

Low Level Document

**Rate Exchange Management**

# Introduction

* + Overview
* Rate Exchange Management API to manage bill operations.
* Objective
* Provides LLD for Rate Exchange Management API.
* In scope
* JUnit partial coverage
* Caching
* Exception Handling
* Security partial coverage for Authentication & Authorization + JWT
* Containerization
* Fault Tolerance
* Out of scope
* JUnit full coverage
* Logging
* Security full coverage for Authentication & Authorization + JWT

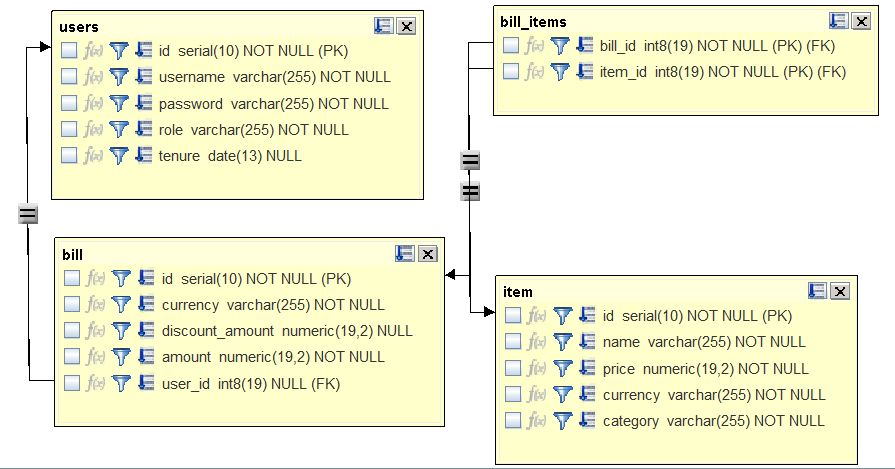
# Used Technologies

* Web
* Spring Rest
* Spring Data
* Spring Boot
* Spring Cache
* Spring Security
* Spring Cloud
* Web Server
* Spring Boot Embedded Tomcat
* Database
* PostgreSQL
* Cache
* Redis
* Source Control
* GitHub
* SW Project Management Tool
* Maven
* Unit Testing Framework
* Spring Test
* Containerization
  + Docker
* Third-Party
  + Exchange Rate API

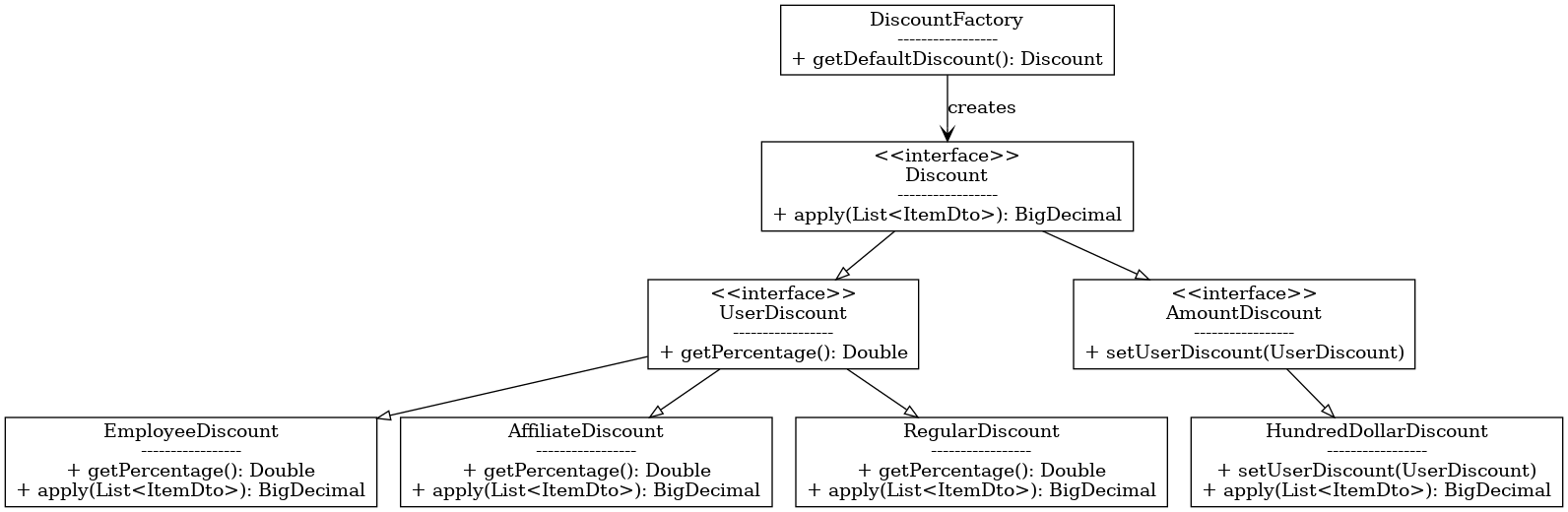
# Source Code

https://github.com/AbdElHalimHeba/ExchangeRepo.git

# ER Diagram

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# Discount UML Diagram

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# Running Instructions

* Open bash shell

Network

* Create a shared network between containers:

docker network create xische-network

PostgreSQL DB

* Change directory to xische \src\main\docker\db to build PostgreSQL DB image:

docker build -t postgre\_db .

* Run PostgreSQL DB container:

docker run -d --network xische-network -p 5432:5432 --name xische\_postgres postgre\_db

Redis Cache

* Change directory to xische \src\main\docker\cache to build Redis Cache image:

docker build -t redis\_cache .

* Run Redis Cache container:

docker run -d --network xische-network --privileged -p 6379:6379 --name xische\_redis redis\_cache

Spring boot application

* Change directory to xische to package Spring Boot application & copy jar from target to src/main/docker:

mvn clean package

cp target/Xische-0.0.1-SNAPSHOT.jar src/main/docker

* Change directory to src\main\docker to build Spring Boot application image:

docker build -t xische .

* Run Spring Boot application container:

docker run -it --network xische-network -p 8080:8080 --name xische\_app xische