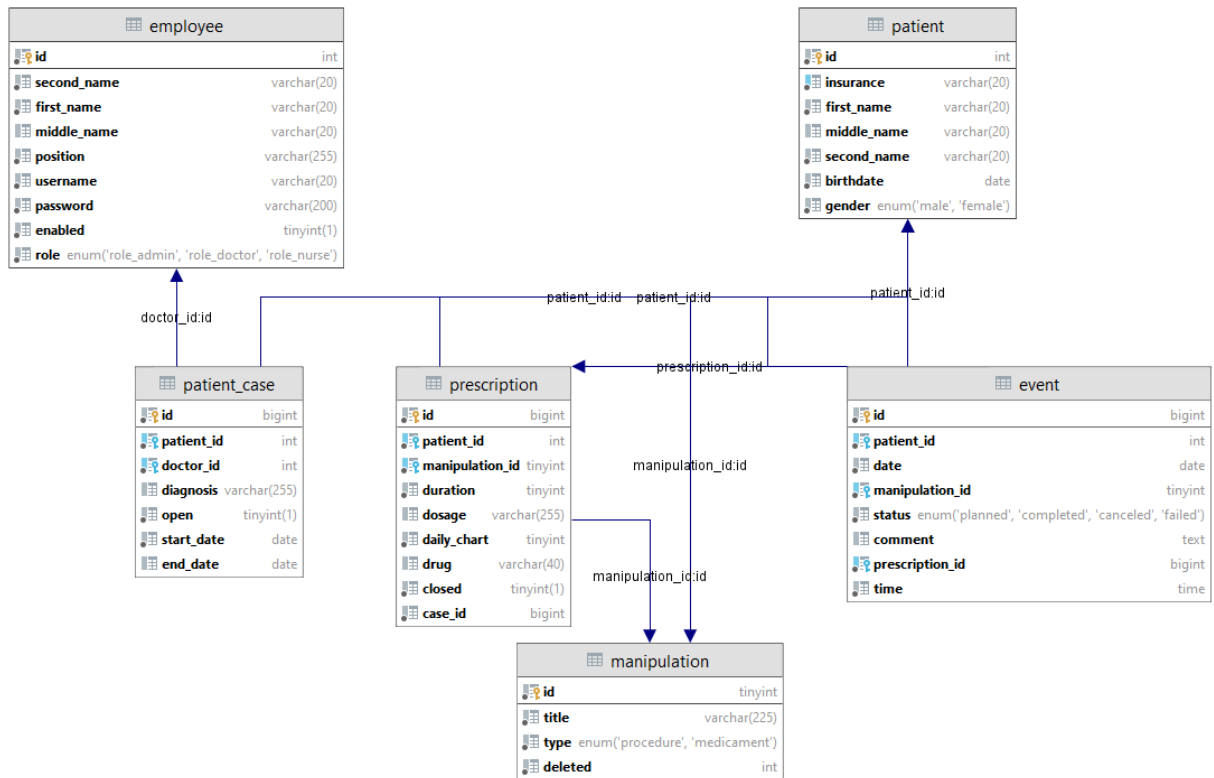
The Web-application consists of 2 modules:

2. The first module automates the work of a medical organization. There are 3 types of users in the module:
 - administrators (ADMIN).
The users can read all information in the app and can add new users.
 - senior medical staff (DOCTOR);
The users can read all information in the app. The users can add and update patients; fill in the patient's medical history; create new cases and close them; create, update and cancel prescriptions;
 - junior medical staff (NURSE)
The users can read all information in the app. The users can nurse perform a medical procedure and indicate in the app the result of the procedure with comments.
3. The second module is an electronic information board. The InfoBoard displays the queue to the treatment room and updates every time there are changes in 1 app (a nurse notes that the procedure has been completed or canceled, or the doctor adds a new prescription for today)

4. Used Technologies.

- Instruments:
 - IDE - IntelliJ IDEA
 - Maven
- Technologies for first module:
 - Bootstrap 3.3.7
 - Bootstrap 4.7.0
 - CSS
 - DB - MySQL 8.0.22
 - Hibernate 5.4.2
 - Java 15
 - JPA 2.0
 - Jwt 0.8.0
 - JSP 2.2
 - Jstlel 1.2
 - Log4j 2.11.2
 - Lombok 1.18.10
 - Mapstruct 1.4.1
 - RabbitMQ 1.4.0
 - REST
 - Spring 5.3.5
 - Spring Security 5.4.5
 - Tomcat 9.0.45
- Technologies for second module:
 - Bootstrap 3.3.7
 - Bootstrap 4.7.0
 - CSS
 - DB - MySQL 5.7
 - EJB 3.2
 - Java 8
 - Java EE
 - JSF 2.3
 - Lombok 1.18.10
 - RrabbitMQ 1.4.0
 - REST
 - WildFly 14.0.1

5. Database model.



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6. System infrastructure.

- First Module - Clinic
 - 1) Web-page structure - jsp
 - 2) Page-design – CSS, Bootstrap
 - 3) Dynamic content - RabbitMQ
 - 4) Application server - Tomcat
 - 5) Database - MySQL
 - 6) JMS - RabbitMQ
 - 7) Server logic - Spring Framework
- Second Module - InfoBoard
 - 1) Web-pages - JSF
 - 2) JMS - RabbitMQ
 - 3) Application server - WildFly
 - 4) Server logic - EJB
 - 5) WS – REST

7. Class structure.

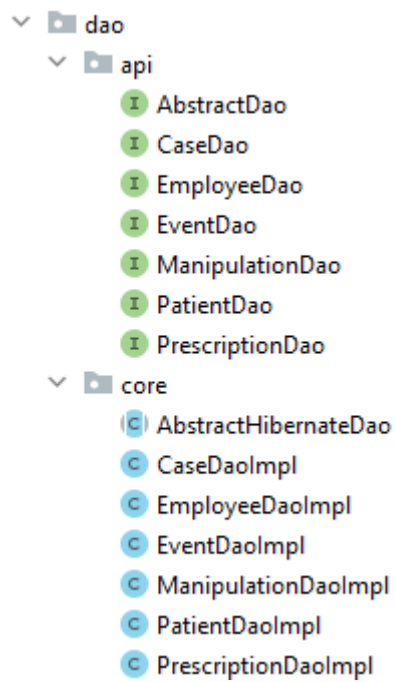
According MVC-pattern application has next structure:

- ▼ clinic
 - > config
 - > controller
 - > dao
 - > dto
 - > entities
 - > exception
 - > mappers
 - > rabbitMQ
 - > service

Model level:

- ▼ entities
 - ▼ enums
 - ⓘ EventStatus
 - ⓘ Gender
 - ⓘ ManipulationType
 - ⓘ Role
 - ▼ exception
 - ⚡ BusinessException
 - ⓘ ExceptionControllerAdvice
 - ⓘ Case
 - ⓘ Employee
 - ⓘ Event
 - ⓘ Manipulation
 - ⓘ Patient
 - ⓘ Prescription

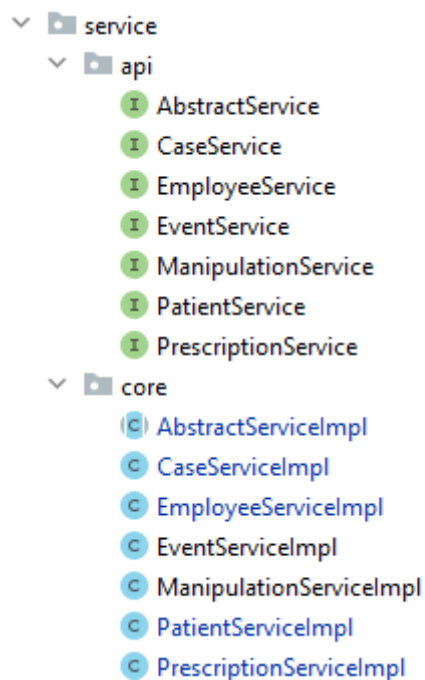
Model-service level:



Each DAO class has queries to database. Developer has 3 ways to create query:

1. Native query
2. Hibernate query language

Service level:



Controller level:

- controller
 - AuthController
 - CaseController
 - EmployeeController
 - EventController
 - ExceptionHandler
 - PatientController
 - PrescriptionController
 - RestController

View level:

- views
 - error
 - 400.jsp
 - 403.jsp
 - 404.jsp
 - 500.jsp
 - exception.jsp
 - help
 - footer.jsp
 - header.jsp
 - menu.jsp
 - cxema.pdf
 - cases.jsp
 - employee.jsp
 - employees.jsp
 - events.jsp
 - index.jsp
 - login.jsp
 - manipulations.jsp
 - patient.jsp
 - patientCase.jsp
 - patients.jsp
 - prescription.jsp

Directory templates is common. It contains navigation bar, header, scripts and shopping cart. Directory manager contains pages which could see only users with role manager. Directory user contains pages which could see users with roles client and manager.

Configuration:

- ▼ config
 - ▼ rabbitMQ
 - RabbitConfig
 - ▼ security
 - SecurityConfig
 - SecurityWebApplicationInitializer
 - HibernateConf
 - MethodSecurityConfig
 - RootWebAppInitializer
 - WebConfig

Convert mechanism:

- ▼ mappers
 - AbstractMapper
 - CaseMapper
 - EmployeeMapper
 - EventMapper
 - EventStatusMapper
 - ManipulationMapper
 - ManipulationTypeMapper
 - PatientMapper
 - PrescriptionMapper
 - RoleMapper

DTO:

- ▼ dto
 - CaseDTO
 - EmployeeDTO
 - EventDTO
 - EventOutDTO
 - ManipulationDTO
 - PatientDTO
 - PrescriptionDTO

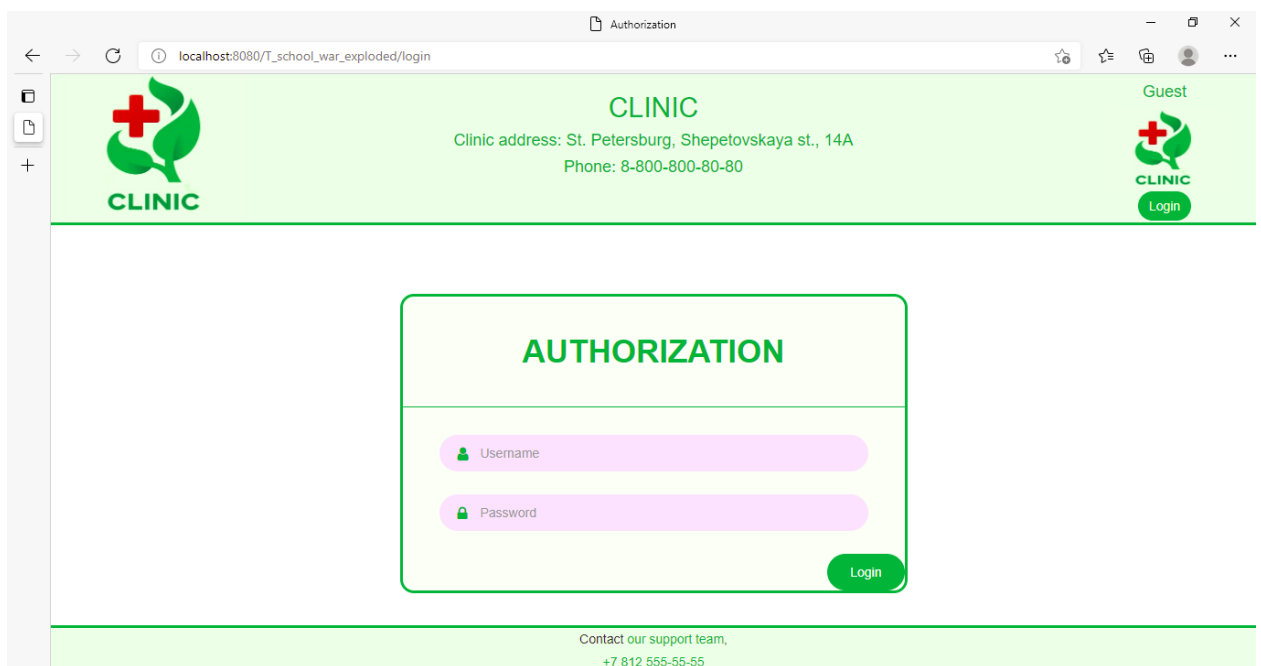
Structure of Second app InfoBoard:

- ▼ dto
 - EventOutDTO
- ▼ Service
 - Connector
 - RestReceiver
- ▼ rabbit
 - Listener
 - PushBean

8. Logging.

```
2021-06-23 14:21:03 INFO EventServiceImpl:101 - The event#542 canceled
2021-06-23 14:21:03 INFO EventServiceImpl:102 - send message: Message to queue - eventCancel
2021-06-23 14:21:03 INFO EventServiceImpl:101 - The event#513 canceled
2021-06-23 14:21:03 INFO EventServiceImpl:102 - send message: Message to queue - eventCancel
2021-06-23 14:21:03 INFO EventServiceImpl:101 - The event#515 canceled
2021-06-23 14:21:03 INFO EventServiceImpl:102 - send message: Message to queue - eventCancel
2021-06-23 14:21:03 INFO EventServiceImpl:101 - The event#516 canceled
2021-06-23 14:21:03 INFO EventServiceImpl:102 - send message: Message to queue - eventCancel
2021-06-23 14:21:03 INFO EventServiceImpl:101 - The event#514 canceled
2021-06-23 14:21:03 INFO EventServiceImpl:102 - send message: Message to queue - eventCancel
2021-06-23 14:21:03 INFO CaseServiceImpl:82 - Case#80 closed
2021-06-23 14:21:38 INFO PrescriptionController:16 - The case#80 is already closed
2021-06-23 14:21:38 INFO ExceptionController:32 - Business Exception: The case#80 is already closed
```

9. UI.





CLINIC

Clinic address: St. Petersburg, Shepetovskaya st., 14A
 Phone: 8-800-800-80-80

M.A.Medvedeva

 Logout


Home page
 Patients
 Procedures
Employees
 Out-patient clinic

Add new employee

Staff list


Full name	Position	Access level
Botkin Sergei Petrovich	Therapist	DOCTOR
Medvedeva Margarita Alekseevna	Owner	ADMIN
Krotova Anna Ivanovna	Nurse	NURSE
Bormantov Oleg Ivanovich	psychiatrist	DOCTOR

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S.P.Botkin

 Logout

Home page
Patients
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List of patients

Find by secondname

New patient


List of patients

Full name	Birthdate	Insurance
Ivanov Ivan Ivanovich	2021-04-07	222222
Bobikov Oleg Borisovich	1909-09-09	111111
Gromova Anna Vadimovna	1988-09-09	333333
Akseev AKin Azarovich	2021-04-26	12121212
Lamov Anton Gennadievich	2021-06-02	fkliiii


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Prescriptions
localhost:8080/T_school_war_exploded/prescription/case/80/add



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S.P.Botkin

Logout

Home page
Patients
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Prescription's details

Type of manipulation
Medicament
Dosage
Duration, days
Days of week

Time of day

Save changes
Back

Pills


Aspirin
20ml
7

MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY


11:00:00
12:00:00
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
23:00:00

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Procedures
localhost:8080/T_school_war_exploded/event/today



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A.I.Krotova

Logout

Home page
Patients
Procedures
Employees
Out-patient clinic

List of procedures

For today
For now
Patient search

Date and time	Full name	Type of procedure	Medicament	Status
2021-06-23 11:00	Ivanov Ivan Ivanovich	Massage		Completed Canceled Reason For Canceling
2021-06-23 11:00	Ivanov Ivan Ivanovich	Massage		Completed Canceled Reason For Canceling
2021-06-23 14:00	Ivanov Ivan Ivanovich	Massage		Completed

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