CS4416 – Lab 3

SQL Constraints

Preparation

1. Open a browser and load http://infolab.stanford.edu/~ullman/fcdb/oracle.html. This is an Oracle guide you can use in the lab.
2. SSH richmond.csis.ul.ie and login with your Linux username and password.
3. Start SQL*Plus with the command **`sqlplus`**. Login with your Oracle username and password.

Tasks

1. Make sure you have the following four tables (you had to create last week) loaded with data:

```
Product(maker char(1),model char(4),type varchar2(10))
PC(model char(4),speed real,ram int,hd int,price int)
Laptop(model char(4),speed real,ram int,hd int,screen real,price int)
Printer(model char(4),color varchar2(5),type varchar2(10),price int)
```

The data types above are only a suggestion. It is OK if your data types are not exactly the same.

2. Use the alter table command to specify a primary key for each for the four tables. Here is an example for the table Product:

```
alter table Product add constraint pk primary key (model);
```

3. Try to insert a tuple into Product with a **`NULL`** value for model. Try also to insert a tuple into Product with a model already present in the table. If you defined the primary key correctly then your attempts to insert those two tuples will be rejected.

4. Use **`alter table`** again to specify that **`model`** in PC is a foreign key which references an existing model in Product with cascade policy on delete.

5. Test the result of the previous step by:

a. Use the command **`update`** to change the module number for a tuple in PC to a new number not present in Product. This operation should be rejected. Note that you can delete tuples from PC and the information about the corresponding models in Product will be preserved.

b. Deleting a row from Product and making sure the corresponding row in PC was also deleted. This is the effect of the cascade policy.

6. Choose a tuple in Products with type='pc' and use the command **`update`** to change the value of model. This operation should also be rejected. This is the default update policy for foreign keys and Oracle does not allow other options.