Assessment item 1—Assignment 1

Due date:	Friday of Week 5 (April 7, 2017 - 11:45 pm)
Weighting:	30%
Length:	N/A

Objectives

- To develop a conceptual data model diagram
- To perform logical design

Assignment Specification

In this assignment, you need to perform the following tasks for the given case study:

- Draw an Entity Relationship (ER) diagram
- Perform logical design
- Create 3NF Relations

Case Study

Many medical specialists offer their medical consultations and perform special medical procedures to the patients at CQ Specialist Medical Center (hereafter called as CQMC). Patients generally book their appointments through a telephone call or by personal visits to the center. Sometimes, the General Medical Practitioners (GPs) contact CQMC directly on behalf of their patients for the specialist appointments.

The patient details, such as name, gender, etc., are collected and stored at CQMC. Since the name of the patient is not going to be unique, each patient is identified by a unique patient ID. The details of patient's medical history (past surgeries undertaken), details of current medications (medicines and dosages) and other medication-allergies, if any, have to be maintained by CQMC. The referral letter from a GP is not a requirement at the time of booking for an appointment with the specialist but it is compulsory at the time of actual patient's consultation. Just prior to the consultation, CQMC collects the referral letter from the patient and notes down the details of date of referral and the GP (identified by unique Medical Provider Number) who issued that referral letter. Based on the necessity, the same GP may refer the same patient to the same specialist many times over a period of time. During the consultation, a specialist may conduct various medical tests and procedures on the patient; may prescribe multiple prescriptions to the patient. After each appointment, the name of the standard tests and procedures performed along with the medical prescription details are stored and maintained by CQMC.

The following table provides the details of consultation and other charges applicable for the specialist's appointments. The charges can be assumed to be constant values.

Type	Fees/Charges
Consultation	$120
Biopsy	$75
Excision	$175
Laser	$250

After each appointment, the patient pays the entire appointment charges to CQMC. Each appointment charges include the consultation fees and additionally may include multiple other charges from the above table. Sometimes, some specialists offer discount amount to some appointments on special grounds such as Pensioner, Veteran etc.,

Some GPs and patients often would like to know the details of qualifications and number of years of experience of the specialists. Hence, CQMC maintains and updates those details periodically. You may note that a medical specialist may have multiple qualifications.

The attributes of the possible entities have not been mentioned clearly. Hence, you need to assume at least three and at most seven relevant attributes for each of the entities that you will identify for your ER diagram.

Assignment Requirements

In this assignment, you need to create an Entity Relationship (ER) diagram relevant to the above case study and perform logical design to produce appropriate 3NF Relations.

The attributes for various entities have not been purposely described in the case study so that the students are encouraged to further research and list the pertinent attributes in addition to the required identifier for each and every entity in their ERD.

1 Draw an appropriate ER diagram

Use the symbols as prescribed in your unit-textbook to draw the ER diagram (ERD) for the above case study.

Your ERD must

- show all necessary entities, attributes and relationships
- show identifiers/identifying attributes as necessary
- show multi-valued attributes, if any
- show participation and cardinality
- show associative entities, if appropriate
- show weak entities, if any
- use the notation described in the set text
- use consistent and appropriate naming for entities and attributes as specified in the unit text book

Some business rules or other aspects of the case study may not be clear to you when you read the case study. If this is the case, then you should either approach your lecturer or tutor for clarification, or you may simply make an assumption and then develop your ERD accordingly. For example, the case study might not mention all relevant participation information (also called minimum cardinalities). If so, you may make an assumption about what the minimum cardinalities might reasonably be, and then show them in your ERD accordingly. You should justify each assumption in terms of the business, for example: it is assumed that each customer must have at least one order because it is assumed that the business does not record customer details until the customer places an order.

To get yourself started, ask yourself, 'If I were running this business, what things I need to keep a list of?' Write those things down. For each thing, what information would you need to record about it? How can it be identified? The answers to these questions will help you to develop your ERD.

2 Assumptions and Business rules

Provide assumptions and business rules relevant to your ERD.

3 Create Logical Design:

Map your Entity Relationship diagram (ERD) into relations and make sure that all the relations are in 3NF. Provide all the relations in the following format:

Customer (CustomerId, customerName, Street, Suburb, State, PostCode, Email)

Invoice (InvoiceNumber, invoiceDate, Total, *CustomerId*)

foreign key (*CustomerId*) references Customer(CustomerId)

How and what to submit:

You must make an electronic submission for this assignment using the appropriate assignment submission link in the unit web site.

You should submit a Microsoft Word document containing:

- A copy of your ERD.
- A list of business rules and assumptions including their justifications.
- 3NF Relations

Your document should contain appropriate identifying information (your student number, name, unit number, etc.) and should contain appropriate headings for each section.

Important points

- You must work individually on this assignment.
- The model solution to this assignment will be released approximately TWO (2) weeks after the due date.
- Assignments that are submitted after the release of the model solution will receive zero marks.

- You must state in your assignment (at the end under the heading Acknowledgements is a good place) all materials and sources you used. This may be as simple as 'This assignment was completed using only the COIT20247 unit materials' to mention that you have used only the items provided by the unit COIT20247.
- Before submitting your assignment, review the marking criteria that are available in the assignment specification. Ensure that all the criteria are addressed in your submission.
- After submitting your assignment, please verify that your submission was successful, i.e. download your submitted files to ensure that they are correct.
- Penalty related to late submission and plagiarism is handled as per the university policies.

Marking Criteria:

	Item	Maximum Marks
1	Entities have been identified, named and drawn correctly including super type and sub type entities; associative entities; weak entities (if any).	**5**
2	Provided appropriate attributes for all the entities.	**5**
3	Provided identifiers for the required entities	**2**
4	Drawn correct relationships between entities and named them appropriately.	**3**
5	Used proper symbols and shown min and max cardinalities for the relationships. Appropriate symbols have been used for super type and sub type relationships (if any)	**5**
6	Provided appropriate justification for assumptions and business rules.	**3**
7	Created correct 3NF Relations	**5**
8	Primary keys and foreign keys have been shown in relations correctly including foreign key references.	**2**
	Penalty due to plagiarism/copying	
	Late Penalty: Less 5% of available marks per calendar day.	
	Total	**30**