# Technical Requests

You have a large enterprise with multiple systems and blocks and large number of employees. As part of the normal organization in the enterprise, technical requests are created and assigned to different people. A technical request is a task related to the performing of a technical service.

1. Each technical request has:

* Id (primary key)
* Name (<= 50 characters)
* Description (<=4000)
* Blocks (one or more) to which it applies (one technical request applies to a subset or all the blocks in the enterprise)
* Systems (one or more) to which it applies (one technical request applies to a subset or all the systems in the enterprise)
* A few responsible persons for different activities, part of the request.
  + For each activity, there is only one responsible person assigned.
  + For each technical request, all activities are present
  + The activities to be supported are: **creation, confirmation, approval, verification**
* Time of creation (accuracy up to the seconds)

1. Each block of the enterprise has:

* Id (primary key)
* Name (up to 100 characters)
* Code (up to 10 characters, unique)

1. Each system:

* Id (primary key)
* Has a name (up to 100 characters)
* Has a code (up to 10 characters, unique)
* May belong to another parent system (*e.g. system 3 belongs to system 2, which belongs to system 1; system 4 also belongs to system 1*)

1. The responsible persons are selected amongst all the employees in the enterprise
2. An employee in the enterprise has

* Id (primary key)
* First name (<= 100 characters)
* surname (<= 100 characters)
* last name (<= 100 characters)
* PIN number (e.g. 8010120807)

1. An employee may change their name during the time they are employed in the enterprise (marriage or just personal choice). However, all calculated reports should show the name at the time of the technical request (assume that an employee cannot change their name while a technical request is in progress)

The managers of the enterprise need to see a report by the following criteria (each of the listed criteria is optional i.e., should be ignored if not specified):

1. The name of the responsible person (first name + last name, e.g. “Ivan Hristov”)
2. The code(s) of one or a few blocks (show only the technical requests which apply to at least one of the blocks)
3. The code(s) of one or a few systems (show only the technical request which apply to at least one of the systems)

**Important:** If one technical request applies to one system, then it applies to all of its subsystems too

1. The date (dd.MM.yyyy) when the technical request was created

The report should contain:

* Name of the technical request
* Description of the technical request
* Blocks (codes) to which the technical request applies
* Systems (codes) to which the technical request applies (show the full system name, including all parents e.g. **system1.system2.system3**)
* All responsible persons (first name + surname + last name) by activity (e.g. Ivan Ivanov Georgiev)
* Time of creation

Here are the tasks

1. Create Java project that will introduce RESTful web service that will serve as a public API for all functionalities described above
2. Use Maven for project management
3. Define a database model (tables, indexes, relations between tables) based on the description above (you can use PostgreSQL or MS SQL Server for the database). Use functions (for PostgreSQL) or stored procedures (for MS SQL server)
4. Create Dropwizard RESTful service with resources that will provide API for CRUD operations for each of the objects – block, system, employ, technical request
5. Finally create an endpoint for generating report with technical requests
6. After all of the above points are fulfilled add authentication to the APIs using JWT token. You will need to introduce a new endpoint for token creation based on a provided credentials (username and password) and then you will need to check for each request in the above APIs that it is sent with a valid JWT token. For this task, you will need to introduce a new DB table called “users” that will store valid users of that system with this basic information (username/password/email).