Practical assignments
Databases

Assignment No.1 (2h)

How to create a ERD for a specific system?

Please take a look here:
https://www.visual-paradigm.com/guide/data-modeling/what-is-entity-relationship-diagram/

- Create an ERD of the database of the web store.

Information about the web store:
A variety of hardware products will be sold in the web store. Each product has a name, description, price and warranty period. Products are included in different categories: portable computers, PCs, software, accessories, etc. The products are supplied by suppliers. It is important that the database contains the name, contact, telephone number and e-mail address of the supplier. When a customer selects the products, it is necessary to indicate the required amount for each product and to add information about his or her name, surname, e-mail address and telephone number in the order. There are several possible statuses for the order - entered = > in processing = > (canceled) = > delivered and paid (done).

Assignment No.2 (1 h)

Set up Your working environment to work with MySQL database.
Please take a look here (install MySQL database server):
https://dev.mysql.com/doc/mysql-getting-started/en/

Please take a look here (install phpMyAdmin tool):
https://docs.phpmyadmin.net/en/latest/setup.html

For testing purposes You can use online version of the phpMyAdmin here:
https://demo.phpmyadmin.net/master-config/

Assignment No.3 (1 h)

Add tables in the database and fill with data.
Please take a look how to create a table in the MySQL database:
https://dev.mysql.com/doc/refman/8.0/en/create-table.html

Online sandbox to train for SQL:
http://www.w3schools.com/sql/trysql.asp?filename=trysql_select_all

- Create a database.
- Create tables based on the ERD what You developed in the Assignment No.1.
- Add 3 records at each table.
- Try to update some records.
- Try to delete one record.
- Try to build 3 simple SELECT statements with WHERE, ORDER BY.
- Try to build 3 advanced SELECT statements with JOIN.

Assignment No.4 (2 h)

Create a JAVA program and build a connection between program and database using JDBC.
Repeat the actions from Assignment No.3, but in this case perform data inserting, updating, selection from JAVA code.

Pre actions:

- First of all, download the JDBC connection library for MySQL: http://www.java2s.com/Code/JarDownload/mysql/mysql-connector-java-5.1.17-bin.jar.zip and extract it.
- Create a new user in MySQL database. The new user will be used for connection from the JAVA program to MySQL database.

  ```
  CREATE USER 'newuser'@'localhost' IDENTIFIED BY 'password';
  ```
  newuser - the name of the newuser (if You want, You can change it).
  password - the password of the new user (if You want, You can change it).
- Set permission to the new user to work with all databases in the MySQL.
  ```
  GRANT ALL PRIVILEGES ON * . * TO 'newuser'@'localhost';
  ```

Assignment actions:

- Create the new JAVA project.
- Add connector jar file in the Project.
- Load the connector class and create a connection to the database.
- Add 3 records at each table from JAVA code.
- Try to update some records from JAVA code.

- Try to delete one record from JAVA code.
- Try to build 3 simple SELECT statements with WHERE, ORDER BY from JAVA code
- Try to build 3 advanced SELECT statements with JOIN from JAVA code.