CENG 351 Data Management and File Structures

Fall 2013 – Written Assignment #1

Due Date: Oct. 10, 2013

Prepare your solution in hardcopy and leave it into the box at A206. Do not forget to print your name and student id.

A company wants to hire a new database developer from new graduates. They want to eliminate candidates by giving them some tasks. Your **first** task is to draw an ER diagram for the specifications given below;

In an international software competition there are teams that are identified uniquely by teamID. Each team has a name and a ranking. Each team should have one or more student members (a student can be member of only one team). We record name, birthday and gender of the students. They are identified by memberID. Students have different tasks in the team. A student is either a software developer, a software tester, a database expert. For software developers we record the programming language he is expert in. For database expert we record name of the DBMS he has experience with. We record the name of the main testing tool the software tester uses.

You are still a candidate for this job. Apparently you are doing very well! For the **second** task you should extend your diagram based on the information given below;

Each team may be sponsored by organizations that are identified by their unique abbreviations (e.g. IEEE, ACM). We also record the donation amount given by the sponsor organization to the team. Note that an organization may sponsor more than one team. We record the explicit name and type of the organization as well.

And again… Extend your diagram for the **third** task…

We also keep track of information related to the countries that is the name, international ranking and budget of the country. Countries have their leagues. Each team should belong to a league of their country. Leagues in the world may have same names such as every country has a "High school league" or "University league" but a league in a country should have a distinct name. We record ranking of the league.

Your task is almost finished. Print-out of your E-R diagram. Now you need to do the final step.

Create a file consisting of the list of relations.

E.g. Hourly_Emps: <u>ssn</u>, name, lot, hourly_wages, hours_worked

Leave the ER diagram + relations hardcopies into the box at A-206.

Best Wishes

A manufacturing company produces products. The following product information is stored: product name, product ID and quantity on hand. These products are made up of many components. Each component can be supplied by one or more suppliers. The following component information is kept: component ID, name, description, suppliers who supply them, and products in which they are used.

Create an ERD to show how you would track this information.

Show entity names, primary keys, attributes for each entity, relationships between the entities and cardinality.

Assumptions

- A supplier can exist without providing components.
- A component does not have to be associated with a supplier.
- A component does not have to be associated with a product. Not all components are used in products.
- A product cannot exist without components