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| Symprap design documentation |
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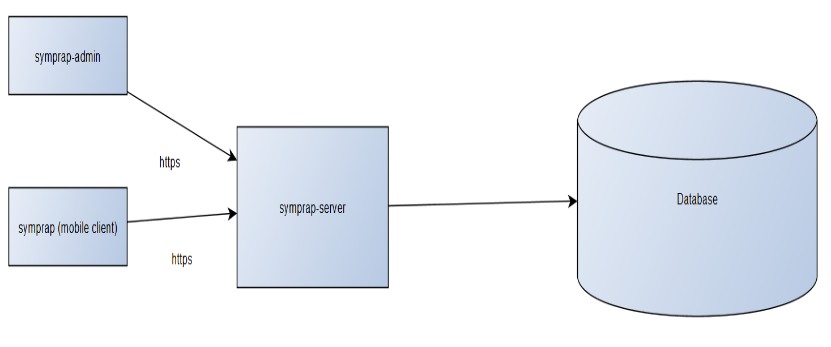
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# Architecture

Symprap consists of single server-side application with in-memory database and two client applications (mobile and browser) that communicate with the server through https.



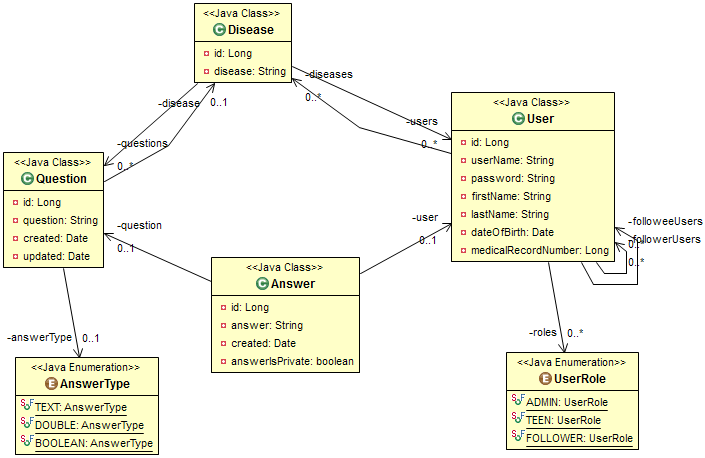
# Symprap server

Symprap server side provides REST-methods for required CRUD (create, read, update, delete) operations regarding diseases, users, questions associated with diseases and answers users provided for those questions.

Server is created as Spring Boot application and dependency management is handled with Maven. Users are authenticated via OAuth2 and passwords are encrypted and salted with BCrypt. Current implementation uses in-memory database and untrusted SSL certification which are enough for the project requirements (see, but are not suitable for production environment.

### Entity relations

Symprap supports teens with multiple diseases (not just Diabetes). It also supports multiple users with following roles: admin, teen and follower. Zero to n questions can be assigned for any disease. Each question has a field AnswerType, that determines what kind of answers question expects (text, yes/no or decimal). Answer is associated with both question and user.



### Testing

Requirements:

* Java 8+
* Maven 3.2+
* Lombok plugin for Eclipse (<https://projectlombok.org/download.html>)

Program arguments

* keystore.file: location of the keystore
* keystore.pass: password of the keystore
* testDataEnabled: use this to inject test data (see TestDataInjector.java) into the database
* adminPass: pass for the admin user that is created when booting application.

Running the application from the command line:

mvn spring-boot:run -Dkeystore.file=src/main/resources/private/keystore -Dkeystore.pass=changeit

-DtestDataEnabled=true -DadminPass=adpass

Running application from Eclipse

First import application as Maven Project. Then go to Run -> Run configurations -> Java Application -> New. Set symprap-server as project and fi.ukkosnetti.symprap.SymprapApplication as Main class. Add program arguments listed above in the arguments tab. Click Run.

# Symprap mobile client

Mobile client is developed for android API level 23. It communicates with server through https utilizing Retrofit REST-calls. Application supports user registration. Client provides different functionalities for the user types teen and follower. It provides the teen with following functionalities: reporting (answering questions associated with diseases), viewing reports, scheduling times to report and adding or removing followers (that can be also of usertype teen).

Client does not support any admin related functionalities such as editing diseases, questions, creating other admin level users or modifying user data. Gradle is used for dependency management.

### Testing

You need the server side running on localhost in order to fully test the application. Application is tested primarily on emulator using Nexus 6 with API 23 as virtual device.

# Symprap administrative interface

Symprap administrative interface is created with AngularJS and can be run from browser. It uses npm for dependency management and gulp as a build system.

It provides functionalities for creating and editing diseases, questions and users. It communicates with server through https.

### Testing

Install npm globally. Then execute npm install in the project folder from the command line. Start application on your browser by executing gulp serve.