Java Web project with SpringBoot

What is ?

This project consists in a simple REST API with SQL using JavaSpringBoot

What’s an API ?

An API is a set of definitions and protocols for building and integrating application software. It’s sometimes referred to as a contract between an information provider and an information user—establishing the content required from the consumer (the call) and the content required by the producer (the response). For example, the API design for a weather service could specify that the user supply a zip code and that the producer reply with a 2-part answer, the first being the high temperature, and the second being the low.

In other words, if you want to interact with a computer or system to retrieve information or perform a function, an API helps you communicate what you want to that system so it can understand and fulfill the request.

What’s a REST ?

REST is a set of architectural constraints, not a protocol or a standard. API developers can implement REST in a variety of ways.

When a client request is made via a RESTful API, it transfers a representation of the state of the resource to the requester or endpoint. This information, or representation, is delivered in one of several formats via HTTP: JSON (Javascript Object Notation), HTML, XLT, Python, PHP, or plain text. JSON is the most generally popular file format to use because, despite its name, it’s language-agnostic, as well as readable by both humans and machines.

Something else to keep in mind: Headers and parameters are also important in the HTTP methods of a RESTful API HTTP request, as they contain important identifier information as to the request's metadata, authorization, uniform resource identifier (URI), caching, cookies, and

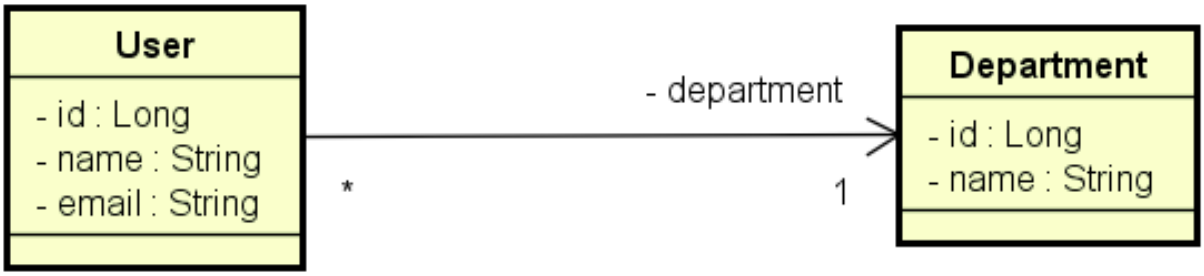
more. There are request headers and response headers, each with their own HTTP connection information and status codes.

#1: Project Creation

The project configuration was be maded by SpringBoot initializr Tool, thats uses TomCat, an open source imolementation thats mailçy used for to provide the foudation for hosting Java servlets.

pom.xml - configuração do maven

#2: Implementation of domain model



User and Department classes creation and implementation (entities package)

#3: ORM (Object Relational Mapper)

ORM is a technique that creates a layeer between the languege and the database, helping programmmers work with data without the OOP paradigm.

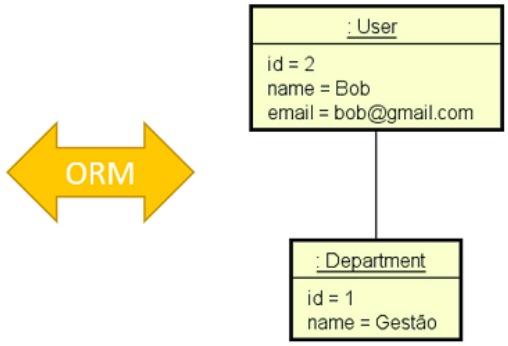
tool - JPA

tb_department

id	name
1	Gestão
2	Informática

tb_user

id	name	email	department_id
1	Maria	maria@gmail.com	1
2	Bob	bob@gmail.com	1
3	Alex	alex@gmail.com	2
4	Ana	ana@gmail.com	2



#4: Database config (h2)

- Resources aplication = configuration file

```
# conection data with - H2
spring.datasource.url=jdbc:h2:mem:testdb
spring.datasource.username=sa
spring.datasource.password=

# Database web client config - H2
spring.h2.console.enabled=true
spring.h2.console.path=/h2-console

# confguration to show sql in terminal
spring.jpa.show-sql=true
spring.jpa.properties.hibernate.format_sql=true
```

#5: Data isert

INSERT INTO tb_department(name) VALUES ('Gestão');
INSERT INTO tb_department(name) VALUES ('Informática');

INSERT INTO tb_user(department_id, name, email) VALUES (1, 'Maria', 'maria@gmail.com');
INSERT INTO tb_user(department_id, name, email) VALUES (1, 'Bob', 'bob@gmail.com');
INSERT INTO tb_user(department_id, name, email) VALUES (2, 'Alex', 'alex@gmail.com');
INSERT INTO tb_user(department_id, name, email) VALUES (2, 'Ana', 'ana@gmail.com');

- import.sql > resources

#6: EndPoints creation

An API endpoint is a point at which an API conects with the software program.

- Repositories
- REST controller creation

To Study

- ▼ REST API
- ▼ HTTP
- ▼ JSON
- ▼ Tomcat
- ▼ maven
- ▼ ORM and Jpa
- ▼ H2 database