Hands-on Database Design and Implementation

By Prof. Yannis Velegrakis, U of Trento

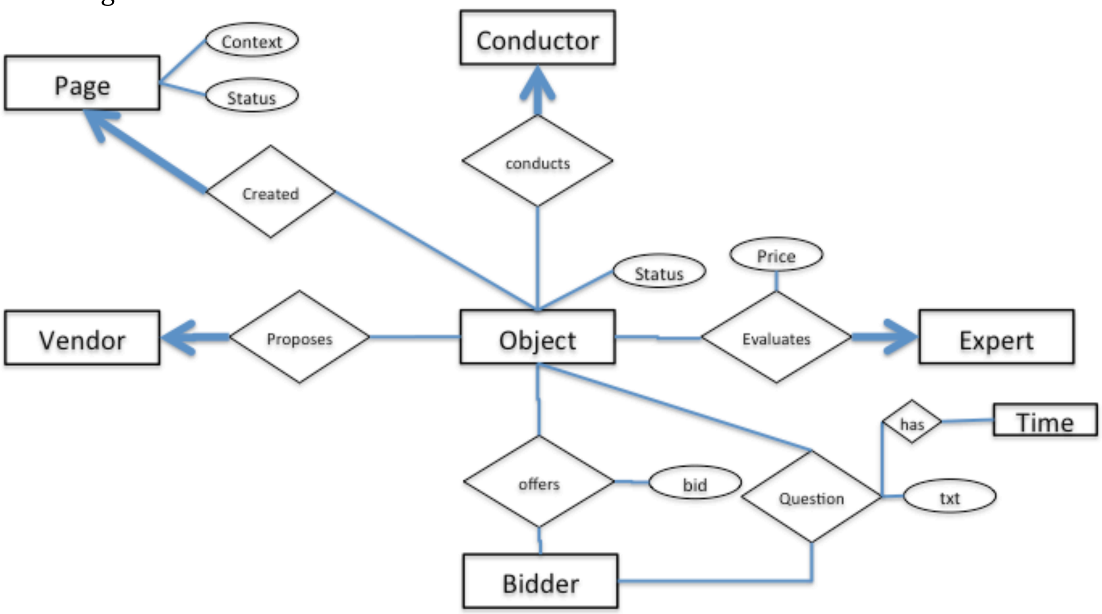
Do not forget to read all the way up to the end (especially the last step).

Step 0: (Id)
There will be a paper going around in the class where you have to put your name. Once you do so, keep a note of the number (the line) where you put your name. This number will identify you and allows you to connect to the database MySQL.

Step1: (ER)
You have made a number of meetings with a customer who has asked you to design a system for his company. The description he has provided you was:

> *Creare un sistema facilita e supporta la gestione di aste online "sincrone", in real time. Un venditore propone un oggetto. un esperto valuta l'oggetto e stabilisce il prezzo minimo di vendita. All'inizio dell'asta, i bidders fanno offerte crescenti. un bidder non può' fare offerte due volte di fila. Chi conduce l'asta puo' a un certo momento iniziare il "conteggio" (e uno, e due.... e tre), e se nel frattempo non ci sono offerte, al conto di tre assegna l'oggetto al bidder più alto. Se arriva l'offerta, il conto si azzera. Se la bid più' alta non raggiunge il prezzo minimo di vendita, al conto di tre l'oggetto viene accantonato e si passa all'oggetto successivo. Se viene invece venduto, registriamo il prezzo di vendita e il compratore. la pagina web che descrive l'oggetto può contenere immagini, testo e video. il venditore prepara questa pagina, che deve pero' essere approvata dall'esperto prima di essere pubblicata sul sito della casa di aste. durante l'asta, i bidder possono fare domande agli esperti via chat, per avere chiarimenti sull'oggetto. tutte le interazioni devono essere registrate per gestire eventuali contenziosi.*

Based on the above description, you have come up and agreed with the customer on the following ER Schema:



Step 2: (Relational)
Now, you need to turn this ER schema into relations. So, create the relational schema. You are reminded that the relational schema is a set of relations. Each relation is represented in the form: Relation(attribute1, attribute2, ...)

For example, a relation (table) for the Page entity would be:

Page(Context, Status)

Do not forget to underline the keys in your relations. E.g.
Page(Context, Status)

WRITE THESE RELATIONS IN A TEXT FILE called XX_YY.txt where XX is your last name and YY is your first name

Step 3: (Database Creation Design)
For each attribute in the relational schemas that you created in Step 2 you have to decide what type it is (e.g., string, integer etc) and then create the CREATE TABLE COMMAND that you want to send to the database in order to create these tables. An example is the following:

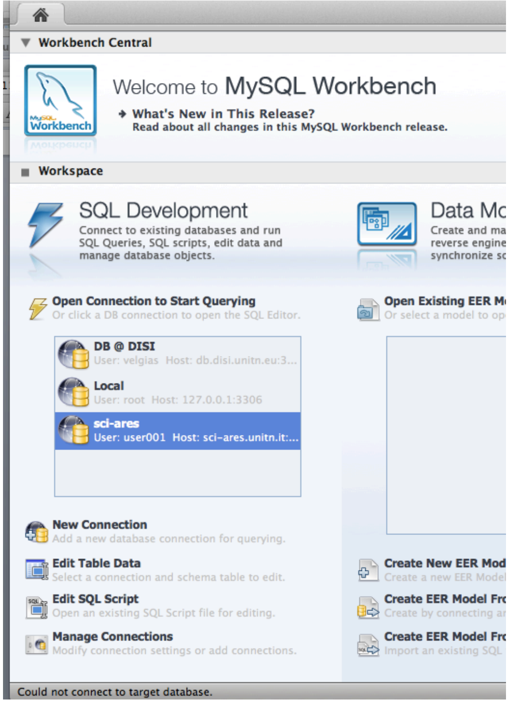
```
CREATE TABLE Page (
        Content VARCHAR(250),
        Status INTEGER,
        KEY(Content)
        );

CREATE TABLE Test (
        remCnt VARCHAR(250),
        FOREIGN KEY (remCnt) REFERENCES Page(Content)
)
```

WRITE THESE RELATIONS IN the TEXT FILE called XX_YY.txt you created in Step 2 (append them at the end of what you created in Step 2)

Step 4: (Connect to the database)

Open the MySQL Workbench. Create a new Connection by clicking on the new connection option.



Workbench Central

Welcome to MySQL Workbench

What's New in This Release?
Read about all changes in this MySQL Workbench release.

Workspace

SQL Development
Connect to existing databases and run SQL Queries, SQL scripts, edit data and manage database objects.

Data Mc
Create and ma
reverse engine
synchronize sc

Open Connection to Start Querying
Or click a DB connection to open the SQL Editor.

DB @ DISI
User: velgias Host: db.disi.unitn.eu:3...

Local
User: root Host: 127.0.0.1:3306

sci-ares
User: user001 Host: sci-ares.unitn.it:...

Open Existing EER Mc
Or select a model to op

New Connection
Add a new database connection for querying.

Edit Table Data
Select a connection and schema table to edit.

Edit SQL Script
Open an existing SQL Script file for editing.

Manage Connections
Modify connection settings or add connections.

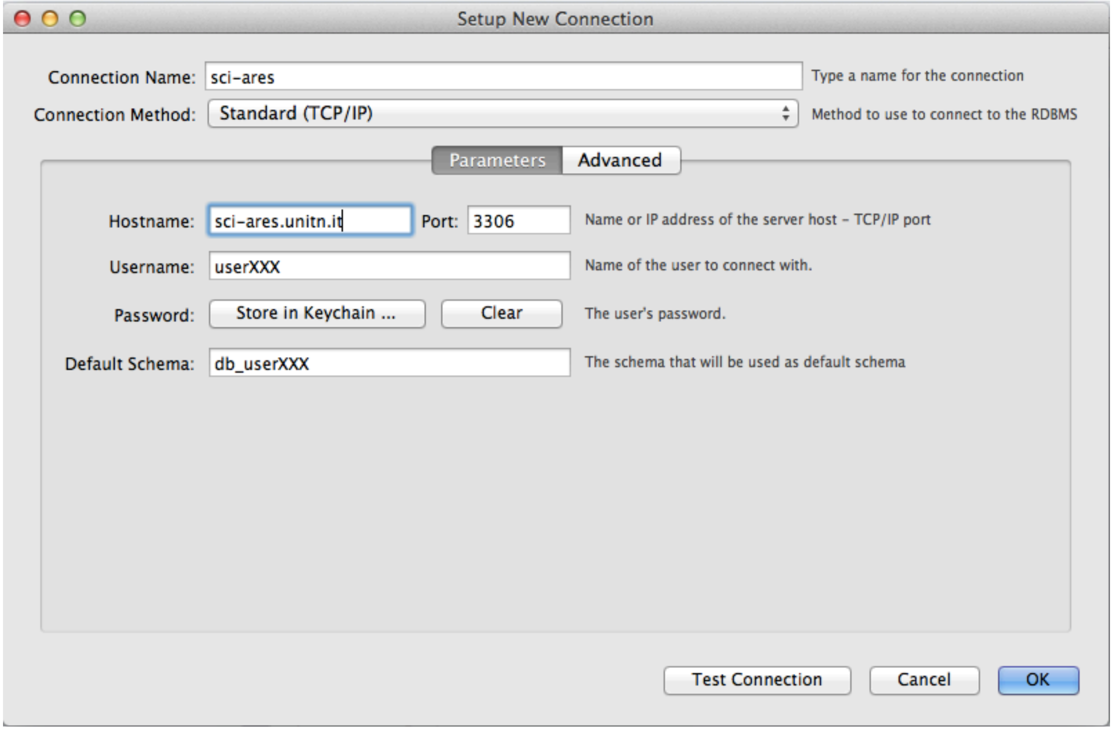
Create New EER Mod
Create a new EER Model

Create EER Model Fr
Create by connecting ar

Create EER Model Fr
Import an existing SQL

Could not connect to target database.

In the window that will open, fill in the information as you see it here:



Setup New Connection

Connection Name: sci-ares — Type a name for the connection

Connection Method: Standard (TCP/IP) — Method to use to connect to the RDBMS

Hostname: sci-ares.unitn.it Port: 3306 — Name or IP address of the server host – TCP/IP port

Username: userXXX — Name of the user to connect with.

Password: — The user's password.

Default Schema: db_userXXX — The schema that will be used as default schema

where XXX is YOUR NUMBER that the instructor provided. Remember to write always 3 digits. So write 002 instead of simply 2.
Also, instead of sci-are.unitn.it you may use directly the IP address 192.168.131.4

Step 5: (Database Implementation)
Double click on the connection you created.

(optional) On the window that will open on the left find the db_userXXX and RIGHT click and select use as default schema
Write in the space a create table comment (those you created in Step 3) and click the button ⚡ in order to execute it. If it goes well, do the same for all the tables you created in Step 3.

Step 6: (Software development environment set-up)
Open Eclipse (or any other program editor you like) and create a new project. Download and install in that project the java library mysqJDBC.jar that you can find on the course web page on the lecture of the 2nd of Oct (on esse3).

Step 7: (Data Management)
Start writing your program in Eclise. (Those of you familiar with other tools can try also other tools) Create a class that named IdS.java where you put all your code.

You need to write a program that:

1) Connects to the database and asks 2 or 3 different queries
2) Inserts/deletes/and updates certain tuples.

I would suggest to write code to first connect,
Then Insertion and deletion commands
And finally a query that retrieves the results.

You will find the code of what and how to write on the lecture material of Oct 2 on esse3

Step 8 (Assignment Submission)
Send by email to videls@cs.toronto.edu the txt file you created in Step 2 by THURSDAY Oct 10 morning @ 7.00