**ISEM3006 Data Management in Business**

**Semester 1 2020/21**

**Exercise 2 Creating Tables (Revised 2020-10-07 15:50)**

**Submit the Answers to Moodle before 18:00 on Oct. 11 (Sunday)**

GoodHeart clinic records the information of its patients, detail of each visit, and the drugs. A patient may have visited the clinic many times. The patients' data will be recorded on their first visit. Each patient is assigned a unique PatientNo. If a patient does not have a Hong Kong ID, the number of other identification documents, such as passport, will be stored in the attribute 'OtherDocumentNo'. The Visit entity type stores the data about each visit. VisitNo is the primary key. The consultation fee of each visit will not exceed five hundred dollars. PatientNo in the Visit entity type is a foreign key that refers to the PatientNo in the Patient entity type.

The Drug entity type stores the data about the drugs that the clinic have. DrugCode is the primary key.

In each visit, the doctor may prescribe many drugs. The quantity prescribed of each drug is recorded. The doctor may prescribe no drug in a visit if no drug is needed (e.g., a health checkup). The primary key of the Visit Prescribed Drug entity type is VisitNo+DrugCode. There are two foreign keys in the Visit Prescribed Drug entity type. VisitNo is one foreign key (FK1) in Visit Prescribed Drug table which refers to the primary key of the Visit entity type. DrugCode is another foreign key (FK2) which refers to the primary key of the Drug entity type.

A drug may have been prescribed many times, but if it is a new drug, it may have not yet been prescribed.

If you delete a visit record, the related visitdrug records will be automatically deleted.

The Entity-Relationship Diagram for this system is shown in the following figure.



Relational Diagram

Patient (PatientNo, PatientName, PatientAddress, PatientPhone, HKID, OtherDocumentNo)

Visit (VisitNo, VisitDate, ConsultationFee, PatientNo)



VisitDrug (VisitNo, DrugCode, PrescribedQuantity)



Drug (DrugCode, DrugName, StockLevel)

1. Create the tables using SQL for all the entity types. Remember to include all required constraints.  
(First Create the Patient table, then the Visit table, then the Drug table, finally the VisitDrug table.)

2. Insert the following records in each table. (When you insert the records into the tables, also follow the above sequence.)

Patient

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| PATIENTNO | PATIENTNAME | PATIENTADDRESS | PATIENTPHONE | HKID | OTHERDOCUMENTNO |
| 101 | Chan Tai Man | 88 Oxford Road | 27893389 | A1234567 |  |
| 102 | Wong Lee Ho | 50 Super Ave | 91934567 |  | BP10030001 |
| 103 | Ho Ho Tor | 88 Oxford Road | 27893389 | C1357246 |  |

Visit

|  |  |  |  |
| --- | --- | --- | --- |
| VISITNO | VISITDATE | CONSULTATIONFEE | PATIENTNO |
| 20090301 | 2020-09-03 | 500 | 101 |
| 20090502 | 2020-09-05 | 400 | 101 |
| 20102001 | 2020-10-20 | 300 | 102 |
| 20102002 | 2020-10-20 | 300 | 103 |
| 20102505 | 2020-10-25 | 200 | 103 |

VisitDrug

|  |  |  |
| --- | --- | --- |
| VISITNO | DRUGCODE | PRESCRIBEDQUANTITY |
| 20090301 | 901 | 20 |
| 20090502 | 901 | 15 |
| 20090502 | 902 | 50 |
| 20102002 | 902 | 50 |
| 20102505 | 901 | 20 |

Drug

|  |  |  |
| --- | --- | --- |
| DRUGCODE | DRUGNAME | STOCKLEVEL |
| 901 | Panadol | 1000 |
| 902 | Vitamin C | 500 |
| 903 | LingZhi Pill | 50 |

3. Create some SQL statements that fail to execute and some that excute successfully. For each of the SQL statement, explain why the SQL statement behave as such.

(a) Insert a record into the Drug table that will violate the Primary Key constraint.

(b) Insert a record into the Visit table that will violate the Foreign Key constraint.

(c) Delete a record from the Drug table that will violate a Foreign Key constraint.

(d) Delete another record from the Drug table that will NOT violate a Foreign Key constraint.

(e) Delete the visit with VisitNo 20090502 from the Visit table.

Execute the Create Table, Insert, and Delete statements in pgAdmin. Make sure the SQL statements can be executed. Save your work. I will ask you to execute them.

If you type them in MS Word, make sure to turn off the ‘straight quote’ to ‘smart quote’ in option. I will ask you to execute them.