GROUP ASSIGNMENT

TECHNOLOGY PARK MALAYSIA

CT042-3-1-IDB

INTRODUCTION TO DATABASES

HAND OUT DATE: 01 April 2019

HAND IN DATE: 14 June 2019

WEIGHTAGE: 50%

INSTRUCTIONS TO CANDIDATES:

1 **Submit your assignment at the administrative counter.**

2 **Students are advised to underpin their answers with the use of references (cited using the Harvard Name System of Referencing).**

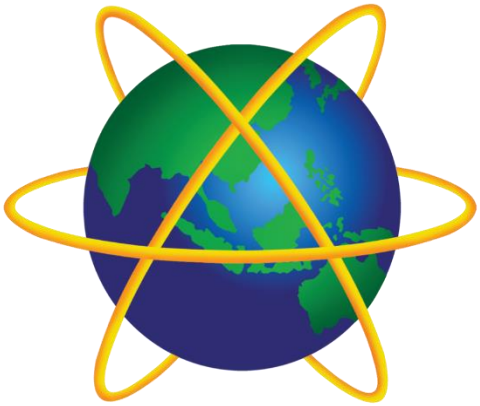
3 **Late submission will be awarded zero (0) unless Extenuating Circumstances (EC) are upheld.**

4 **Cases of plagiarism will be penalized.**

5 **The assignment should be bound in an appropriate style (comb bound or stapled).**

6 **Where the assignment should be submitted in both hardcopy and softcopy, the softcopy of the written assignment and source code (where appropriate) should be on a CD in an envelope / CD cover and attached to the hardcopy.**

7 **You must obtain 50% overall to pass this module.**



GROUP ASSIGNMENT
TECHNOLOGY PARK MALAYSIA

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INTAKE CODE	**:**	**UC1F1809CS (DA)**	
LECTURE NAME	**:**	**NIK SAKINAH BINTA NIK AB AZIZ**	
SUBJECT	**:**	**INTRODUCTION TO DATABASE**	
MODULE CODE	**:**	**CT042-3-1-IDB**	

Table of Content

1.0 Introduction

Ravenhearst Hospital depends on a database that is to maintain its health care management system. Data storing is the main function that a database must contain to give the hospital functioning. The data is usually recorded and maintained by the hospital staff. In order to keep up with the expansion and new services that comes with it, Ravenhearst hospital has requested database system to support its management and day-to-day operation of Ravenhearst hospital's health care management system.

In term of data storing, the database should be able to manage information about the system of assigning the ward, the information of patients that registered, the information of nurses for the ward, the appointment made by patients and the information of the doctors. For instance, when the patient first registered at the hospital, he or she will be allocated with a unique patient number. At this time, the additional information of the patients is also recorded including the name, address, telephone number, date of birth, gender and etc. In this case, the system plays an important role to store this information that are recorded.

Furthermore, as the Ravenhearst hospital also provide an appointment system, the patient can make appointment through phone or by visiting the hospital, and then he or she will be given an appointment for an examination for the doctors. The appointment is given a unique appointment number and at the same time the details of each patient's appointment are recorded, and include the name and staff number of the doctor performing the examination. Therefore, the database system must be able to store all the details stored for an appointment made.

As a summary, the database system will provide help for the Ravenhearst hospital to manage all the information of the ward, patients, doctors and nurses. Accordingly, the day-to-day operation of the Ravenhearst hospital's health care management system will also improve.

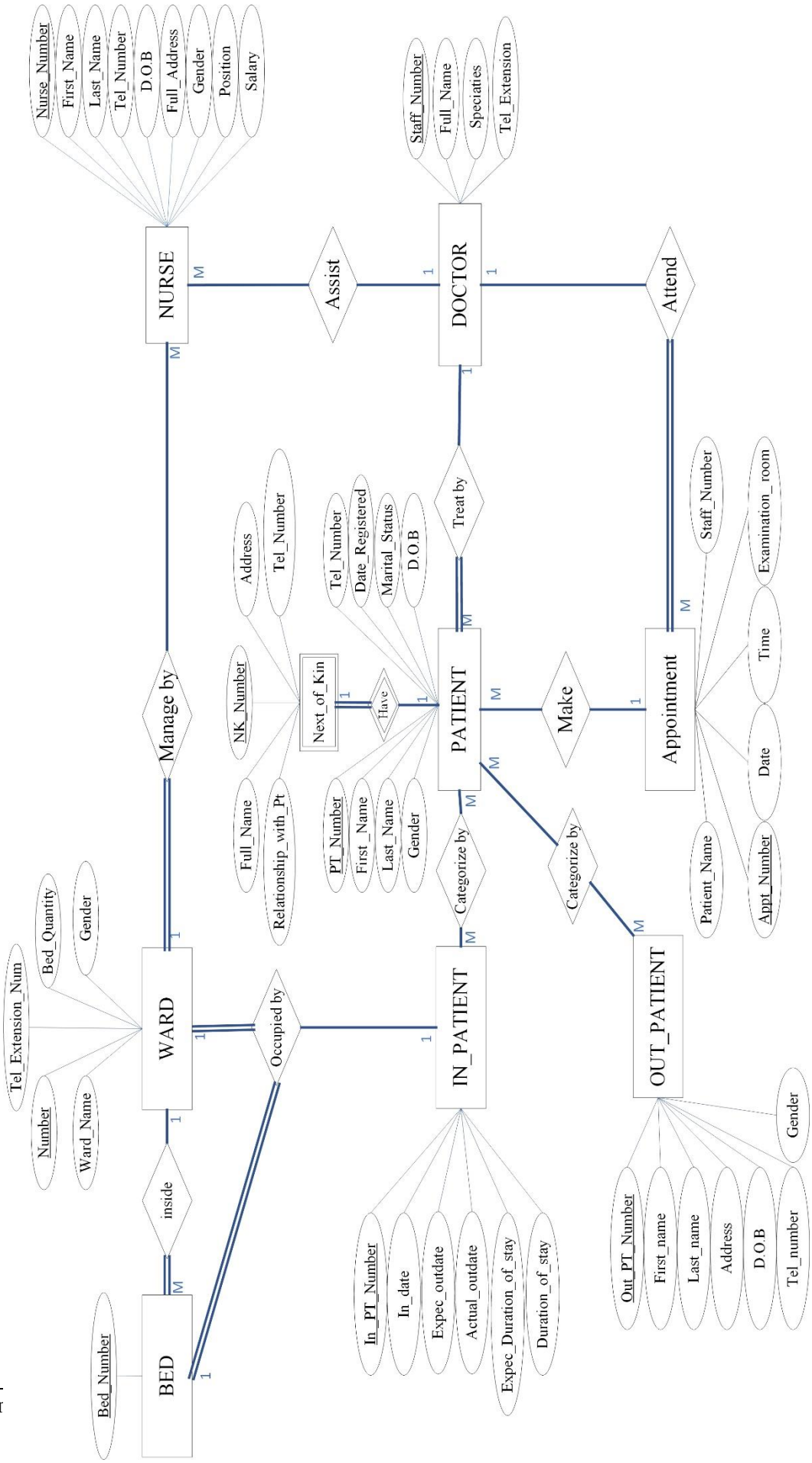
2.0 Business Rule

A business rule is statement that imposes some form of constraint on a specific aspect of the database, such as the elements within a field specification for a particular field or the characteristics of a given relationship. (Etutorials.org, 2019)

- Each ward was managed by a nurse
- One ward can manage by one nurses.
- Ward details include uniquely identified by a number, ward name, total number of beds, general, phone number.
- Nurse information include staff number, name, full address, phone number, date of birth, general, position held, current salary.
- Doctors information includes staff number, full name, their specialties and the phone extension.
- Patient details include the name (first and last name), address, phone number, date of birth, gender, marital status, date registered, and the details of the next of kin.
- The next of kin details includes full name, relationship and telephone number.
- Each appointment has a unique appointment number
- Appointment includes patient name, staff number of doctors performing the examination, date and time of examination and the examination room
- Out-patient details include patient number, name, address, telephone number, date of birth, gender, and the date and time of the appointment at the out-patient clinic
- In-patient details include patient number, name address, telephone number, date of birth, gender, marital status, the ward assigned, the expected duration of stay (in days), date stay began, date expected to leave the ward, and the actual date the patient left the ward
- A patient is allocated with a bed with unique bed number when enters the ward
- Each ward must have many beds.
- Each in patient must sleep at a bed and stay in a ward.
- Each patient must have a next of kin.
- All ward must be managed by nurse.

- Each doctor must treat all the patient.
- Each doctor must attend all the appointment.
- A ward can manage by many nurses
- A ward can have many beds.
- A nurse can assist a doctor and a doctor need many nurses to assist him.
- A Doctor can attend many appointments and a doctor can be assigned to many appointments.
- A patient can make an appointment.
- A doctor can treat many patients, but a patient can only treat by a doctor.
- Many in patient can categorize by many patients.
- Many out patients can categorize by many patients.
- A patient can have a next of kin.
- A in patient can stay at a ward and sleep at a bed
- There have 10 examination room can be accessed for any doctor

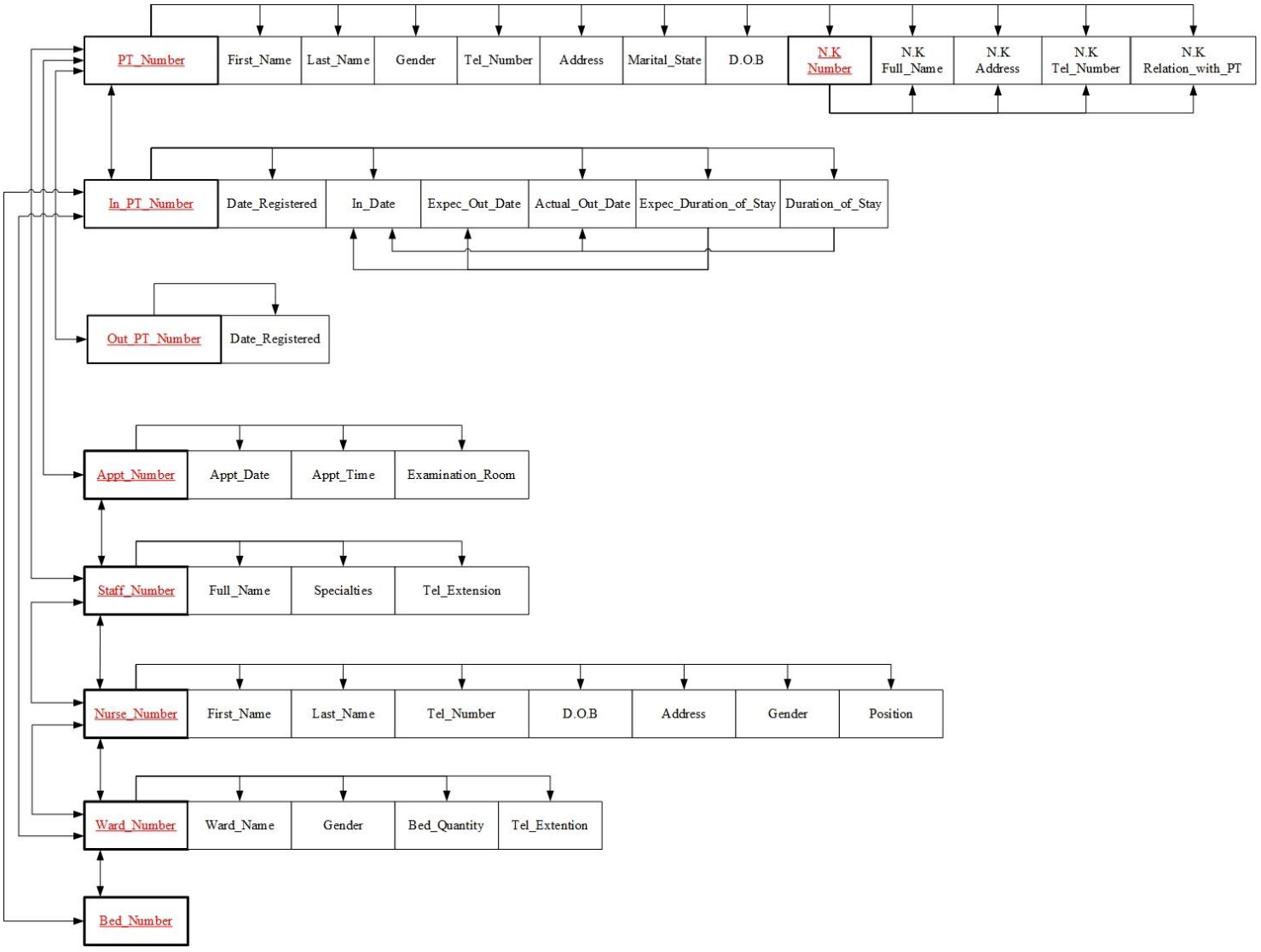
3.0 ER Modelling



4.0 Normalization Process

4.1 First Normal Form

First normal form (1NF) sets the fundamental rules for database normalization . (Techopedia.com, 2019) At here we sort out the attribute to a single table. Those attributes marked as red colour and underlined is the primary key at this database and we were clearly list out the partial dependencies and transitive dependencies at this part .



Primary Key :

- PT_Number , NK_Number , In_PT_Number , Out_PT_Number , Appt_Number , Staff_Number , Nurse_Number , Ward_Number , Bed_Number

Partial Dependencies :

- PT_Number = First_Name , Last_Name , Gender , Tel_Number , Address , Marital_State , D.O.B ,
- NK_Numbe = NK Full Name , NK Address , NK Tel_ Number , NK Relation_with_PT
- In_PT_Number = Date_Registered , In_Date , Expec_Out_Date , Actual_Out_Date , Expex_Duratio_of_Stay , Duratio_of_Stay
- Out_PT_Number = Date_Registered
- Appt_Number = Appt_Date , Appt_Time , Examination_Room
- Staff_Number = Full_Name , Specialties , Tel_Extension
- Nurse_Number = First_Name , Last_Name , Tel_Number , D.O.B , Address , Gender , Position , Salary
- Ward_Number = Ward_Name , Gender , Bed_Quantity , Tel_Extension
- Bed_Number

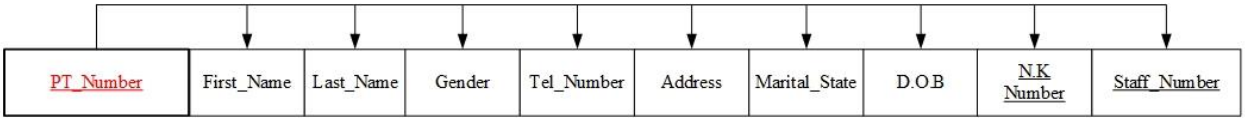
Transitive Dependencies:

- Duration_of_Stay = In_Date , Actual_Out_Date
- Position = Salary

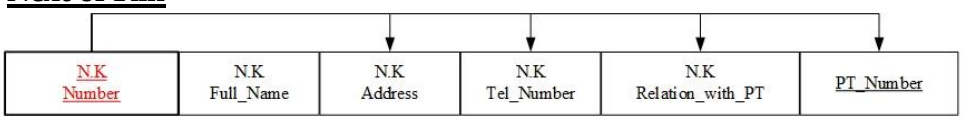
4.2 Second Normal Form

Second normal form (2NF) is the second step in normalizing a database. At here we divide the table based on 1NF partial dependencies .And those attribute that marked as red colour consider as the Primary Key in each table and those attribute that underlined but not marked as red colour consider as Foreign Key.

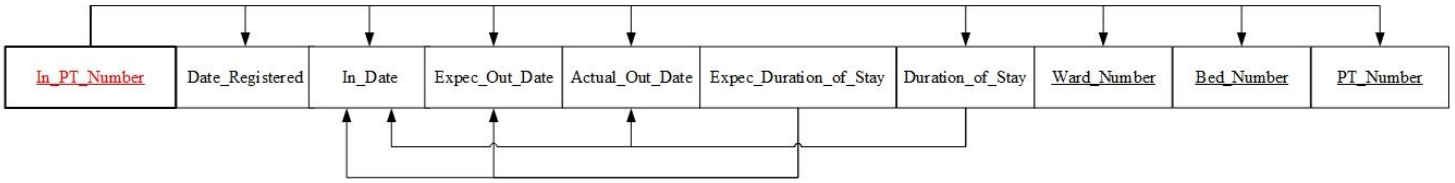
Patient



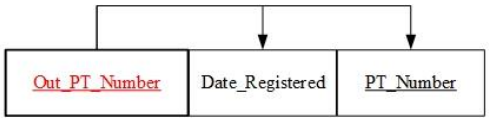
Next of Kin



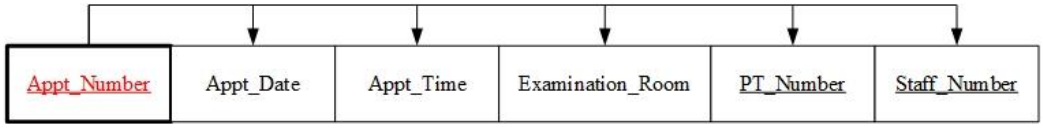
In Patient



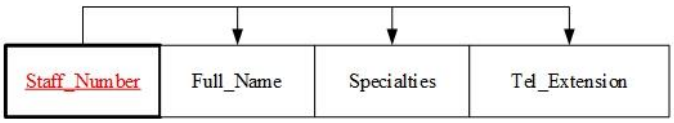
Out Patient



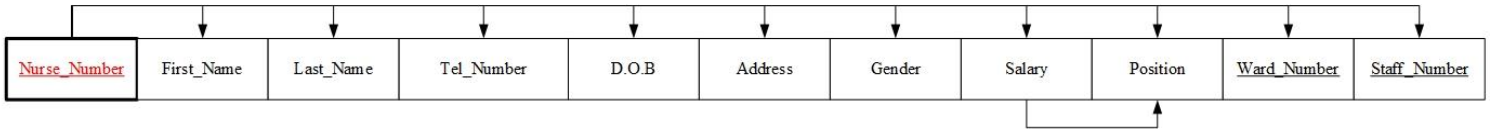
Appointment



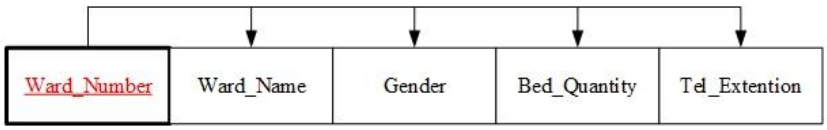
Doctor



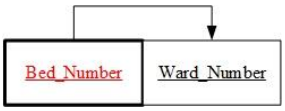
Nurse



Ward



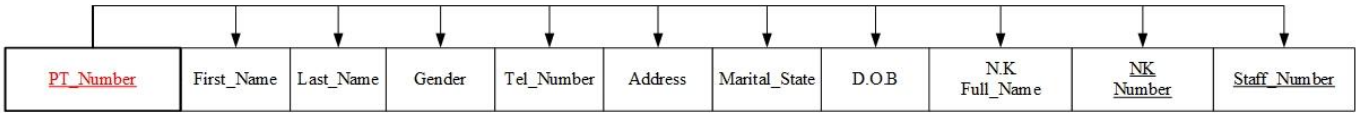
Bed



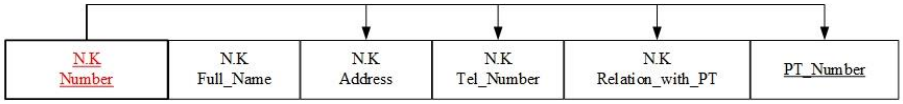
4.3 Third Normal Form

Third normal form (3NF) is the third step in normalizing a database. At here we solve the translative dependencies.

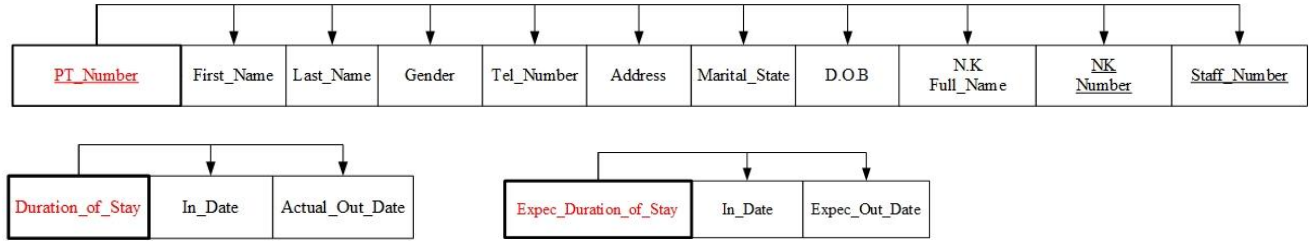
Patient



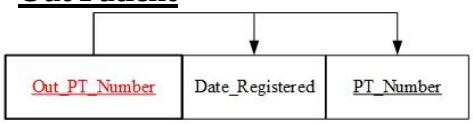
Next of Kin



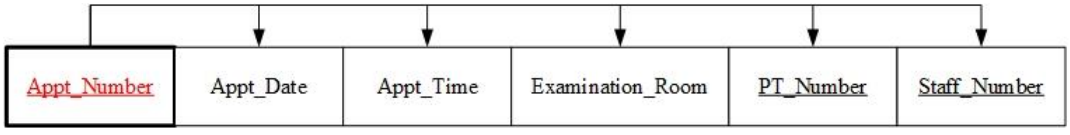
In Patient



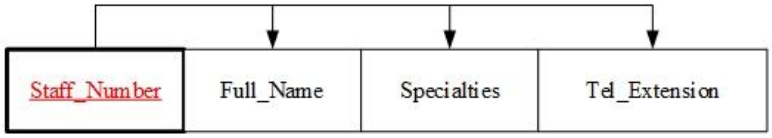
Out Patient



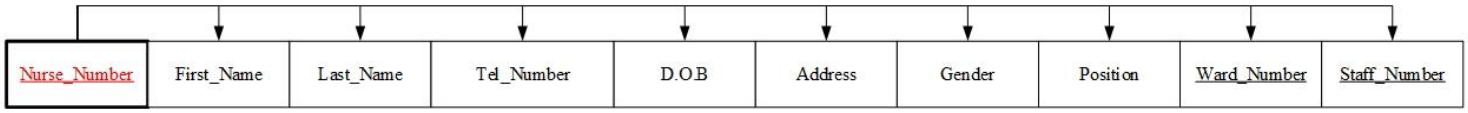
Appointment

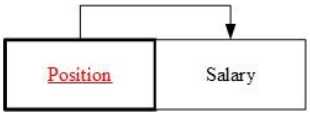


Doctor

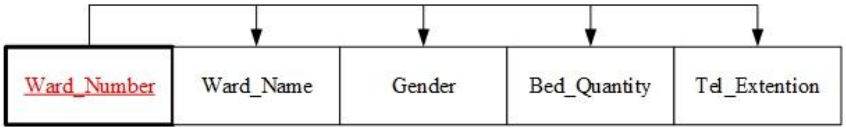


Nurse

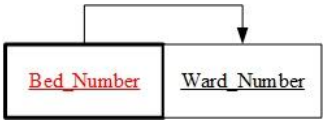




Ward

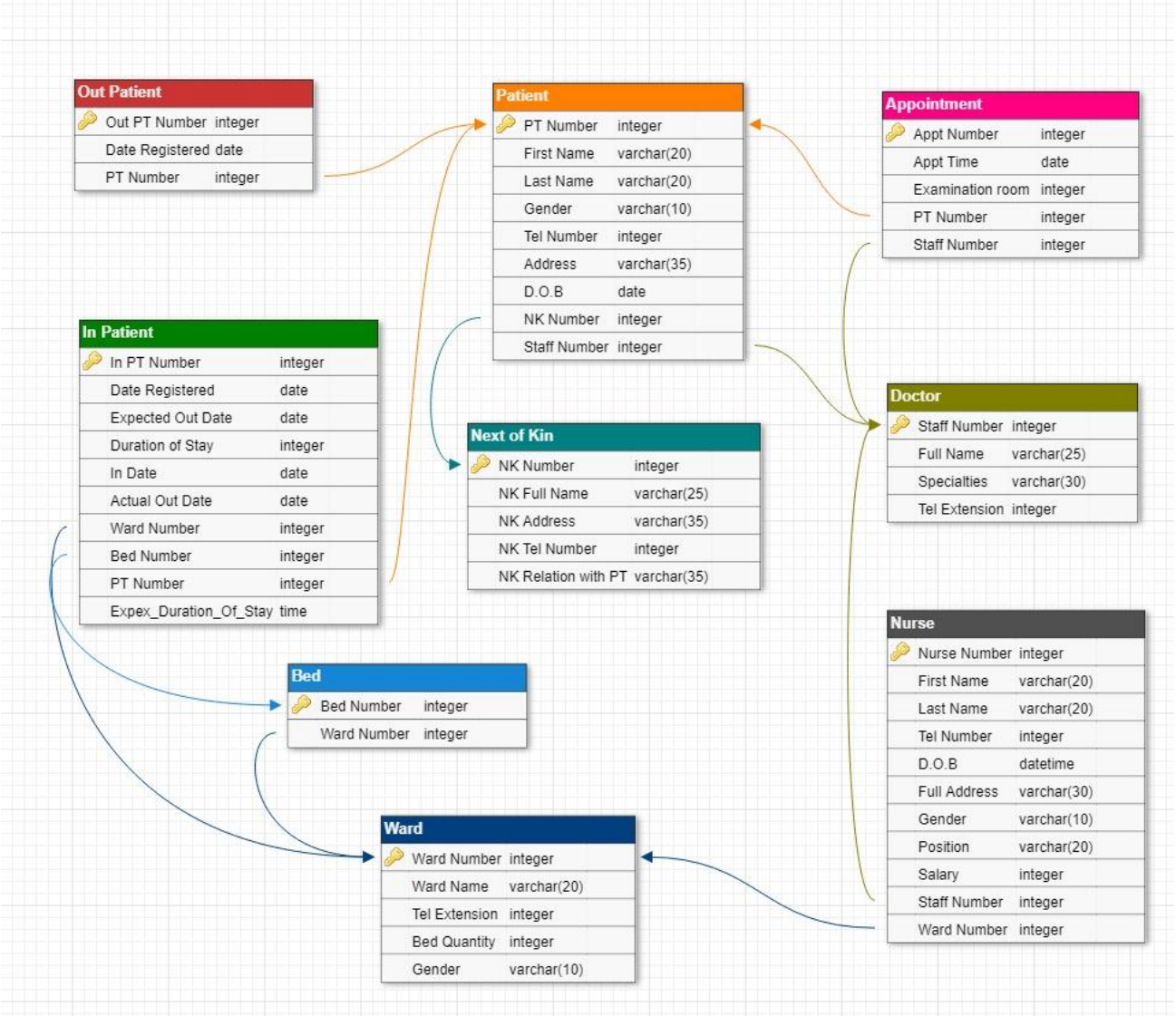


Bed



5.0 Database Schema / Diagram

A database schema is a collection of data that describes the relationships between objects and information in a database. An easy way to imagine an architecture is to think of it as a box containing tables, stored procedures, views, and related data assets. This architecture defines the infrastructure of this box. (Chapple, 2019)



6.0 Table Implemented

Patient

```
CREATE TABLE Patient (
PT_Number            Int             not null     unique,
First_Name           Varchar (20)    not null,
Last_Name            Varchar (20)    not null,
Gender               Varchar (10)    not null,
Tel_Number           Varchar (20)    not null,
Address              Varchar (100)   not null,
Marital_Status       Varchar (20)    not null,
D_O_B                Date            not null,
NK_Number            Int             not null,
Staff_Number         Int             not null,
Primary Key (PT_Number),
)
INSERT INTO Patient VALUES
(101, 'Hubert','Oakley','Male','016-2948642','26 Jln Kesuma 4 Taman Kesuma Ampang 68000 Malaysia','Single','1974-10-21',202,603),
(102, 'Ariadne','Alford','Female','017-59264642','1 20 Jln Bunga Tanjung 8A Taman Muda 56100 Wilayah Persekutuan Malaysia','Single','1965-12-02',201,615),
(103, 'Eliana','Hutchinson','Female','019-1453542','1200 Jln 11 Kampung Baru Ampang 68000 Ampang Malaysia','Single','1999-02-01',218,612),
```

Next of Kin

```
CREATE TABLE Next_of_Kin (
NK_Number            Int             not null     unique,
NK_Full_Name         Varchar (25)    not null,
NK_Address           Varchar (100)    not null,
NK_Tel_Number        Varchar (20)    not null,
NK_Relation_with_PT  Varchar (35)    not null,
Primary Key (NK_Number),
)
INSERT INTO Next_of_Kin VALUES
(201, 'Pauline Macfarlane','368 4 Jln Sg Besi Bt 3 1/2 57100 Wilayah Persekutuan 57100 Malaysia ','012-4281256','Father'),
(202, 'Brendan Shah','6020 Cyberview Garden 63000 Cyberjaya ','013-1273492','Mother'),
(203, 'Zeenat Bentley','91-2, 2nd floor jalan radin tengah bandar baru seri petaling, 57000','017-8245621','Sibling'),
```

In Patient

```
CREATE TABLE In_Patient (
In_PT_Number          Int             not null     unique,
Date_registered       Date            not null,
In_Date               Date            not null,
Expected_Out_Date     Date            not null,
Actual_Out_Date       Date                null,
Duration_of_Stay      Int             not null,
Expected_Duration_of_Stay  Int        not null,
Ward_Number           Int             not null,
Bed_Number            Int             not null,
PT_Number             Int             not null,
Primary Key (In_PT_Number),
)
INSERT INTO In_Patient VALUES
(301,'2019-04-30','2019-05-10','2019-05-18','2019-05-12',2,8,1,3,109),
(302,'2019-03-15','2019-04-15','2019-04-20','2019-04-18',3,5,3,38,101),
(303,'2019-02-22','2019-03-15','2019-03-22','2019-04-01',17,7,5,66,103),
```

Out Patient

```
CREATE TABLE Out_Patient(
Out_PT_Number          Int              not null     unique,
Date_Registered        Date             not null,
PT_number              Int              not null,
primary key (Out_PT_Number),
)
INSERT INTO Out_Patient VALUES
(401,'2019-03-10',105),
(402,'2019-01-20',101),
(403,'2019-02-15',115),
```

Appointment

```
CREATE TABLE Appointment(
Appt_Number            Int              not null     unique,
Appt_Time              Date             not null,
Examination_Room       Varchar(10)          null,
PT_Number              Int              not null,
Staff_Number           Int              not null,
Primary Key (Appt_Number),
)
INSERT INTO Appointment VALUES
(501,'2019-05-10','E801',109,605),
(502,'2019-03-10','E813',105,613),
(503,'2019-04-15','E805',101,603),
```

Doctor

```
CREATE TABLE Doctor (
Staff_Number           Int              not null     unique,
Full_Name              Varchar(25)      not null,
Specialties            Varchar(30)      not null,
Tel_Extension          Int              not null,
Primary Key  (Staff_Number),
)
INSERT INTO Doctor VALUES
(601, 'Helen Cho.' ,'Cardiologists', 6601),
(602, 'Sumaiya Olson.' ,'Anesthesiologists', 6602),
(603, 'Chanel Beech.' ,'Emergency Medicine Specialists ', 6603),
```

Nurse

```
CREATE TABLE Nurse (
Nurse_Number           Int              not null     unique,
First_Name             Varchar(20)      not null,
Last_Name              Varchar(20)      not null,
Tel_Number             Varchar(20)      not null,
D_O_B                  Date             not null,
Full_Address           Varchar (100)     not null,
Gender                 Varchar (10)     not null,
Position               Varchar (20)     not null,
Salary                 Int              not null,
Staff_Number           Int                  null,
Ward_Number            Int                  null,
Primary Key  (Nurse_Number),
)
INSERT INTO Nurse VALUES
(701, 'Alysha', 'Vinson','012-4521253','1987-05-23','8/1,Jln 3/146 Bandar Tasik Selatan Wilayah Persekutuan 57000 KL','Female','General Nurse',3000,601,2),
(702, 'Kenya' , 'Frame' ,'012-7678311','1988-05-31','1035A Jln 9 Kampung Baru Salak Selatan Wilayah Persekutuan 57100 KL','Female','General Nurse',3000,608,2),
(703, 'Khadijah' , 'Higgs' ,'017-4234451','1977-02-27','30 Shahzan Tower Jln Raja Chulan Wilayah Persekutuan 50200 KL','Male','Head Nurse',5000,603,2),
```

Ward

```
CREATE TABLE Ward (
Ward_Number           Int              not null     unique,
Ward_Name             Varchar(20)      not null,
Tel_Extension         Int              not null,
Bed_Quantity          Int              not null,
Gender                Varchar(10)      not null,
Primary Key  (Ward_Number),
)
INSERT INTO Ward VALUES
(1,  'Emergency'       , 7711, 17,   'Male'),
(2,  'Paediatric'      , 7712, 13, 'Female'),
(3,  'Orthopedic'      , 7713, 13, 'Female'),
```

Bed

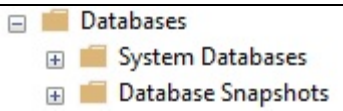
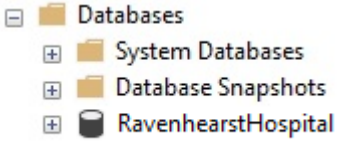
```
CREATE TABLE Bed (
Bed_Number           Int             not null     unique,
Ward_Number          Int             not null,
Primary Key (Bed_Number),
)
INSERT INTO Bed VALUES
(1,1),(2,1),(3,1),(4,1),(5,1),(6,1),(7,1),(8,1),(9,1),(10,1),(11,1),(12,1),(13,1),(14,1),(15,1),(16,1),(17,1),
(18,2),(19,2),(20,2),(21,2),(22,2),(23,2),(24,2),(25,2),(26,2),(27,2),(28,2),(29,2),(30,2),
(31,3),(32,3),(33,3),(34,3),(35,3),(36,3),(37,3),(38,3),(39,3),(40,3),(41,3),(42,3),(43,3),
```

7.0 Data Dictionary

TABLE NAME	ATTRIBUTE NAME	TYPE	FORMAT	RANGE	REQUIRED	Key
Patient	PT Number	Int	999	0 – 999	Yes	PK
	First Name	Varchar (20)	Xxxxx		Yes	
	Last Name	Varchar (20)	Xxxxx		Yes	
	Gender	Varchar (10)	Xxxxx	Male/Female	Yes	
	Tel Number	Varchar (20)	019-9999999		Yes	
	Address	Varchar (100)	Xxxxx		Yes	
	Marital Status	Varchar (20)	Xxxxx		Yes	
	D.O.B	Date	dd-mm-yyyy		Yes	
	[FK] NK Number	Int	999	0 – 999	Yes	FK(Next of Kin)
	[PK] Staff Number	Int	999	0 – 999	Yes	FK(Doctor)
Next of Kin	NK Number	Int	999	0 – 999	Yes	PF
	NK Full Name	Varchar (25)	Xxxxx		Yes	
	NK Address	Varchar (100)	Xxxxx		Yes	
	NK Tel Number	Varchar (20)	019-9999999		Yes	
	NK Relation with PT	Varchar (35)	Xxxxx	0 – 999	Yes	
In Patient	In PT Number	Int	999	0 – 999	Yes	PK
	Date Registered	Date	dd-mm-yyyy		Yes	
	In Date	Date	dd-mm-yyyy		Yes	
	Expected Out Date	Date	dd-mm-yyyy		Yes	
	Actual Out Date	Date	dd-mm-yyyy		Yes	
	Expected Duration of Stay	Int	999	1 – 999		
	Duration of Stay	Int	999	1 – 999		
	[FK] Ward Number	Int	999	0 – 999	Yes	FK(Ward)
	[FK] Bed Number	Int	999	0 – 999	Yes	FK(Bed)
	[FK] PT Number	Int	999	0 – 999	Yes	FK(Patient)
Out Patient	Out PT Number	Int	999	0 – 999	Yes	PK
	Date Registered	Date	dd-mm-yyyy		Yes	
	[FK] PT Number	Int	999	0 – 999	Yes	FK(Patient)
Appointment	Appt Number	Int	999	0 – 999	Yes	PK
	Appt Time	Date	dd-mm-yyyy		Yes	
	Examination room	Varchar (20)		0 – 999	Yes	
	[FK] PT Number	Int	999	0 – 999	Yes	FK(Patient)
	[FK] Staff Number	Int	999	0 – 999	Yes	FK(Doctor)
Doctor	Staff Number	Int	999	0 – 999	Yes	PK
	Full Name	Varchar (25)	Xxxxx		Yes	
	Specialties	Varchar (30)	Xxxxx		Yes	
	Tel Extension	Int	999	0 – 999	Yes	
Nurse	Nurse Number	Int	999	0 – 999	Yes	PK
	First Name	Varchar (20)	Xxxxx		Yes	
	Last Name	Varchar (20)	Xxxxx		Yes	
	Tel Number	Varchar (20)	019-99999999		Yes	
	D.O.B	Date	dd-mm-yyyy		Yes	
	Full Address	Varchar (100)	Xxxxx		Yes	
	Gender	Varchar (10)	Xxxxx		Yes	
	Position	Varchar (20)	Xxxxx		Yes	
	Salary	Int	999	1000-9999	Yes	
	[FK] Staff Number	Int	999	0 – 999		FK(Doctor)
	[FK] Ward Number	Int	999	0 – 999		FK(Ward)
Ward	Ward Number	Int	999	0 – 999	Yes	PK
	Ward Name	Varchar (20)	Xxxxx		Yes	
	Tel Extension	Int	999	0 – 999	Yes	
	Bed Quantity	Int	999	1 – 99	Yes	
	Gender	Varchar (10)	Xxxxx		Yes	
Bed	Bed Number	Int	999	0 – 999	Yes	PK
	[FK] Ward Number	Int	999	0 – 999	Yes	FK(Ward)

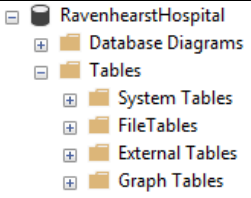
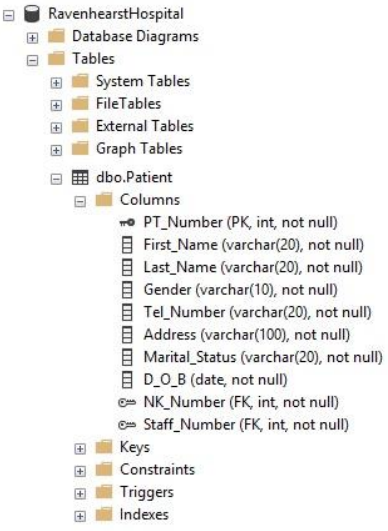
8.0 SQL Statement

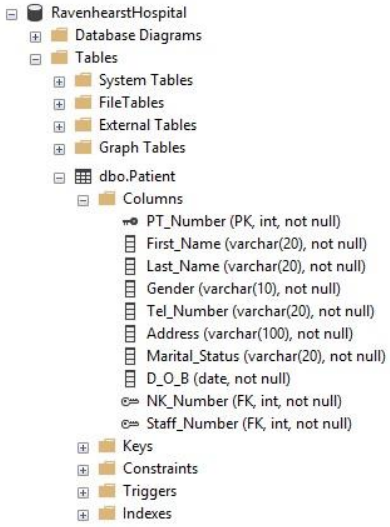
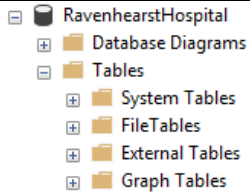
8.1 Data Definition Language (DDL)

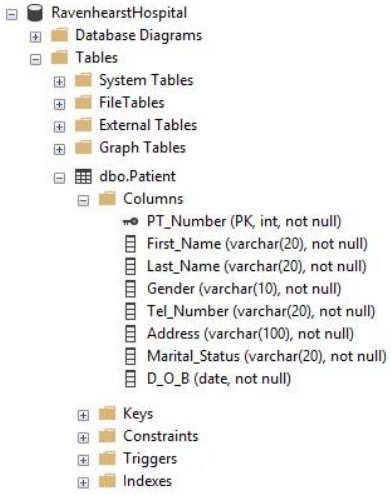
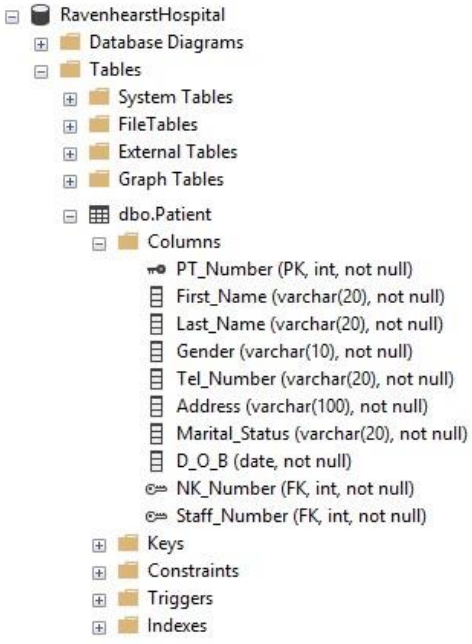
Create Database	
Code	`CREATE DATABASE RavenhearstHospital`
Before Execute	
After Execute	

Create Table	

Code	`CREATE TABLE Patient (`
	`PT_Number Int not null unique,`
	`First_Name Varchar (20) not null,`
	`Last_Name Varchar (20) not null,`
	`Gender Varchar (10) not null,`
	`Tel_Number Varchar (20) not null,`
	`Address Varchar (100) not null,`
	`Marital_Status Varchar (20) not null,`
	`D_O_B Date not null,`
	`NK_Number Int not null,`
	`Staff_Number Int not null,`
	`Primary Key (PT_Number),`
	`)`

Before Execute	
After Execute	

Delete Table	
Code	`DROP TABLE Patient`
Before Execute	
After Execute	

Alter Add Foreign Key	
Code	`Alter table Patient` `Add Foreign Key (Staff_Number) References Doctor`
Before Execute	
After Execute	

Alter Add Column

Code

```
Alter Table Ward
ADD Bed_Quantity  Int  not null ;
```

Before Execute

	Ward_Number	Ward_Name	Tel_Extension	Gender
1	1	Emergency	7711	Male
2	2	Paediatric	7712	Female
3	3	Orthopaedic	7713	Female
4	4	Cardiology	7714	Male
5	5	Neurology	7715	Male
6	6	Neonatal	7716	Female
7	7	Cardiovascular	7717	Male
8	8	Oncology	7718	Male
9	9	Obstetrics	7719	Male
10	10	Gynaecology	7720	Female
11	11	Colloquially	7721	Male
12	12	Maternity	7722	Female

After Execute

	Ward_Number	Ward_Name	Tel_Extension	Bed_Quantity	Gender
1	1	Emergency	7711	17	Male
2	2	Paediatric	7712	13	Female
3	3	Orthopaedic	7713	13	Female
4	4	Cardiology	7714	12	Male
5	5	Neurology	7715	16	Male
6	6	Neonatal	7716	15	Female
7	7	Cardiovas...	7717	14	Male
8	8	Oncology	7718	12	Male
9	9	Obstetrics	7719	16	Male
10	10	Gynaecolo...	7720	14	Female
11	11	Colloquially	7721	14	Male
12	12	Maternity	7722	16	Female

Alter Drop Column

Code

```
Alter Table Ward
Drop column Bed_Quantity
```

Before Execute

	Ward_Number	Ward_Name	Tel_Extension	Bed_Quantity	Gender
1	1	Emergency	7711	17	Male
2	2	Paediatric	7712	13	Female
3	3	Orthopaedic	7713	13	Female
4	4	Cardiology	7714	12	Male
5	5	Neurology	7715	16	Male
6	6	Neonatal	7716	15	Female
7	7	Cardiovas...	7717	14	Male
8	8	Oncology	7718	12	Male
9	9	Obstetrics	7719	16	Male
10	10	Gynaecolo...	7720	14	Female
11	11	Colloquially	7721	14	Male
12	12	Maternity	7722	16	Female

After Execute

	Ward_Number	Ward_Name	Tel_Extension	Gender
1	1	Emergency	7711	Male
2	2	Paediatric	7712	Female
3	3	Orthopaedic	7713	Female
4	4	Cardiology	7714	Male
5	5	Neurology	7715	Male
6	6	Neonatal	7716	Female
7	7	Cardiovascular	7717	Male
8	8	Oncology	7718	Male
9	9	Obstetrics	7719	Male
10	10	Gynaecology	7720	Female
11	11	Colloquially	7721	Male
12	12	Maternity	7722	Female

8.2 Data Manipulation Language (DML)

Insert

Code

```
INSERT INTO In_Patient VALUES
(301,'2019-04-30','2019-05-10','2019-05-18','2019-05-12',2,8,1,3,109),
(302,'2019-03-15','2019-04-15','2019-04-20','2019-04-18',3,5,3,38,101),
(303,'2019-02-22','2019-03-15','2019-03-22','2019-04-01',17,7,5,66,103),
(304,'2018-08-17','2018-10-15','2018-10-24','2018-10-24',9,9,7,87,105),
(305,'2018-10-23','2018-11-10','2018-11-13','2018-11-13',3,3,10,130,107),
(306,'2018-09-21','2018-11-22','2018-11-23','2018-11-26',4,1,9,115,102),
(307,'2019-02-20','2019-04-23','2019-04-28','2019-04-28',5,5,9,117,106),
(308,'2018-06-15','2018-09-01','2018-09-07','2018-09-07',6,6,8,109,104),
(309,'2019-02-20','2019-05-15','2019-05-19',null,15,4,11,155,108),
(310,'2018-04-23','2019-05-15','2019-05-25',null,15,10,17,235,110),
(311,'2019-01-18','2019-04-23','2019-05-01','2019-05-02',9,8,13,179,119),
(312,'2019-03-21','2019-05-23','2019-06-02',null,7,10,12,162,112),
(313,'2018-10-22','2018-12-10','2018-12-18','2018-12-14',4,8,4,151,109),
(314,'2018-05-30','2018-08-31','2018-09-07','2018-09-07',7,7,1,1,113),
(315,'2019-01-23','2019-05-28','2019-05-30','2019-05-30',2,2,2,28,111),
(316,'2018-12-22','2019-02-22','2019-02-26','2019-02-26',4,4,10,141,114),
(317,'2019-01-05','2019-05-25','2019-05-29',null,5,4,12,168,109),
(318,'2019-03-06','2019-04-23','2019-04-30','2019-04-30',7,7,15,199,117),
(319,'2019-01-20','2019-05-10','2019-05-11',null,20,1,17,230,116),
(320,'2019-02-20','2019-05-20','2019-05-28',null,10,8,16,215,109)
```

Before Execute

In_PT_Number	Date_registered	In_Date	Expected_Out_Date	Actual_Out_Date	Duration_of_Stay	Expected_Duration_of_Stay	Ward_Number	Bed_Number	PT_Number

After Execute

	In_PT_Number	Date_registered	In_Date	Expected_Out_Date	Actual_Out_Date	Duration_of_Stay	Expected_Duration_of_Stay	Ward_Number	Bed_Number	PT_Number
1	301	2019-04-30	2019-05-10	2019-05-18	2019-05-12	2	8	1	3	109
2	302	2019-03-15	2019-04-15	2019-04-20	2019-04-18	3	5	3	38	101
3	303	2019-02-22	2019-03-15	2019-03-22	2019-04-01	17	7	5	66	103
4	304	2018-08-17	2018-10-15	2018-10-24	2018-10-24	9	9	7	87	105
5	305	2018-10-23	2018-11-10	2018-11-13	2018-11-13	3	3	10	130	107
6	306	2018-09-21	2018-11-22	2018-11-23	2018-11-26	4	1	9	115	102
7	307	2019-02-20	2019-04-23	2019-04-28	2019-04-28	5	5	9	117	106
8	308	2018-06-15	2018-09-01	2018-09-07	2018-09-07	6	6	8	109	104
9	309	2019-02-20	2019-05-15	2019-05-19	NULL	15	4	11	155	108
10	310	2018-04-23	2019-05-15	2019-05-25	NULL	15	10	17	235	110
11	311	2019-01-18	2019-04-23	2019-05-01	2019-05-02	9	8	13	179	119
12	312	2019-03-21	2019-05-23	2019-06-02	NULL	7	10	12	162	112
13	313	2018-10-22	2018-12-10	2018-12-18	2018-12-14	4	8	4	151	109
14	314	2018-05-30	2018-08-31	2018-09-07	2018-09-07	7	7	1	1	113
15	315	2019-01-23	2019-05-28	2019-05-30	2019-05-30	2	2	2	28	111
16	316	2018-12-22	2019-02-22	2019-02-26	2019-02-26	4	4	10	141	114
17	317	2019-01-05	2019-05-25	2019-05-29	NULL	5	4	12	168	109
18	318	2019-03-06	2019-04-23	2019-04-30	2019-04-30	7	7	15	199	117
19	319	2019-01-20	2019-05-10	2019-05-11	NULL	20	1	17	230	116
20	320	2019-02-20	2019-05-20	2019-05-28	NULL	10	8	16	215	109

Update

Code

```
update In_patient
set Actual_Out_Date = '2019-06-03'
where In_PT_Number = 312
```

Before Execute

12	312	2019-03-21	2019-05-23	2019-06-02	NULL	7	10	12	162	112

After Execute

12	312	2019-03-21	2019-05-23	2019-06-02	2019-06-03	7	10	12	162	112

Delete Row	
Code	`Alter Table Ward` `ADD Bed_Quantity  Int  not null ;`
Before Execute	Bed_Number: 1, Ward_Number: 1
After Execute	Bed_Number, Ward_Number

Delete All	
Code	`delete from In_Patient`
Before Execute	
After Execute	

	In_PT_Number	Date_registered	In_Date	Expected_Out_Date	Actual_Out_Date	Duration_of_Stay	Expected_Duration_of_Stay	Ward_Number	Bed_Number	PT_Number
1	301	2019-04-30	2019-05-10	2019-05-18	2019-05-12	2	8	1	3	109
2	302	2019-03-15	2019-04-15	2019-04-20	2019-04-18	3	5	3	38	101
3	303	2019-02-22	2019-03-15	2019-03-22	2019-04-01	17	7	5	66	103
4	304	2018-08-17	2018-10-15	2018-10-24	2018-10-24	9	9	7	87	105
5	305	2018-10-23	2018-11-10	2018-11-13	2018-11-13	3	3	10	130	107
6	306	2018-09-21	2018-11-22	2018-11-23	2018-11-26	4	1	9	115	102
7	307	2019-02-20	2019-04-23	2019-04-28	2019-04-28	5	5	9	117	106
8	308	2018-06-15	2018-09-01	2018-09-07	2018-09-07	6	6	8	109	104
9	309	2019-02-20	2019-05-15	2019-05-19	NULL	15	4	11	155	108
10	310	2018-04-23	2019-05-15	2019-05-25	NULL	15	10	17	235	110
11	311	2019-01-18	2019-04-23	2019-05-01	2019-05-02	9	8	13	179	119
12	312	2019-03-21	2019-05-23	2019-06-02	NULL	7	10	12	162	112
13	313	2018-10-22	2018-12-10	2018-12-18	2018-12-14	4	8	4	151	109
14	314	2018-05-30	2018-08-31	2018-09-07	2018-09-07	7	7	1	1	113
15	315	2019-01-23	2019-05-28	2019-05-30	2019-05-30	2	2	2	28	111
16	316	2018-12-22	2019-02-22	2019-02-26	2019-02-26	4	4	10	141	114
17	317	2019-01-05	2019-05-25	2019-05-29	NULL	5	4	12	168	109
18	318	2019-03-06	2019-04-23	2019-04-30	2019-04-30	7	7	15	199	117
19	319	2019-01-20	2019-05-10	2019-05-11	NULL	20	1	17	230	116
20	320	2019-02-20	2019-05-20	2019-05-28	NULL	10	8	16	215	109

In_PT_Number	Date_registered	In_Date	Expected_Out_Date	Actual_Out_Date	Duration_of_Stay	Expected_Duration_of_Stay	Ward_Number	Bed_Number	PT_Number

1. List the details of nurses allocated at *orthopaedic* ward.

```
select* from Nurse
where Ward_Number in (select Ward_Number from Ward where Ward_Name = 'Orthopaedic')
```

	Nurse_Number	First_Name	Last_Name	Tel_Number	D_O_B	Full_Address	Gender	Position	Salary	Staff_Number	Ward_Number
1	709	Tyreese	Sullivan	013-5712393	1983-03-29	No. 8-2, Jalan Radin Anum, Taman Sri Petaling 57000 ...	Male	General Nurse	3000	614	3
2	712	Eliana	Knights	0112-7299183	1980-01-25	57-2 Jalan Sulaiman 3 Taman Putra Sulaiman 68000 A...	Female	General Nurse	3000	610	3
3	715	Irfan	Dougherty	017-9837294	1981-05-02	A 10 Jln 30A/146 Taman Desa Tasik 57000 Wilayah ...	Female	Head Nurse	3000	613	3

2. List the details of patients referred to the out-patient clinic.

```
select*from Patient
where PT_Number in (select PT_Number from Out_Patient )
```

	PT_Number	First_Name	Last_Name	Gender	Tel_Number	Address	Marital_Status	D_O_B	NK_Number	Staff_Number
1	101	Hubert	Oakley	Male	016-2948642	26 Jln Kesuma 4 Taman Kesuma Ampang 68000 Malaysia	Single	1974-10-21	202	603
2	102	Ariadne	Alford	Female	017-59264642	1 20 Jln Bunga Tanjung 8A Taman Muda 56100 Wilaya...	Single	1965-12-02	201	615
3	103	Eliana	Hutchinson	Female	019-1453542	1200 Jln 11 Kampung Baru Ampang 68000 Ampang Mal...	Single	1999-02-01	218	612
4	105	Hallie	Mayo	Female	019-2957382	2 31 Jln 3/108C Taman Sungai Besi 57100 Wilayah Per...	Single	1967-09-11	203	613
5	111	Bianka	Rosario	Female	012-4729472	30-4-01 Jln Radin Anum Taman Seri Petaling 57000 Kual...	Single	1954-02-28	217	605
6	112	Katrina	Banks	Female	017-2837392	47 2 Jln 8/146 Bandar Tasik Selatan 57000 Wilayah Per...	Married	1965-09-29	219	611
7	113	Tyrique	Neville	Female	019-0381937	lot 1403a, 14th floor wisma cosway 88 jalan raja chulan, ...	Single	1962-08-02	215	613
8	115	Bentley	Bishop	Male	012-3829372	220 Jalan Pasai Sri Petaling 57000 Wilayah Persekutuan...	Married	1990-03-23	212	610
9	116	Camron	Cruz	Male	015-2828483	31-3 Jln 8/146 Bandar Tasik Selatan 57000 Kuala Lumpur	Single	1996-07-25	204	608
10	118	Lily-May	Emerson	Female	016-9201002	F-11-2 Endah Villa Condominium, Jalan 2/149B, Sri Petal...	Married	1993-11-16	216	612
11	120	Acacia	Richardson	Male	012-3456789	128-3, Jalan Radin Anum 1, Bandar Sri Petaling Wilayah ...	Married	1983-10-05	214	608

3. Identify the total number of nurses and the sum of their salaries.

```
select count (Nurse_Number) as TOTAL_NURSE, sum(Salary) as TOTAL_SALARY from Nurse
```

	TOTAL_NURSE	TOTAL_SALARY
1	51	161000

4. List the name of each Head Nurse at each ward, ordered by ward name.

```
select First_Name, Last_Name, Ward_Name from Nurse
join Ward on Nurse.Ward_Number = Ward.Ward_Number
where Position = 'Head Nurse'
order by Ward_Name asc
```

	First_Name	Last_Name	Ward_Name
1	Kiki	Enriquez	Cardiology
2	Lilly-May	Robson	Cardiovascular
3	Jordon	Arnold	Colloquially
4	Yash	Daugherty	Dentistry
5	Isla-Mae	Goddard	Dermatology
6	Tamia	Summers	Emergency
7	Jaden	Oneill	Gynaecology
8	Macauly	Langley	Maternity
9	Oskar	Chadwick	Neonatal
10	Inez	Hope	Neurology
11	Emmy	Obrien	Obstetrics
12	Hayley	Vance	Oncology
13	Irfan	Dougherty	Orthopaedic
14	Khadijah	Higgs	Paediatric
15	GUto	Gardner	Psychiatric
16	Mateusz	Salt	Rehabilitation
17	Meghan	Brown	Surgery

5. List the details of patients that were allocated at the cardiology ward.

```
select Patient.* from Patient
inner join In_Patient on Patient.PT_Number = In_Patient.PT_Number
where Ward_Number in (select Ward_Number from Ward where Ward_Name = 'Cardiology')
```

	PT_Number	First_Name	Last_Name	Gender	Tel_Number	Address	Marital_Status	D_O_B	NK_Number	Staff_Number
1	109	Albie	Rossi	Male	017-5929294	18th Floor Plaza MCB CKT Raja Chulan 50200 Wilay...	Single	1987-01-29	208	615

6. Identify the total number patients allocated at each ward, categorised by gender.

```
select count(Patient.PT_Number) as TOTAL_PATIENT,Patient.Gender,Ward.Ward_Name from In_Patient
inner join Patient on In_Patient.PT_Number = Patient.PT_Number
inner join Ward on In_Patient.Ward_Number = Ward.Ward_Number
group by Ward_Name, Patient.Gender
```

	TOTAL_PATIENT	Gender	Ward_Name
1	1	Female	Cardiovascular
2	1	Female	Emergency
3	1	Female	Maternity
4	1	Female	Neurology
5	1	Female	Obstetrics
6	1	Female	Oncology
7	1	Female	Paediatric
8	1	Female	Psychiatric
9	1	Female	Surgery
10	1	Male	Cardiology
11	1	Male	Colloquially
12	1	Male	Dentistry
13	1	Male	Emergency
14	2	Male	Gynaecology
15	1	Male	Maternity
16	1	Male	Obstetrics
17	1	Male	Orthopaedic
18	1	Male	Rehabilitation
19	1	Male	Surgery

7. List the number of currently available beds that are allocated in the neurology ward.

```
select Bed.*from Bed
Inner join Ward on Ward.Ward_Number = Bed.Ward_Number
Where Ward_Name= 'Neurology'
And
Bed.Bed_Number <> (select B.Bed_Number from Bed B
                   Inner join  In_Patient I ON I.Bed_Number=B.Bed_Number
                   Inner join Ward W on I.Ward_Number = W.Ward_Number
                   Where Ward_Name = 'Neurology');
```

	Bed_Number	Ward_Number
1	56	5
2	57	5
3	58	5
4	59	5
5	60	5
6	61	5
7	62	5
8	63	5
9	64	5
10	65	5
11	67	5
12	68	5
13	69	5
14	70	5
15	71	5

8. List the total number of patients who had an appointment with Dr Helen Cho.

```
select count(Patient.PT_Number) as Total_Patient from Appointment
inner join Patient on Patient.PT_Number = Appointment.PT_Number
inner join Doctor on Doctor.Staff_Number = Appointment.Staff_Number
where Doctor.Full_Name = 'Helen Cho'
group by Appointment.Staff_Number
```

	Total_Patient
1	3

9. List the details of patients whose stays at the hospital exceed the expected duration of stays at the ward, ordered by patient's name.

```
select Patient.* from Patient
inner join In_Patient on In_Patient.PT_Number = Patient.PT_Number
where In_Patient.Expected_Duration_of_Stay > In_Patient.Duration_of_Stay;
```

	PT_Number	First_Name	Last_Name	Gender	Tel_Number	Address	Marital_Status	D_O_B	NK_Number	Staff_Number
1	109	Albie	Rossi	Male	017-5929294	18th Floor Plaza MCB CKT Raja Chulan 50200 Wilayah ...	Single	1987-01-29	208	615
2	101	Hubert	Oakley	Male	016-2948642	26 Jln Kesuma 4 Taman Kesuma Ampang 68000 Malaysia	Single	1974-10-21	202	603
3	112	Katrina	Banks	Female	017-2837392	47 2 Jln 8/146 Bandar Tasik Selatan 57000 Wilayah Pe...	Married	1965-09-29	219	611
4	109	Albie	Rossi	Male	017-5929294	18th Floor Plaza MCB CKT Raja Chulan 50200 Wilayah ...	Single	1987-01-29	208	615

10. List the next-of-kin's details of all patients whose marital status is single, ordered by patient's name.

```
select Next_Of_Kin.* , Patient.First_Name , Patient.Last_Name , Patient.Marital_Status from Next_of_Kin
inner join Patient on Patient.NK_Number = Next_of_Kin.NK_Number
where Patient.Marital_Status = 'Single'
order by Patient.First_Name asc
```

	NK_Number	NK_Full_Name	NK_Address	NK_Tel_Number	NK_Relation_with_PT	First_Name	Last_Name	Marital_Status
1	208	Denis Wicks	58 Jln 38 Kampung Cheras Baru 56100 Wilayah Persekut...	013-2369323	Sibling	Albie	Rossi	Single
2	201	Pauline Macfarlane	368 4 Jln Sg Besi Bt 3 1/2 57100 Wilayah Persekutuan 5...	012-4281256	Father	Ariadne	Alford	Single
3	217	Simra Hutchings	Lot 146 Jalan Ampang Bukit Belacan Ampang 68000 Mal...	017-9382912	Mother	Bianka	Rosario	Single
4	204	Cem Bourne	1262 Jalan 11 Kampung Baru Ampang 68000 Ampang M...	0112-4278656	Guardian	Camron	Cruz	Single
5	213	Giselle Workman	37 Jln Manis 4 Taman Segar 56100 Wilayah Persekutua...	019-2834820	Mother	Chenai	Cortes	Single
6	218	Franky Cleveland	No. 1 Jln Indah 26 Taman Cheras Indah Wilayah Persek...	019-9283930	Mother	Eliana	Hutchinson	Single
7	206	Jayne Senior	B6 2 Jln Ampang Utama 2/2 Taman Ampang Utama 680...	013-3938531	Father	Ellise	Hirst	Single
8	203	Zeenat Bentley	91-2, 2nd floor jalan radin tengah bandar baru seri petalin...	017-8245621	Sibling	Hallie	Mayo	Single
9	202	Brendan Shah	6020 Cyberview Garden 63000 Cyberjaya	013-1273492	Mother	Hubert	Oakley	Single
10	207	Jordan Nicholls	Gerai Masjid Seri Petaling 5 Jln Radin Taman Seri Petalin...	017-4088865	Mother	Jazmyn	Kaye	Single
11	205	Sidrah Booth	No 11 Jalan Desa Aman 9 Taman Desa Aman 5Th Mile 5...	019-1467532	Sibling	Jimmy	Couch	Single
12	220	Nikola Strickland	Ground Floor Plaza Ampang Jaya Jln Mewah 5 Taman A...	012-5692974	Sibling	Klara	Galvan	Single
13	211	Willow Alford	14 Lrg Bunga Melati 2A Taman Maju Jaya 56100 Wilaya...	0192482222	Father	Terri	Redman	Single
14	215	Destiny Hicks	29-1 Jln 20B/146 Taman Desa Tasik 57000 Wilayah Per...	017-2802749	Sibling	Tyrique	Neville	Single
15	209	Ehsan Connelly	6020 Cyberview Garden 63000 Cyberjaya	012-4325926	Sibling	Winston	Britt	Single

9.0 Workload Matrix

	Lau JunHong	Chan Jia Le	Chua Ket Yit	Chen Chee Kin
Introduction of the database system	25%	25%	25%	25%
Business Rules	25%	25%	25%	25%
ER Modelling	25%	25%	25%	25%
Normalisation Process	25%	25%	25%	25%
Database Schema / Diagram	25%	25%	25%	25%
Tables implemented	25%	25%	25%	25%
Data Dictionary	25%	25%	25%	25%
SQL Statements a. Data Definition Language (DDL) b. Data Manipulation Language (DML)	25%	25%	25%	25%
Signature				

10.0 Reference

Chapple, M. (2019). What Are Schemas and What Is Their Relationship to Databases?. [online] Lifewire. Available at: https://www.lifewire.com/definition-of-a-schema-in-a-database-1019262 [Accessed 19 May 2019].

Etutorials.org. (2019). *What Are Business Rules?*. [online] Available at: http://etutorials.org/SQL/Database+design+for+mere+mortals/Part+II+The+Design+Process/Chapter+11.+Business+Rules/What+Are+Business+Rules/ [Accessed 24 Apr. 2019].

Techopedia.com. (2019). What is First Normal Form (1NF)? - Definition from Techopedia. [online] Available at: https://www.techopedia.com/definition/25955/first-normal-form-1nf [Accessed 8 May 2019].

Group Component
Total : _____ /70

PART A: Group Marks (40%)	FAIL	MARGINAL FAIL	PASS	CREDIT	DISTINCTION
Documentation (10 marks)	No/little evidence of documentation / hardcopy submitted	Major missing components, poor document content and standards. Incomplete deliverables.	Average documentation with logical errors. Irregular standards applied. Partially missing contents	Very minimal errors in formats and standard of documentation. All content fully documented according to requirements, minor issues on references.	Quality document with no errors in formats and standard of documentation. All content fully documented according to requirements, well referenced.
Marks	0 1 2 3	4	5 6	7	8 9 10
Business Rule (10 marks)	Poor understanding of the business rules. Irrelevance business rules with requirements.	Some understanding of the business rules. Some business rules do not match the requirements.	Sound understanding of the business rules. Most business rules match the requirements.	Good understanding of the business rules. Relevant business rules with requirements.	Excellent understanding of the business rules. All business rules fully comply with the requirements.
Marks	0 1 2 3	4	5 6	7	8 9 10
Database schema and tables implemented (15 marks)	No/little evidence in documentation or softcopy.	Database implemented but contains no integrity constraints and/or contains major errors. No justifications given. Schema not documented.	Database implemented with minimal integrity constraints. Justifications given but poor. Referential Integrity has error, tables partially matches ERD proposed	Database implemented with appropriate integrity constraints but with some minor errors and/or omissions. ERD proposed matches the table implemented.	Database implemented with almost comprehensive integrity constraints and good justifications provided. Well-structured table implementation reflecting ERD.
Marks	0 1 2 3 4 5	6 7	8 9	10 11	12 13 14 15
ER Modelling	No evidence in report	ERD missing major	ERD contains some	ERD has minor errors.	ERD contains hardly any
(10 marks)	or softcopy/ Incomplete ERD / individual relation missing Business rules missing or irrelevant to case study and database design proposed	constraints & attributes. Assumptions do not reflect the scenario as a complete system. Major limitation on business rules / incorrect analysis on case study. Incomplete business rules	errors and/or omissions of attributes & constraints. Assumptions acceptable with limitation. Minimal business rules stated with missing constraints and important analysis.	Assumptions logical but has limitations on relationship. Good analysis on functionalities & constraints. Adequate assumptions. Minor error found	errors. Assumptions logical and comprehensive. Excellent business rule statement. Demonstrated critical analysis
Marks	0 1 2 3	4	5 6	7	8 9 10
Normalization and logical mapping (15 marks)	No/little evidence in documentation or softcopy. Student did not attempt normalization.	Mapping and normalization contain many errors and/or omissions. Does not reflect the group relational model	Minor errors in mapping. Most relations will be in 3NF but there may be some normalization issues. Integration of system relational model has limitation	Mapping done correctly but there may be some minor errors and/or omissions in the normalization illustration.	No errors in the mapping and normalization carried out correctly with appropriate explanations.
Marks	0 1 2 3 4 5	6 7	8 9	10 11	12 13 14 15
Data Dictionary (10 marks)	No evidence of data dictionary / entities missing / no features described by the data dictionary	Contains minimal description of the database and the entities. Hardly any constraints found	Moderate representation with some elements missing in features.	Good description of entities with some explanation on constraints, attributes and attribute values	Excellent encode of entities with relevant features, constraints, attributes and attribute values
Marks	0 1 2 3	4	5 6	7	8 9 10

Comments: _____

Student Name & ID : Chua Ket Yik (TP053611) Individual Score:_____

Individual Component

Total : _____ /30

PART B: Individual Marks (60%)	FAIL	MARGINAL FAIL	PASS	CREDIT	DISTINCTION
Understanding & Problem Analysis (10 marks)	Demonstrates poor understanding of problem. Explanations will be limited and likely to be insufficient to demonstrate that the student understands the work.	Demonstrates limited understanding of problem. Explanations will be limited but sufficient to demonstrate that the student has some very basic understanding of the problem.	Demonstrates adequate understanding of the problem. Some explanations given but likely to be insufficient to demonstrate that the student understands to a reasonable depth.	Demonstrates good understanding of the problem. Satisfactory explanations given and will be able to demonstrate that the student understands to a reasonable depth.	Demonstrates excellent understanding of the problem. Good explanations given and will be able to demonstrate in-depth understanding of the work
Marks	0 1 2 3	4	5 6	7	8 9 10
SQL - Data Definition Language (10 marks)	DDL not attempted. ** Or no participation evidence in table development	DDL attempted but does not function correctly.	Table definition created with minimal settings. Constraints on attributes partially / not implemented	Table definition found with appropriate constraints and complete attributes. Data types & formats not well used	Excellent data definition with appropriate constraints, data types, formats and integrity rules applied
Marks	0 1 2 3	4	5 6	7	8 9 10
SQL - Data Manipulation Language (10 marks)	DML not attempted. ** Or no participation evidence in web query development	DML Query attempted but does not function correctly.	Query functions correctly. Allows searching by single field only. Search results poorly displayed.	Query functions correctly. Allows searching by multiple fields & tables. Search results not-well displayed.	Query functions correctly. Allows searching by multiple fields & tables. Search results well displayed.
Marks	0 1 2 3	4	5 6	7	8 9 10

Comments: _____

Student Name & ID : Chen Chee Kin (TP053224) Individual Score:_____

Individual Component

Total : _____ /30

PART B: Individual Marks (60%)	FAIL	MARGINAL FAIL	PASS	CREDIT	DISTINCTION
Understanding & Problem Analysis (10 marks)	Demonstrates poor understanding of problem. Explanations will be limited and likely to be insufficient to demonstrate that the student understands the work.	Demonstrates limited understanding of problem. Explanations will be limited but sufficient to demonstrate that the student has some very basic understanding of the problem.	Demonstrates adequate understanding of the problem. Some explanations given but likely to be insufficient to demonstrate that the student understands to a reasonable depth.	Demonstrates good understanding of the problem. Satisfactory explanations given and will be able to demonstrate that the student understands to a reasonable depth.	Demonstrates excellent understanding of the problem. Good explanations given and will be able to demonstrate in-depth understanding of the work
Marks	0 1 2 3	4	5 6	7	8 9 10
SQL - Data Definition Language (10 marks)	DDL not attempted. ** Or no participation evidence in table development	DDL attempted but does not function correctly.	Table definition created with minimal settings. Constraints on attributes partially / not implemented	Table definition found with appropriate constraints and complete attributes. Data types & formats not well used	Excellent data definition with appropriate constraints, data types, formats and integrity rules applied
Marks	0 1 2 3	4	5 6	7	8 9 10
SQL - Data Manipulation Language (10 marks)	DML not attempted. ** Or no participation evidence in web query development	DML Query attempted but does not function correctly.	Query functions correctly. Allows searching by single field only. Search results poorly displayed.	Query functions correctly. Allows searching by multiple fields & tables. Search results not-well displayed.	Query functions correctly. Allows searching by multiple fields & tables. Search results well displayed.
Marks	0 1 2 3	4	5 6	7	8 9 10

Comments: _____

Student Name & ID : Lau JunHong (TP051830) Individual Score:_____

Individual Component

Total : _____ /30

PART B: Individual Marks (60%)	FAIL	MARGINAL FAIL	PASS	CREDIT	DISTINCTION
Understanding & Problem Analysis (10 marks)	Demonstrates poor understanding of problem. Explanations will be limited and likely to be insufficient to demonstrate that the student understands the work.	Demonstrates limited understanding of problem. Explanations will be limited but sufficient to demonstrate that the student has some very basic understanding of the problem.	Demonstrates adequate understanding of the problem. Some explanations given but likely to be insufficient to demonstrate that the student understands to a reasonable depth.	Demonstrates good understanding of the problem. Satisfactory explanations given and will be able to demonstrate that the student understands to a reasonable depth.	Demonstrates excellent understanding of the problem. Good explanations given and will be able to demonstrate in-depth understanding of the work
Marks	0 1 2 3	4	5 6	7	8 9 10
SQL - Data Definition Language (10 marks)	DDL not attempted. ** Or no participation evidence in table development	DDL attempted but does not function correctly.	Table definition created with minimal settings. Constraints on attributes partially / not implemented	Table definition found with appropriate constraints and complete attributes. Data types & formats not well used	Excellent data definition with appropriate constraints, data types, formats and integrity rules applied
Marks	0 1 2 3	4	5 6	7	8 9 10
SQL - Data Manipulation Language (10 marks)	DML not attempted. ** Or no participation evidence in web query development	DML Query attempted but does not function correctly.	Query functions correctly. Allows searching by single field only. Search results poorly displayed.	Query functions correctly. Allows searching by multiple fields & tables. Search results not-well displayed.	Query functions correctly. Allows searching by multiple fields & tables. Search results well displayed.
Marks	0 1 2 3	4	5 6	7	8 9 10

Comments: _____

Student Name & ID : Chan Jia Le (TP49952) Individual Score:_____

Individual Component

Total : _____ /30

PART B: Individual Marks (60%)	FAIL	MARGINAL FAIL	PASS	CREDIT	DISTINCTION
Understanding & Problem Analysis (10 marks)	Demonstrates poor understanding of problem. Explanations will be limited and likely to be insufficient to demonstrate that the student understands the work.	Demonstrates limited understanding of problem. Explanations will be limited but sufficient to demonstrate that the student has some very basic understanding of the problem.	Demonstrates adequate understanding of the problem. Some explanations given but likely to be insufficient to demonstrate that the student understands to a reasonable depth.	Demonstrates good understanding of the problem. Satisfactory explanations given and will be able to demonstrate that the student understands to a reasonable depth.	Demonstrates excellent understanding of the problem. Good explanations given and will be able to demonstrate in-depth understanding of the work
Marks	0 1 2 3	4	5 6	7	8 9 10
SQL - Data Definition Language (10 marks)	DDL not attempted. ** Or no participation evidence in table development	DDL attempted but does not function correctly.	Table definition created with minimal settings. Constraints on attributes partially / not implemented	Table definition found with appropriate constraints and complete attributes. Data types & formats not well used	Excellent data definition with appropriate constraints, data types, formats and integrity rules applied
Marks	0 1 2 3	4	5 6	7	8 9 10
SQL - Data Manipulation Language (10 marks)	DML not attempted. ** Or no participation evidence in web query development	DML Query attempted but does not function correctly.	Query functions correctly. Allows searching by single field only. Search results poorly displayed.	Query functions correctly. Allows searching by multiple fields & tables. Search results not-well displayed.	Query functions correctly. Allows searching by multiple fields & tables. Search results well displayed.
Marks	0 1 2 3	4	5 6	7	8 9 10

Comments: _____