

COSC 2P32 – Winter 2012

Assignment #1

Due Date: Tuesday Feb 7, 2012 16:00

Late Date: Friday Feb 10, 2012 16:00 (with 25% penalty)

Question 1

You are being asked to develop a database for your local sports association. This database will be used for keeping track of their house league sports and must provide the facility to store and retrieve the following information.

There will be a number of teams in this league and for each team we will need to know the name of the team, the contact person, their phone number and the name of the sponsoring company (if such exists).

We will need to keep track of a schedule of games between the teams. For each game we will need to know who is playing as the home team, who is playing as the visiting team, when the game is scheduled to play and the location of the game. After the game is over we will also need to be able to determine the score of each the game.

Each team has of course, players who play for them. For each player we will want to keep track of their name, address, phone number and DOB (date of birth). We will also need at least one emergency contact for each player, for whom we will need their name and phone number as well as the player they are associated with. Players may also switch teams between seasons, and perhaps even during a season on rare occasions. So we would like to be able to pull up a record for when they were playing for each team as well as what jersey number they were wearing, as this is the information that the score keepers will use to record points. If a player plays for the same team at several different times we want to keep track of all of those time periods, not just the last.

As eluded to earlier, during a game we are also going to keep track of which player scores each goal (identified by the team and jersey number) as well as which player(s) got an assist.

NOTE: Be sure to consider any participation and key constraints that may not be explicitly mentioned. If you find a situation where there could be a choice of different constraints that could be applied you must include an explanation of why you choose to implement it the way that you did along with your diagram.

Draw an ER diagram to represent the data model for this project. Include in the data model all entities, relationships, attributes and all possible constraints. In any case where a constraint can not be identified with the ER model please include a description of it in a write-up.

Question 2

For this question we are going to take a set of relational schema and produce an ER diagram which best represents it. This can be done as a first step in evaluating a preexisting system to see where improvements could be made. Please capture any constraints which are logically associated with the schema, and ask me any questions regarding the functioning of the schema that you may have.

```
CREATE TABLE DRIVER (
    LICENSENO CHAR(15) PRIMARY KEY,
    NAME VARCHAR(60),
    ADDR VARCHAR(120),
    PHONE CHAR(10),
    DOB DATE,
    EXPIRY_DATE DATE
);

CREATE TABLE DONOR_AUTH (
    LICENSENO CHAR(15),
    NAME CHAR(60),
    PHONE CHAR(10),
    PRIMARY KEY (LICENSENO, NAME),
    FOREIGN KEY (LICENSENO) REFERENCES DRIVER ON DELETE CASCADE
);

CREATE TABLE LICENSE_CLASS (
    CLASS CHAR(2) PRIMARY KEY,
    DESC VARCHAR(60)
);

CREATE TABLE DRIVERS_CLASS (
    LICENSENO CHAR(15),
    CLASS CAHR(2),
    PRIMARY KEY (LICENSENO, CLASS),
    FOREIGN KEY (LICENSENO) REFERENCES DRIVER,
    FOREIGN KEY (CLASS) REFERENCES LICENSE_CLASS
);

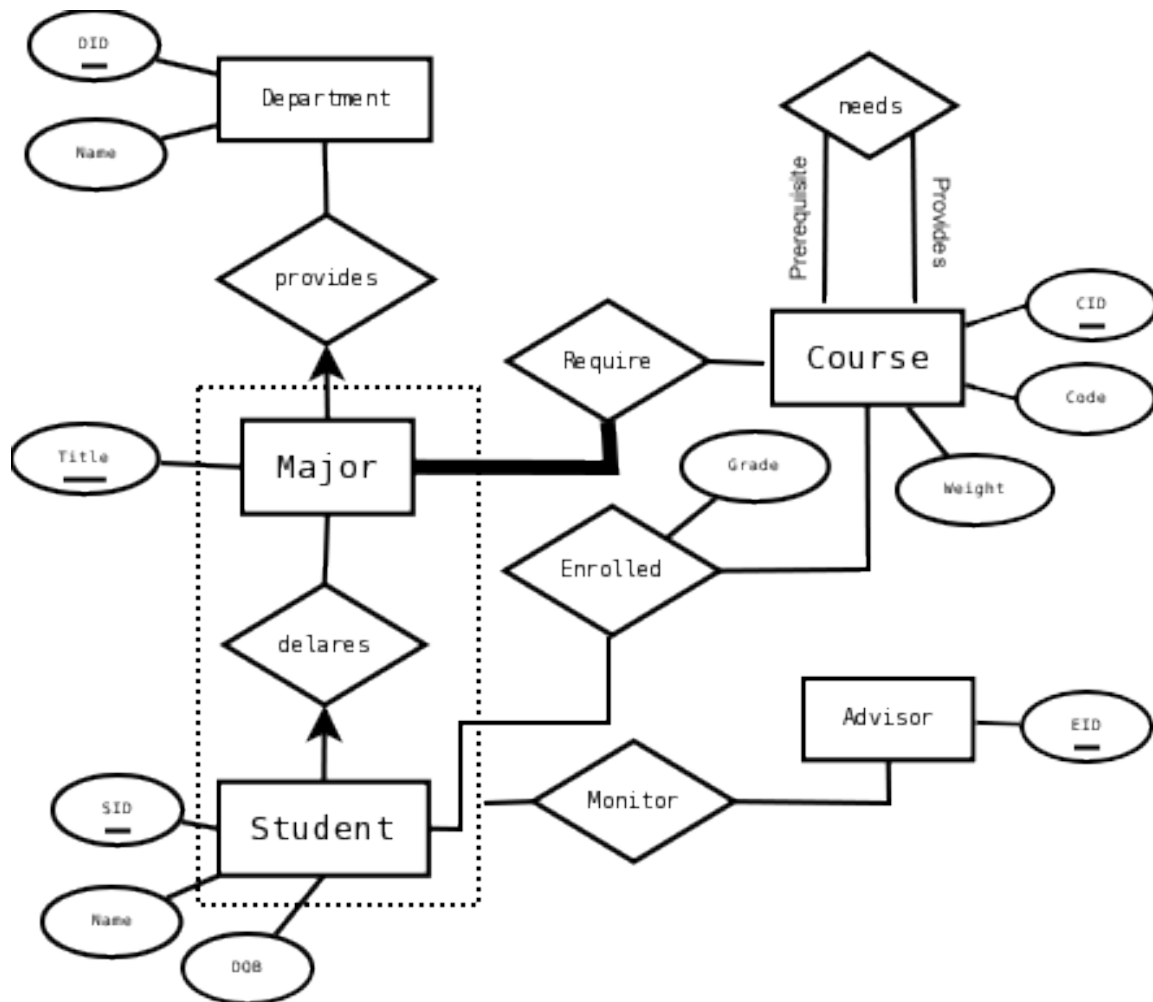
CREATE TABLE VEHICLE (
    MAKE CHAR(20),
    MODEL CHAR (30),
    WEIGHT INTEGER,
    CATEGORY INTEGER NOT NULL,
    PRIMARY KEY (MAKE, MODEL),
    FOREIGN KEY (CATEGORY) REFERENCES VEHICLE_CATEGORY
);

CREATE TABLE VEHICLE_CATEGORY (
    CATEGORY INTEGER PRIMARY KEY,
    DESCR CHAR(80),
    MAX_WEIGHT INTEGER,
    AXLES INTEGER
);

CREATE TABLE REQUIRED_CLASS (
    CATEGORY INTEGER,
    CLASS CHAR(2),
    PRIMARY KEY (CATEGORY, CLASS),
    FOREIGN KEY (CATEGORY) REFERENCES VEHICLE_CATEGORY,
    FOREIGN KEY (CLASS) REFERENCES LICENSE_CLASS
);
```

Question 3

Translate the following ER diagram into logical schema and write the SQL statements to create the required relations. Identify any constraints which were in the ER diagram but you were not able to capture when creating the relations. If you had more than one option in how to convert them briefly explain why you chose the implementation which you did.



Submission Requirements:

- Each ER diagram must be neatly hand drawn or electronically plotted and may include an attached discussion concerning the decisions which you made during the data modeling stage. Preferably submit each ER diagram on a separate sheet.
- As mentioned, the SQL commands to represent the logical schema for question 3 must be compatible with the Oracle database system which we use within the department, if you need help getting access to test them please ask. They should be printed from a word processor and mono spaced fonts such as Courier are appreciated.

- The completed assignment must include a cover page at the front of the assignment or it will not be marked. The cover page can be generated from the department website at: <http://www.cosc.brocku.ca/coverpage>
- Once complete, with cover page, the assignment must be submitted in the appropriately labeled hand in box, located between J328 and J332, by the time indicated on the assignment document.