GRIFFITH COLLEGE DUBLIN

Assignment Cover Sheet

Student name:	**Yen Lung Chen**			
Student number:	**2971978**			
Faculty:	**Computing Science**			
Course:	**HDC Computer Science**	**Stage/year:**	**2018**	
Subject:	**HDC_RD**			
Study Mode:	Full time **v**		Part-time	
Lecturer Name:	**Gemma Deery**			
Assignment Title:	**ER Diagram & Mapping**			
No. of pages:	**5**			
Disk included?	Yes		No **v**	
Date due:	**12/04/2018**			
Date submitted:	**12/04/2018**			

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I hereby certify that this assignment is my own work, based on my personal study and/or research, and that I have acknowledged all material and sources used in its preparation. I also certify that the assignment has not previously been submitted for assessment and that I have not copied in part or whole or otherwise plagiarised the work of anyone else, including other students.

Signed: Yen Lung Chen **Date: 12/04/2018**

Please note: *Students **MUST** retain a hard / soft copy of **ALL** assignments as well as a receipt issued and signed by a member of Faculty as proof of submission.*

Yellow-Classes/ Pink- Attributes/ Blue-Subclasses/ Green-Cardinality

RELATIONAL DATABASES – ERD

HDC-RD 20%

Griffith College Dublin
Computing Faculty / Assignment Title Sheet

Course:	HDC
Stage/Year:	1
Module:	Relation Databases
Semester:	2
Assignment Number:	Assignment 1
Date of Title Issue:	08/03/2018
Assignment Deadline:	12/04/2018 Online
Assignment Submission:	(Moodle) 20%
Assignment Weighting:	

Assignment Title: ER Diagram & Mapping
Learning Outcomes: 1,2,4, 5,6
Assessment Criteria
Evidence of critical thinking and analysis. Originality, quality and thoroughness ofthe work. Research, correct academic approach. Proper treatment of sources.
Upload the answer as a single file in PDF format only.

- Format: studNo_Name_Assign2.pdf
- Please name your file correctly and submit in the correct format (pdf)
- Marks will be deducted for submissions incorrectly named
- All submissions should be accompanied by an assignment cover sheet

Academic Dishonesty: All of your assignments need to represent your own effort. Assignments should be done without consultation with other students and you should not share your source code with others. Any assignment submitted that is essentially the same, as someone else's will not be accepted. ALL matching assignments will receive 0 credits.

A group of private hospitals has requested a computerised system to be designed to keep track of their patients, staff and benefactors. They have asked you to create the initial design for their new system and have given you the following information. Assume uniqueness of numbers and codes.

Each hospital consists of a number of wards. Wards are allocated a name and internal number, as well as a specialty. Wards can be classified as public, semi-private or private. Public wards have an associated number of beds, while semi-private and private have only a required health insurance code.

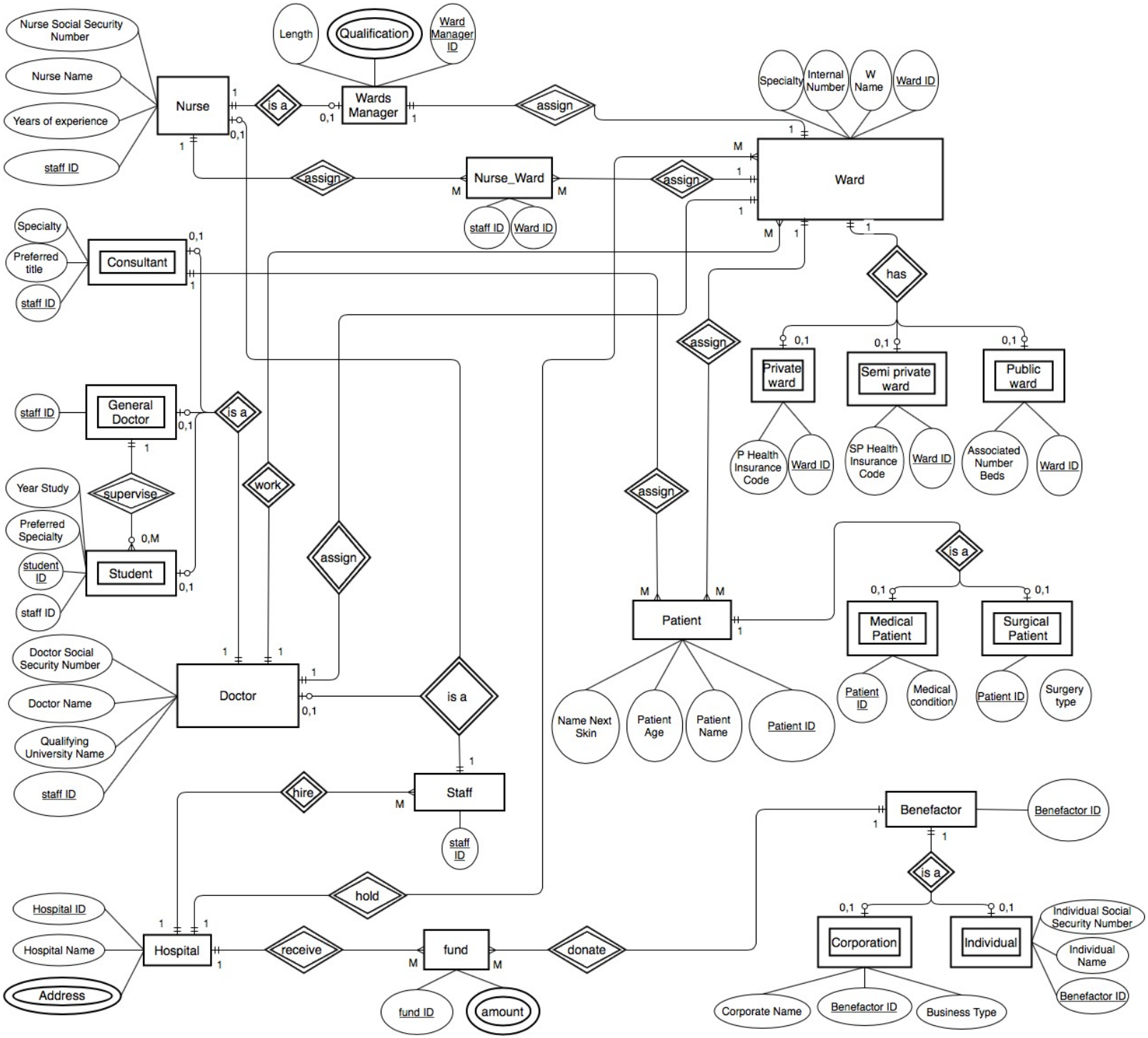
The hospital keeps track of the nurse and doctors. Nurses are described by their social security number, name and years of experience. Some nurses are ward managers in which case they are assigned to manage a particular ward. Ward managers are additionally described by their qualification and length of time as manager. Each ward has only one ward manager, but may have up to a total of five nurses (including the ward manager).

For administrative purposes, doctors are always assigned to one particular ward, although they may actually work in multiple wards. Doctors are identified by their social security number, name and qualifying university name. There are three different types of doctor of which the hospital wishes to keep track, and all doctors must belong to one or other of the types. The first is consultant. Specific details about consultants include specialty and preferred title. Other doctors can be either general doctors or students. Students are always assigned a general doctor as a supervisor, and additional details recorded about students include year of study and preferred specialty. Not all general doctors act as supervisors.

Patients are assigned to a particular ward and also to a particular consultant. Patient details include patient number, name, age and name of next of kin. Patients are classified as surgical or medical.

Each hospital is supported by a number of benefactors who donate money to the hospital. A benefactor can donate to more than one hospital, and can be either a corporation or an individual. Corporations are described by Corporation Name and business type, while individual details stored include social security number and name.

1. Produce an entity relationship (ERD) diagram for the group of private hospitals. Clearly indicate each of the following:
    - Classes and subclasses
    - Degree, cardinality and participation of relationships
    - Attributes
    - Disjoint or overlapping subclass membership
    - Total or partial subclass membership
2. Convert the ERD diagram to the corresponding relational logical schema for the database. Where subclasses are being converted, indicate the conversion approach used.


Nurse Social Security Number
Nurse Name
Years of experience
staff ID
Nurse
is a
Length
Qualification
Ward Manager ID
Wards Manager
assign
Specialty
Internal Number
W Name
Ward ID
Ward
assign
Nurse_Ward
staff ID
Ward ID
assign
Specialty
Preferred title
staff ID
Consultant
has
assign
Private ward
Semi private ward
Public ward
P Health Insurance Code
Ward ID
SP Health Insurance Code
Ward ID
Associated Number Beds
Ward ID
staff ID
General Doctor
is a
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assign
Year Study
Preferred Specialty
student ID
staff ID
supervise
Student
assign
Patient
is a
Medical Patient
Surgical Patient
Patient ID
Medical condition
Patient ID
Surgery type
Name Next Skin
Patient Age
Patient Name
Patient ID
Doctor Social Security Number
Doctor Name
Qualifying University Name
staff ID
Doctor
is a
hire
Staff
staff ID
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Hospital ID
Hospital Name
Address
Hospital
receive
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donate
fund ID
amount
Benefactor
Benefactor ID
is a
Corporation
Individual
Individual Social Security Number
Individual Name
Benefactor ID
Corporate Name
Benefactor ID
Business Type

Assumption:

- We are creating a group of hospitals database system, not just only one. Thus hospital is an entity.
- Create entity fund to break M:N relation between hospital and benefactor.
- A staff can only hire by one hospital. Thus the relationship staff to hospital is M:1.
- Wards Manager has its own ID to have relationship with nurse instead of using staff ID.
- Create entity Nurse_Ward to break M:N relation between nurse and ward
- Create student ID as primary key in student entity for student-doctor and student-general doctor relationship
- Although doctor could work in multiple wards but a ward can only have one doctor to work with. Thus the relationship between doctor and ward is 1:M.

Mapping-Relational Schema