

Programming III

Laboratory 13

Objectives

- working with databases and JPA API

Database installation. Eclipse configurations

1. Database installation

a. Getting database server:

a) Download Derby server:

http://db.apache.org/derby/derby_downloads.html

b) Unzip database server

b. Start database server

- ###### a) Open a command prompt in Windows OS (press CTRL+R, then write cmd) (or a terminal on Linux OS) and enter server bin directory (using cd command)

c. Enter the command: `startNetworkServer.bat` to start the server on Windows OS or `./startNetworkServer` on Linux OS

d. [Optional] Create the DB or just use ij tools like sql client

i. Open a command prompt in windows or a terminal on linux ij. Go to server lib directory `java -jar derbyrun.jar ij`

iii. Type the following command in order to connect: `CONNECT`

`'jdbc:derby://localhost:1527/exemplu;create=true';`

2. Eclipse configurations

a) Create a new project

b) Create a lib directory at the same level with src directory

c) Copy into the jar files `derby.jar` and `derbiclient.jar` from server lib directory

d) Add at classpath this jars

A. Right click on project name

B. Select menu option Properties

C. Select option Java Build Path

D. Select the tab Libraries

E. Press Add button and select the two jars from lib directory

F. Press Ok Button

G. Copy the classes from the site to src directory

e) Copy into the jar files from Hibernate JPA implementation used

(<https://hibernate.org/orm/releases/5.4/> or from laboratory input)

f) create a META-INF folder into src folder and copy persiatence.xml file

g) add java uploaded files to your project

Exercises

1. Create an application that manages a database that contains a table Receipts. Each Receipt has an ID, a code, a client, a contractor, an amount and a date. Realize the following requirements on receipt table:

- a)
- b) Create a function that displays the receipts from a period of time
- c) Create a function that allows the update of a receipt
- d) Create a function that calculates the values of all receipts paid to a contractor in a year
- e) Add a table Client that contains distinct entries with client names. Refactor the database in order to link the Receipt table to Client table.