



**STID3024 DATABASE SYSTEM AND INFORMATION  
RETRIEVAL  
Semester I Session 2022/2023 (A221)**

**Hospital Sultanah Bahiyah Database System**

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### **a. Business Rule**

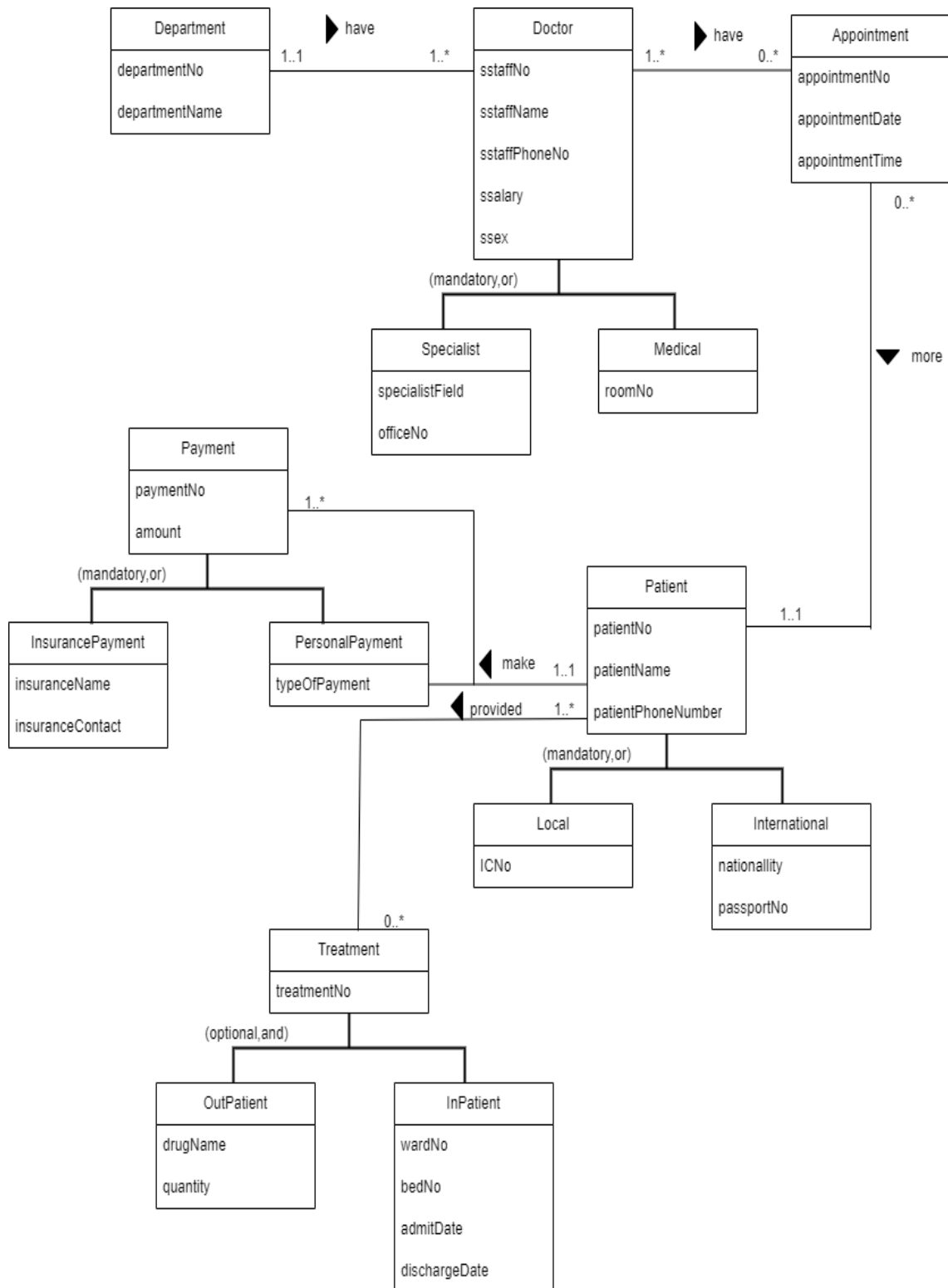
Hospital Sultanah Bahiyah is located in Kedah and comprises of various departments, each with a unique department number and name. Each department has one or multiple doctors, but a doctor can only belong to one department. A doctor is made up of a staff number, name, phone number, salary, and sex, and can be classified as either a specialist or a medical doctor. Specialists have a specific field and office number, while medical doctors have a room number.

Doctors can have zero or multiple appointments, each with a unique appointment number, date, and time. An appointment can have one or multiple doctors, but only one patient. Patients can have zero or multiple appointments and are classified as either local or international. Local patients have an IC number, while international patients have a nationality and passport number.

Patients can receive zero or multiple treatments, which can be given to one or multiple patients. Treatments are classified as inpatient or outpatient. Inpatient care includes a ward number, bed number, admit date, and discharge date, while outpatient care includes a drug name and quantity. After receiving treatment or consulting with a doctor, patients need to make payments, which consist of a payment number and amount. Payments can be made through insurance or personal payment. Insurance payments include the insurance company's name and contact information, while personal payments include the type of payment.

## b. ERD and Relational Model

### ii. ERD



## ii. Relational Model

Department (departmentNo, departmentName)

Primary Key    departmentNo

DoctorSpecialist (sstaffNo, sstaffName, sstaffPhoneNo, ssalary, ssex)

Primary Key    sstaffNo

Foreign Key    departmentNo

DoctorMedical (mstaffNo, mstaffName, mstaffPhoneNo, msalary, roomNo, departmentNo)

Primary Key    mstaffNo

Foreign Key    departmentNo reference Department (departmentNo)

Appointment (appointment No, appointmentDate, appointmentTime, sstaffNo, mstaffNo, patientNo)

Primary Key    appointmentNo

Foreign Key    sstaffNo reference DoctorSpecialist (sstaffNo)

Foreign Key    mstaffNo reference DoctorMedical (mstaffNo)

Foreign Key    patientNo reference Patient (patientNo)

LocalPatient (lpatientNo, lpatientName, lpatientPhoneNo, lpatientIC)

Primary Key    lpatientNo

InternationalPatient (ipatientNo, ipatientName, ipatientPhoneNo, Nationality, passportNo)

Primary Key    ipatientNo

Treatment (treatmentNo, patientNo)

Primary Key     treatmentNo  
Foreign Key     patientNo reference Patient (patientNo)

TreatmentDetails (treatmentNo, patientNo, drugName, quantity, wardNo, bedNo, admitDate, dischargeDate)

Primary Key     treatmentNo  
Foreign Key     treatmentNo reference Treatment ( treatmentNo)  
Foreign Key     patientNo reference Patient (patientNo)

InsurancePayment (ipaymentNo, iamount, insuranceName, insuranceContact, patientNo)

Primary Key     ipaymentNo  
Foreign Key     patientNo reference Patient (patientNo)

PersonalPayment (ppaymentNo, pamount, typeOfPayment, patientNo)

Primary Key     ppaymentNo  
Foreign Key     patientNo reference Patient (patientNo)

### c. Queries and output of the database

#### i. Create tables queries for all table

```
CREATE TABLE Department (  
  departmentNo      INT NOT NULL,  
  departmentName    VARCHAR(25) NOT NULL,  
  PRIMARY KEY (departmentNo)  
);
```

```
CREATE TABLE SpecialistDoctor (  
  sstaffNo          INT NOT NULL,  
  sstaffName        VARCHAR(25) NOT NULL,  
  ssex              CHAR  
                  CONSTRAINT Staff_sex  
                  CHECK (ssex IN ('M', 'F')),  
  sstaffPhoneNo     VARCHAR(15) NOT NULL,  
  ssalary            DECIMAL(9,2) NOT NULL,  
  specialistField    VARCHAR(50) NOT NULL,  
  officeNo          VARCHAR(5) NOT NULL,  
  departmentNo      INT NOT NULL,  
  PRIMARY KEY (sstaffNo),
```

```

        FOREIGN KEY (departmentNo)
        REFERENCES Department(departmentNo)
    );

```

```

CREATE TABLE MedicalDoctor (
    mstaffNo    INT NOT NULL,
    mstaffName  VARCHAR(25) NOT NULL,
    msex        CHAR
        CONSTRAINT Staff_sexCHK
        CHECK (msex IN ('M', 'F')),
    mstaffPhoneNo VARCHAR(15) NOT NULL,
    msalary     DECIMAL(9,2) NOT NULL,
    roomNo      VARCHAR(5) NOT NULL,
    departmentNo INT NOT NULL,
    PRIMARY KEY (mstaffNo),
    FOREIGN KEY (departmentNo)
    REFERENCES Department(departmentNo)
);

```

```

CREATE TABLE LocalPatient(
    lpatientNo    INT NOT NULL,
    lpatientName  VARCHAR(25) NOT NULL,
    lpatientPhoneNo VARCHAR(15) NOT NULL,
    icNo          VARCHAR(12) NOT NULL
    PRIMARY KEY (lpatientNo),
);

```

```

CREATE TABLE InternationalPatient(
    ipatientNo    INT NOT NULL,
    ipatientName  VARCHAR(25) NOT NULL,
    ipatientPhoneNo VARCHAR(15) NOT NULL,
    nationality    VARCHAR(20) NOT NULL,
    passportNo    VARCHAR(20) NOT NULL,
    PRIMARY KEY (ipatientNo),
);

```

```

CREATE TABLE Appointment(
    appointmentNo INT NOT NULL,
    appointmentDate DATE NOT NULL,
    appointmentTime TIME NOT NULL,
    sstaffNo      INT,
    mstaffNo      INT,
    lpatientNo    INT ,
    ipatientNo    INT,

    PRIMARY KEY (appointmentNo),

    FOREIGN KEY (sstaffNo)
    REFERENCES SpecialistDoctor(sstaffNo),

    FOREIGN KEY (mstaffNo)
    REFERENCES MedicalDoctor(mstaffNo),

    FOREIGN KEY (lpatientNo)
    REFERENCES LocalPatient(lpatientNo),

```

```

        FOREIGN KEY (ipatientNo)
            REFERENCES InternationalPatient(ipatientNo),
    );

```

```

CREATE TABLE Treatment(
    treatmentNo INT NOT NULL,
    ipatientNo INT,
    lpatientNo INT,
    PRIMARY KEY (treatmentNo),
        FOREIGN KEY (lpatientNo)
            REFERENCES LocalPatient(lpatientNo),

        FOREIGN KEY (ipatientNo)
            REFERENCES InternationalPatient(ipatientNo),
    );

```

```

CREATE TABLE TreatmentDetails (
    treatmentNo INT NOT NULL,
    wardNo INT,
    bedNo INT,
    admitDate DATE,
    dischargedDate DATE,
    drugNo VARCHAR(5),
    quantity INT,

    PRIMARY KEY (treatmentNo),
        FOREIGN KEY (treatmentNo)
            REFERENCES Treatment(treatmentNo),

    );

```

```

CREATE TABLE LocalPatientTreatment(
    lpatientNo INT NOT NULL,
    treatmentNo INT NOT NULL,

    PRIMARY KEY (lpatientNo, treatmentNo),

        FOREIGN KEY (lpatientNo)
            REFERENCES LocalPatient(lpatientNo),

        FOREIGN KEY (treatmentNo)
            REFERENCES Treatment(treatmentNo),

    );

```

```

CREATE TABLE InternationalPatientTreatment(
    ipatientNo INT NOT NULL,
    treatmentNo INT NOT NULL,

    PRIMARY KEY (ipatientNo, treatmentNo),

        FOREIGN KEY (ipatientNo)
            REFERENCES InternationalPatient(ipatientNo),

```

```

        FOREIGN KEY (treatmentNo)
        REFERENCES Treatment(treatmentNo),
    );

CREATE TABLE InsurancePayment(
    ipaymentNo INT NOT NULL,
    amount VARCHAR(10) NOT NULL,
    ipatientNo INT,
    lpatientNo INT,
    insuranceName VARCHAR(20) NOT NULL,
    InsuranceContact VARCHAR(15) NOT NULL,

    PRIMARY KEY (ipaymentNo),
    FOREIGN KEY (ipatientNo)
    REFERENCES InternationalPatient(ipatientNo),

    FOREIGN KEY (lpatientNo)
    REFERENCES LocalPatient(lpatientNo),
);

CREATE TABLE PersonalPayment(
    ipaymentNo INT NOT NULL,
    amount VARCHAR(10) NOT NULL,
    ipatientNo INT,
    lpatientNo INT,
    typeOfPayment VARCHAR(10) NOT NULL,

    PRIMARY KEY (ipaymentNo),
    FOREIGN KEY (ipatientNo)
    REFERENCES InternationalPatient(ipatientNo),

    FOREIGN KEY (lpatientNo)
    REFERENCES LocalPatient(lpatientNo),
);

```

## ii. Altering insurancePayment table by changing data type of amount from Var Char to Decimal.

Queries:

```

ALTER TABLE insurancePayment
alter column amount Decimal(9,2);

```

Result:



	ipaymentNo	amount	ipatientNo	ipatientNo	insuranceName	InsuranceContact
1	909	90000	5020	NULL	AMAX Insurance	98092011
2	910	800	NULL	1020	Etiga Takaful	98799877
3	911	7877	5021	NULL	AXA Insurance	8981231
4	912	17000	NULL	1021	Prudential	91241234
5	913	8981	NULL	1024	Etiga Takaful	98799877
6	914	10400	5024	NULL	AXA Insurance	8981231
7	915	11819	5025	NULL	Zurich	89812412
8	916	13238	5026	NULL	Aetna International	78672421
9	917	14657	NULL	1026	Etiga Takaful	98799877
10	918	16076	NULL	1029	FWD Takaful	9782355
11	919	17495	NULL	1030	PruBSN	45801283
12	920	18914	5028	NULL	AXA Insurance	8981231
13	921	20333	NULL	1035	PruBSN	45801283
14	922	21752	NULL	1033	Etiga Takaful	98799877
15	923	23171	NULL	1040	Prudential	91241234
16	924	24590	NULL	1032	FWD Takaful	9782355

Figure 1: Before

	ipaymentNo	amount	ipatientNo	ipatientNo	insuranceName	InsuranceContact
1	909	90000.00	5020	NULL	AMAX Insurance	98092011
2	910	800.00	NULL	1020	Etiga Takaful	98799877
3	911	7877.00	5021	NULL	AXA Insurance	8981231
4	912	17000.00	NULL	1021	Prudential	91241234
5	913	8981.00	NULL	1024	Etiga Takaful	98799877
6	914	10400.00	5024	NULL	AXA Insurance	8981231
7	915	11819.00	5025	NULL	Zurich	89812412
8	916	13238.00	5026	NULL	Aetna International	78672421
9	917	14657.00	NULL	1026	Etiga Takaful	98799877
10	918	16076.00	NULL	1029	FWD Takaful	9782355
11	919	17495.00	NULL	1030	PruBSN	45801283
12	920	18914.00	5028	NULL	AXA Insurance	8981231
13	921	20333.00	NULL	1035	PruBSN	45801283
14	922	21752.00	NULL	1033	Etiga Takaful	98799877
15	923	23171.00	NULL	1040	Prudential	91241234
16	924	24590.00	NULL	1032	FWD Takaful	9782355

Figure 2: After

### iii. Inserting all data

Queries:

```
insert into Department values (111, 'A&E')
```

```
insert into Department values (112, 'Anaesthetics')
```

```
insert into Department values (113, 'Cardiology')
```

```
insert into Department values (114, 'ENT')
```

```
insert into Department values (115, 'General surgery')
```

```
insert into Department values (116, 'Neurology')
```

```
insert into Department values (117, 'O&G')
```

```
insert into Department values (118, 'Ophthalmology')
```

```
insert into SpecialistDoctor values (111,'Liam Ching Ai',  
'M','0195283105',30000.00,'Ophthalmology','B002',118)
```

```
insert into SpecialistDoctor values (112, 'Farid', 'M','019874120',  
28000.00,'General Surgery', 'B010',115)
```

```

insert into SpecialistDoctor values (113,
'Suzana','F','013472346',25000.00,'Obstetrics', 'B020',117)

insert into SpecialistDoctor values (114, 'Serivathana', 'F','017432468',
22000.00, 'Neurology', 'B015',116)

insert into SpecialistDoctor values (115, 'Lim Go
Suan','M','017325512',22000.00,'ENT', 'B008',114)

insert into SpecialistDoctor values (116, 'Iman Aqil','M',
'0137523502',20000.00,'Cardiology','B012',113)


insert into MedicalDoctor values (212,'Chong Wei Lee',
'F','019527105',12000.00,'R002',118)

insert into MedicalDoctor values (213,'Malavika',
'F','019425145',12000.00,'R002',118)

insert into MedicalDoctor values (214,'Kavinesh',
'M','013427195',10000.00,'R004',112)

insert into MedicalDoctor values (215,'Aileen',
'F','019424175',9500.00,'R005',115)

insert into MedicalDoctor values (216,'Stephenie',
'F','019574182',9000.00,'R010',117)

insert into MedicalDoctor values (217,'Mikael',
'M','0114758145',8500.00,'R012',111)

insert into MedicalDoctor values (218,'Qaysar',
'M','013584160',8000.00,'R012',111)

insert into MedicalDoctor values (219,'Afiah',
'F','019752850',8000.00,'R008',116)

insert into MedicalDoctor values (220,'Layla',
'F','019345740',8000.00,'R008',116)

insert into MedicalDoctor values (221,'Airel',
'M','01175250',95000.00,'R014',114)

insert into MedicalDoctor values (222,'Mikayla',
'F','019537445',8500.00,'R010',117)

insert into MedicalDoctor values (223,'Haidar',
'M','013245130',95000.00,'R006',113)

insert into MedicalDoctor values (224,'Aryan',
'M','013285120',7500.00,'R012',113)

```

```
insert into MedicalDoctor values (225,'Adriana',  
'F','01125845',10000.00,'R012',111)
```

```
insert into LocalPatient values (1020, 'Aini','0128473620','740203024452')
```

```
insert into LocalPatient values (1021, 'Afiq','0137542320','900308072637')
```

```
insert into LocalPatient values (1022,  
'Syaza','0195245742','960503035426')
```

```
insert into LocalPatient values (1023,  
'Liyana','0194276540','840415047642')
```

```
insert into LocalPatient values (1024, 'Aini','0128473620','880203024452')
```

```
insert into LocalPatient values (1025,  
'Fahmi','0135424212','860224042435')
```

```
insert into LocalPatient values (1026,  
'Katrina','017524762','820416027062')
```

```
insert into LocalPatient values (1027,  
'Dharani','0194672535','950512075466')
```

```
insert into LocalPatient values (1028,  
'Ailee','0114525720','780815015430')
```

```
insert into LocalPatient values (1029, 'Khai  
Wei','0139434255','861204025315')
```

```
insert into LocalPatient values (1030,  
'Arshad','0174252142','720918072731')
```

```
insert into LocalPatient values (1031,  
'Safiyah','01985427560','650709088673')
```

```
insert into LocalPatient values (1032,  
'Kairina','01734768025','621104045922')
```

```
insert into LocalPatient values (1033, 'Azri','0134562160','630712067429')
```

```
insert into LocalPatient values (1034,  
'Fauzi','01754764226','580402057845')
```

```
insert into LocalPatient values (1035,  
'Fatimah','01162595430','560618074652')
```

```
insert into LocalPatient values (1036,  
'Amri','01748529302','520428023863')
```

```
insert into LocalPatient values (1037,  
'Khairil','01374253596','550918074895')
```

```
insert into LocalPatient values (1038,  
'Raudhah','0194798530','841102043042')  
  
insert into LocalPatient values (1039,  
'Fauziah','0194525980','770625078056')  
  
insert into LocalPatient values (1040,  
'Previna','01182941052','741024066240')
```

```
insert into InternationalPatient values (5020,  
'Adam','01247234870','Ireland','827281921','M')  
  
insert into InternationalPatient values (5021,  
'Ferhad','01275235098','Indonesia','526279132','M')  
  
insert into InternationalPatient values (5022,  
'Ashley','01947232354','Australia','23919325','F')  
  
insert into InternationalPatient values (5023,  
'Catrine','01275235098','United State','526279132','F')  
  
insert into InternationalPatient values (5024,  
'Nadine','01275235098','United Kingdom','526279132','F')  
  
insert into InternationalPatient values (5025,  
'Edward','01275235098','United State','526279132','M')  
  
insert into InternationalPatient values (5026,  
'Lucas','01787412091','France','637282924','M')  
  
insert into InternationalPatient values (5027,  
'Ethan','01247234870','France','526279132','M')  
  
insert into InternationalPatient values (5028,  
'Marco','0135324985','Italy','73678625','M')
```

```
insert into Appointment values (00100,'2022-11-  
12','10:00:00.00',NULL,215,1028,NULL)  
  
insert into Appointment values (00101,'2022-11-  
14','10:30:00.00',NULL,212,1022,NULL)  
  
insert into Appointment values (00102,'2022-11-  
15','10:00:00.00',NULL,214,1025,NULL)  
  
insert into Appointment values (00103,'2022-11-  
16','10:00:00.00',NULL,215,1026,NULL)  
  
insert into Appointment values (00104,'2022-11-  
17','14:30:00.00',NULL,213,1021,NULL)
```

insert into Appointment values (00105,'2022-11-18','14:30:00.00',NULL,216,1028,NULL)

insert into Appointment values (00106,'2022-11-18','14:00:00.00',NULL,222,1022,NULL)

insert into Appointment values (00107,'2022-11-22','13:30:00.00',113,NULL,1027,NULL)

insert into Appointment values (00108,'2022-11-24','10:30:00.00',NULL,216,1038,NULL)

insert into Appointment values (00109,'2022-11-24','13:30:00.00',114,NULL,NULL,5022)

insert into Appointment values (00110,'2022-11-26','10:30:00.00',115,NULL,1032,NULL)

insert into Appointment values (00111,'2022-11-26','14:00:00.00',NULL,218,1035,NULL)

insert into Appointment values (00112,'2022-11-28','13:00:00.00',NULL,223,NULL,5028)

insert into Appointment values (00113,'2022-12-02','10:00:00.00',NULL,224,1032,NULL)

insert into Appointment values (00114,'2022-12-02','14:30:00.00',NULL,219,NULL,5021)

insert into Appointment values (00115,'2022-12-04','09:30:00.00',NULL,217,1035,NULL)

insert into Appointment values (00116,'2022-12-05','11:30:00.00',NULL,223,1023,NULL)

insert into Appointment values (00117,'2022-12-06','14:00:00.00',NULL,212,1037,NULL)

insert into Appointment values (00118,'2022-12-10','13:00:00.00',NULL,224,NULL,5023)

insert into Appointment values (00119,'2022-12-10','10:30:00.00',NULL,216,NULL,5027)

insert into Appointment values (00120,'2022-12-12','09:30:00.00',NULL,220,1029,NULL)

insert into Treatment values (2010,NULL,1024)

```
insert into Treatment values (2011,NULL,1026)
insert into Treatment values (2012,NULL,1022)
insert into Treatment values (2013,NULL,1028)
insert into Treatment values (2014,NULL,1025)
insert into Treatment values (2015,NULL,1023)
insert into Treatment values (2016,5027,NULL)
insert into Treatment values (2017,NULL,1035)
insert into Treatment values (2018,NULL,1032)
insert into Treatment values (2019,5022,NULL)
insert into Treatment values (2020,NULL,1029)
insert into Treatment values (2021,NULL,1032)
insert into Treatment values (2022,NULL,1033)
insert into Treatment values (2023,5023,NULL)
insert into Treatment values (2024,NULL,1038)
insert into Treatment values (2025,NULL,1021)
insert into Treatment values (2026,5024,NULL)
insert into Treatment values (2027,5025,NULL)
insert into Treatment values (2028,NULL,1027)
insert into Treatment values (2029,NULL,1030)
insert into Treatment values (2030,5026,NULL)
insert into Treatment values (2031,NULL,1031)
insert into Treatment values (2032,NULL,1037)
insert into Treatment values (2033,NULL,1034)
insert into Treatment values (2034,5028,NULL)
insert into Treatment values (2035,NULL,1039)
insert into Treatment values (2036,NULL,1040)
insert into Treatment values (2037,5020,NULL)
insert into Treatment values (2038,5021,NULL)
insert into Treatment values (2039,NULL,1021)
```

```

insert into TreatmentDetails values(2010,NULL,NULL,NULL,NULL,'R1728',12)
insert into TreatmentDetails values(2011,NULL,NULL,NULL,NULL,'H2325',15)
insert into TreatmentDetails values(2012,NULL,NULL,NULL,NULL,'C3246',20)
insert into TreatmentDetails values(2013,003,310,'2022-11-18','2022-11-22','G2180',12)
insert into TreatmentDetails values(2014,NULL,NULL,NULL,NULL,'R3105',15)
insert into TreatmentDetails values(2015,005,515,'2022-12-05','2022-12-07','C5400',5)
insert into TreatmentDetails values(2016,002,238,'2022-12-10','2022-12-14','R2550',10)
insert into TreatmentDetails values(2017,NULL,NULL,NULL,NULL,'R6210',10)
insert into TreatmentDetails values(2017,NULL,NULL,NULL,NULL,'C5420',15)
insert into TreatmentDetails values(2018,NULL,NULL,NULL,NULL,'R5420',10)
insert into TreatmentDetails values(2019,NULL,NULL,NULL,NULL,'C2750',10)
insert into TreatmentDetails values(2020,NULL,NULL,NULL,NULL,'R4250',10)
insert into TreatmentDetails values(2021,004,418,'2022-12-06','2022-12-11','C5650',10)
insert into TreatmentDetails values(2022,NULL,NULL,NULL,NULL,'H5450',15)
insert into TreatmentDetails values(2022,NULL,NULL,NULL,NULL,'S4320',10)
insert into TreatmentDetails values(2023,002,215,'2022-12-10','2022-12-13','H2450',10)
insert into TreatmentDetails values(2024,001,118,'2022-11-24','2022-11-30',NULL,NULL)
insert into TreatmentDetails values(2025,NULL,NULL,NULL,NULL,'H2540',10)
insert into InternationalPatientTreatment values (5027,2016)
insert into InternationalPatientTreatment values (5022,2019)
insert into InternationalPatientTreatment values (5023,2023)

insert into LocalPatientTreatment values (1024,2010)
insert into LocalPatientTreatment values (1026,2011)
insert into LocalPatientTreatment values (1022,2012)
insert into LocalPatientTreatment values (1028,2013)

```

```

insert into LocalPatientTreatment values (1025,2014)
insert into LocalPatientTreatment values (1023,2015)
insert into LocalPatientTreatment values (1037,2021)
insert into LocalPatientTreatment values (1024,2010)
insert into LocalPatientTreatment values (1032,2018)
insert into LocalPatientTreatment values (1029,2020)
insert into LocalPatientTreatment values (1037,2021)
insert into LocalPatientTreatment values (1032,2022)
insert into LocalPatientTreatment values (1038,2024)
insert into LocalPatientTreatment values (1021,2025)

```

```

INSERT INTO InsurancePayment VALUES (909, '90000', 5020, null, 'AMAX
Insurance', '98092011 ')
INSERT INTO InsurancePayment VALUES (910, '800', null, 1020, 'Etiqua
Takaful', '98799877 ')
INSERT INTO InsurancePayment VALUES (911, '7877', 5021, null, 'AXA
Insurance', '8981231 ')
INSERT INTO InsurancePayment VALUES (912, '17000', null, 1021,
'Prudential', '91241234 ')
INSERT INTO InsurancePayment VALUES (913, '8981', null, 1024, 'Etiqua
Takaful', '98799877 ')
INSERT INTO InsurancePayment VALUES (914, '10400', 5024, null, 'AXA
Insurance', '8981231 ')
INSERT INTO InsurancePayment VALUES (915, '11819', 5025, null, 'Zurich',
'89812412 ')
INSERT INTO InsurancePayment VALUES (916, '13238', 5026, null, 'Aetna
International', '78672421 ')
INSERT INTO InsurancePayment VALUES (917, '14657', null, 1026, 'Etiqua
Takaful', '98799877 ')
INSERT INTO InsurancePayment VALUES (918, '16076', null, 1029, 'FWD
Takaful', '9782355 ')
INSERT INTO InsurancePayment VALUES (919, '17495', null, 1030, 'PruBSN',
'45801283 ')

```



INSERT INTO InsurancePayment VALUES	(920, '18914', 5028, null, 'AXA Insurance', '8981231 ')
INSERT INTO InsurancePayment VALUES	(921, '20333', null, 1035, 'PruBSN', '45801283 ')
INSERT INTO InsurancePayment VALUES	(922, '21752', null, 1033, 'Etiqua Takaful', '98799877 ')
INSERT INTO InsurancePayment VALUES	(923, '23171', null, 1040, 'Prudential', '91241234 ')
INSERT INTO InsurancePayment VALUES	(924, '24590', null, 1032, 'FWD Takaful', '9782355 ')
INSERT INTO PersonalPayment VALUES	(925, '800', null, 1023, 'Cash ')
INSERT INTO PersonalPayment VALUES	(926, '7877', null, 1022, 'Cash ')
INSERT INTO PersonalPayment VALUES	(927, '17000', 5022, null, 'Debit Card ')
INSERT INTO PersonalPayment VALUES	(928, '8981', 5023, null, 'Debit Card ')
INSERT INTO PersonalPayment VALUES	(929, '10400', 5027, null, 'Debit Card ')
INSERT INTO PersonalPayment VALUES	(930, '11819', null, 1025, 'Debit Card ')
INSERT INTO PersonalPayment VALUES	(931, '13238', null, 1027, 'Debit Card ')
INSERT INTO PersonalPayment VALUES	(932, '14657', null, 1028, 'Debit Card ')
INSERT INTO PersonalPayment VALUES	(933, '16472', null, 1031, 'Debit Card ')
INSERT INTO PersonalPayment VALUES	(934, '17777', null, 1034, 'Cash ')
INSERT INTO PersonalPayment VALUES	(935, '19083', null, 1036, 'Debit Card ')
INSERT INTO PersonalPayment VALUES	(936, '20389', null, 1037, 'Cash ')
INSERT INTO PersonalPayment VALUES	(937, '21,695', null, 1038, 'Cash ')
INSERT INTO PersonalPayment VALUES	(938, '23000', null, 1039, 'Debit Card ')

Result:

Results Messages							
	appointmentNo	appointmentDate	appointmentTime	sstaffNo	mstaffNo	lpatientNo	lpatientNo
1	100	2022-11-12	10:00:00.0000000	NULL	215	1028	NULL
2	101	2022-11-14	10:30:00.0000000	NULL	212	1022	NULL
3	102	2022-11-15	10:00:00.0000000	NULL	214	1025	NULL
4	103	2022-11-16	10:00:00.0000000	NULL	215	1026	NULL
5	104	2022-11-17	14:30:00.0000000	NULL	213	1021	NULL
6	105	2022-11-18	14:30:00.0000000	NULL	216	1028	NULL
7	106	2022-11-18	14:00:00.0000000	NULL	222	1022	NULL
8	107	2022-11-22	13:30:00.0000000	113	NULL	1027	NULL
9	108	2022-11-24	10:30:00.0000000	NULL	216	1038	NULL
10	109	2022-11-24	13:30:00.0000000	114	NULL	NULL	5022
11	110	2022-11-26	10:30:00.0000000	115	NULL	1032	NULL
12	111	2022-11-26	14:00:00.0000000	NULL	218	1035	NULL
13	112	2022-11-28	13:00:00.0000000	NULL	223	NULL	5028
14	113	2022-12-02	10:00:00.0000000	NULL	224	1032	NULL
15	114	2022-12-02	14:30:00.0000000	NULL	219	NULL	5021
16	115	2022-12-04	09:30:00.0000000	NULL	217	1035	NULL
17	116	2022-12-05	11:30:00.0000000	NULL	223	1023	NULL
18	117	2022-12-06	14:00:00.0000000	NULL	212	1037	NULL
19	118	2022-12-10	13:00:00.0000000	NULL	224	NULL	5023
20	119	2022-12-10	10:30:00.0000000	NULL	216	NULL	5027
21	120	2022-12-12	09:30:00.0000000	NULL	220	1029	NULL

Figure 3: Appointment Table

Results Messages		
	departmentNo	departmentName
1	111	A&E
2	112	Anaesthetics
3	113	Cardiology
4	114	ENT
5	115	General surgery
6	116	Neurology
7	117	O&G
8	118	Ophthalmology

Figure 4: Department Table

Results Messages						
	ipaymentNo	amount	lpatientNo	lpatientNo	insuranceName	InsuranceContact
1	909	90000	5020	NULL	AMAX Insurance	98092011
2	910	800	NULL	1020	Etiqa Takaful	98799877
3	911	7877	5021	NULL	AXA Insurance	8981231
4	912	17000	NULL	1021	Prudential	91241234
5	913	8981	NULL	1024	Etiqa Takaful	98799877
6	914	10400	5024	NULL	AXA Insurance	8981231
7	915	11819	5025	NULL	Zurich	89812412
8	916	13238	5026	NULL	Aetna International	78672421
9	917	14657	NULL	1026	Etiqa Takaful	98799877
10	918	16076	NULL	1029	FWD Takaful	9782355
11	919	17495	NULL	1030	PruBSN	45801283
12	920	18914	5028	NULL	AXA Insurance	8981231
13	921	20333	NULL	1035	PruBSN	45801283
14	922	21752	NULL	1033	Etiqa Takaful	98799877
15	923	23171	NULL	1040	Prudential	91241234
16	924	24590	NULL	1032	FWD Takaful	9782355

Figure 5: InsurancePayment Table

Results Messages						
	ipatientNo	ipatientName	ipatientPhoneNo	nationality	passportNo	sex
1	5020	Adam	01247234870	Ireland	827281921	M
2	5021	Ferhad	01275235098	Indonesia	526279132	M
3	5022	Ashley	01947232354	Australia	23919325	F
4	5023	Catrine	01275235098	United State	526279132	F
5	5024	Nadine	01275235098	United Kingdom	526279132	F
6	5025	Edward	01275235098	United State	526279132	M
7	5026	Lucas	01787412091	France	637282924	M
8	5027	Ethan	01247234870	France	526279132	M
9	5028	Marco	0135324985	Italy	73678625	M

Figure 6: InternationalPatient Table

Results Messages				
	ipatientNo	ipatientName	ipatientPhoneNo	icNo
1	1020	Aini	0128473620	740203024452
2	1021	Afiq	0137542320	900308072637
3	1022	Syaza	0195245742	960503035426
4	1023	Liyana	0194276540	840415047642
5	1024	Aini	0128473620	880203024452
6	1025	Fahmi	0135424212	860224042435
7	1026	Katrina	017524762	820416027062
8	1027	Dharani	0194672535	950512075466
9	1028	Ailee	0114525720	780815015430
10	1029	Khai Wei	0139434255	861204025315
11	1030	Arshad	0174252142	720918072731
12	1031	Safiyah	01985427560	650709088673
13	1032	Kairina	01734768025	621104045922
14	1033	Azri	0134562160	630712067429
15	1034	Fauzi	01754764226	580402057845
16	1035	Fatimah	01162595430	560618074652
17	1036	Amri	01748529302	520428023863
18	1037	Khairil	01374253596	550918074895
19	1038	Raudhah	0194798530	841102043042
20	1039	Fauziah	0194525980	770625078056
21	1040	Previna	01182941052	741024066240

Figure 7: LocalPatient Table

	mstaffNo	mstaffName	msex	mstaffPhoneNo	msalary	roomNo	departmentNo
1	212	Chong Wei Lee	F	019527105	12000.00	R002	118
2	213	Malavika	F	019425145	12000.00	R002	118
3	214	Kavinessh	M	013427195	10000.00	R004	112
4	215	Aileen	F	019424175	9500.00	R005	115
5	216	Stephenie	F	019574182	9000.00	R010	117
6	217	Mikael	M	0114758145	8500.00	R012	111
7	218	Qaysar	M	013584160	8000.00	R012	111
8	219	Afiqah	F	019752850	8000.00	R008	116
9	220	Layla	F	019345740	8000.00	R008	116
10	221	Airel	M	01175250	95000.00	R014	114
11	222	Mikayla	F	019537445	8500.00	R010	117
12	223	Haidar	M	013245130	95000.00	R006	113
13	224	Aryan	M	013285120	7500.00	R012	113
14	225	Adriana	F	01125845	10000.00	R012	111

Figure 8: MedicalDoctor Table

Results		Messages			
	ipaymentNo	amount	ipatientNo	lpatientNo	typeOfPayment
1	925	800	NULL	1023	Cash
2	926	7877	NULL	1022	Cash
3	927	17000	5022	NULL	Debit Card
4	928	8981	5023	NULL	Debit Card
5	929	10400	5027	NULL	Debit Card
6	930	11819	NULL	1025	Debit Card
7	931	13238	NULL	1027	Debit Card
8	932	14657	NULL	1028	Debit Card
9	933	16472	NULL	1031	Debit Card
10	934	17777	NULL	1034	Cash
11	935	19083	NULL	1036	Debit Card
12	936	20389	NULL	1037	Cash
13	937	21,695	NULL	1038	Cash
14	938	23000	NULL	1039	Debit Card

Figure 9: PersonalPayment Table

Results		Messages						
	sstaffNo	sstaffName	ssex	sstaffPhoneNo	ssalary	specialistField	officeNo	departmentNo
1	111	Liam Ching Ai	M	0195283105	30000.00	Ophthalmology	B002	118
2	112	Farid	M	019874120	28000.00	General Surgery	B010	115
3	113	Suzana	F	013472346	25000.00	Obstetrics	B020	117
4	114	Serivathana	F	017432468	22000.00	Neurology	B015	116
5	115	Lim Go Suan	M	017325512	22000.00	ENT	B008	114
6	116	Iman Aqil	M	0137523502	20000.00	Cardiology	B012	113

Figure 10: SpecialistDoctor Table

	treatmentNo	ipatientNo	ipatientNo
7	2016	5027	NULL
8	2017	NULL	1035
9	2018	NULL	1032
10	2019	5022	NULL
11	2020	NULL	1029
12	2021	NULL	1032
13	2022	NULL	1033
14	2023	5023	NULL
15	2024	NULL	1038
16	2025	NULL	1021
17	2026	5024	NULL
18	2027	5025	NULL
19	2028	NULL	1027
20	2029	NULL	1030
21	2030	5026	NULL
22	2031	NULL	1031
23	2032	NULL	1037
24	2033	NULL	1034
25	2034	5028	NULL
26	2035	NULL	1039
27	2036	NULL	1040
28	2037	5020	NULL
29	2038	5021	NULL
30	2039	NULL	1021

Figure 11: Treatment Table

	treatmentNo	wardNo	bedNo	admitDate	dischargedDate	drugNo	quantity
1	2010	NULL	NULL	NULL	NULL	R1728	12
2	2011	NULL	NULL	NULL	NULL	H2325	15
3	2012	NULL	NULL	NULL	NULL	C3246	20
4	2013	3	310	2022-11-18	2022-11-22	G2180	12
5	2014	NULL	NULL	NULL	NULL	R3105	15
6	2015	5	515	2022-12-05	2022-12-07	C5400	5
7	2016	2	238	2022-12-10	2022-12-14	R2550	10
8	2017	NULL	NULL	NULL	NULL	R6210	10
9	2018	NULL	NULL	NULL	NULL	R5420	10
10	2019	NULL	NULL	NULL	NULL	C2750	10
11	2020	NULL	NULL	NULL	NULL	R4250	10
12	2021	4	418	2022-12-06	2022-12-11	C5650	10
13	2022	NULL	NULL	NULL	NULL	H5450	15
14	2023	2	215	2022-12-10	2022-12-13	H2450	10
15	2024	1	118	2022-11-24	2022-11-30	NULL	NULL
16	2025	NULL	NULL	NULL	NULL	H2540	10

Figure 12: TreatmentDetails Table

#### iv. Updating msalary row in medicalDoctor table. (all medical dr get 10% increament)

Query:

```
Update MedicalDoctor
set msalary = msalary+(msalary*0.1);
```

Result:

	mstaffNo	mstaffName	msex	mstaffPhoneNo	msalary	roomNo	departmentNo
1	212	Chong Wei Lee	F	019527105	12000.00	R002	118
2	213	Malavika	F	019425145	12000.00	R002	118
3	214	Kavinesh	M	013427195	10000.00	R004	112
4	215	Aileen	F	019424175	9500.00	R005	115
5	216	Stephenie	F	019574182	9000.00	R010	117
6	217	Mikael	M	0114758145	8500.00	R012	111
7	218	Qaysar	M	013584160	8000.00	R012	111
8	219	Afiqah	F	019752850	8000.00	R008	116
9	220	Layla	F	019345740	8000.00	R008	116
10	221	Airel	M	01175250	95000.00	R014	114
11	222	Mikayla	F	019537445	8500.00	R010	117
12	223	Haidar	M	013245130	95000.00	R006	113
13	224	Aryan	M	013285120	7500.00	R012	113
14	225	Adriana	F	01125845	10000.00	R012	111

Figure 13: Before update

	mstaffNo	mstaffName	msex	mstaffPhoneNo	msalary	roomNo	departmentNo
1	212	Chong Wei Lee	F	019527105	13200.00	R002	118
2	213	Malavika	F	019425145	13200.00	R002	118
3	214	Kavinesh	M	013427195	11000.00	R004	112
4	215	Aileen	F	019424175	10450.00	R005	115
5	216	Stephenie	F	019574182	9900.00	R010	117
6	217	Mikael	M	0114758145	9350.00	R012	111
7	218	Qaysar	M	013584160	8800.00	R012	111
8	219	Afiqah	F	019752850	8800.00	R008	116
9	220	Layla	F	019345740	8800.00	R008	116
10	221	Airel	M	01175250	104500.00	R014	114
11	222	Mikayla	F	019537445	9350.00	R010	117
12	223	Haidar	M	013245130	104500.00	R006	113
13	224	Aryan	M	013285120	8250.00	R012	113
14	225	Adriana	F	01125845	11000.00	R012	111

Figure 14: After Update

## v. Create FIVE VIEWS

1. SpecialistAppointmentMgnmt views which combining specialistDoctor table and appointment table

Query:

```
create view specialistAppointmentMgnmt (appointmentDate, appointmentTime, sstaffNo,
sstaffName, sstaffPhoneNo, ipatientNo, lpatientNo)
as select a.appointmentDate, a.appointmentTime,a.sstaffNo,s.sstaffName, s.sstaffPhoneNo,
a.ipatientNo, a.lPatientNo
from specialistDoctor s, appointment a
where a.sstaffNo=s.sstaffNo and a.sstaffNo is not null
group by a.appointmentDate, a.appointmentTime,a.sstaffNo,s.sstaffName, s.sstaffPhoneNo,
a.ipatientNo, a.lPatientNo;
```

Result:

	appointmentDate	appointmentTime	sstaffNo	sstaffName	sstaffPhoneNo	ipatientNo	lpatientNo
1	2022-11-22	13:30:00.0000000	113	Suzana	013472346	NULL	1027
2	2022-11-24	13:30:00.0000000	114	Serivathana	017432468	5022	NULL
3	2022-11-26	10:30:00.0000000	115	Lim Go Suan	017325512	NULL	1032

2. insuranceCoveredLocalPatient views which combining treatment table and insurance payment table

Query:

```
create view insuranceCoveredLocalPatient(lpatientNo, lpatientName, Treatment,
amountPaidByInsurance, insuranceName)
as select l.lpatientNo, l.lpatientName, t.TreatmentNo, i.amount, i.insuranceName
from localPatient l, treatment t, insurancePayment i
where l.lpatientNo=i.lPatientNo and l.lpatientNo=t.lPatientNo
group by l.lpatientNo, l.lpatientName, t.TreatmentNo, i.amount, i.insuranceName;
```

Result:

	lpatientNo	lpatientName	Treatment	amountPaidByInsurance	insuranceName
1	1024	Aini	2010	8981	Etiqa Takaful
2	1026	Katrina	2011	14657	Etiqa Takaful
3	1035	Fatimah	2017	20333	PruBSN
4	1032	Kairina	2018	24590	FWD Takaful
5	1029	Khai Wei	2020	16076	FWD Takaful
6	1032	Kairina	2021	24590	FWD Takaful
7	1033	Azri	2022	21752	Etiqa Takaful
8	1021	Afiq	2025	17000	Prudential
9	1030	Arshad	2029	17495	PruBSN
10	1040	Previna	2036	23171	Prudential
11	1021	Afiq	2039	17000	Prudential

3. medDoctorLocalAppointment views which combining appointment table medicalDoctor table and localpatient table

Query:

```
create view medDoctorLocalAppointment(staffNo, staffName, roomNo, appointmentDate,
appointmentTime, localPatientNo, localPatientName, localPatientPhoneNo)
as select m.mstaffNo, m.mstaffName, m.roomNo,
a.appointmentDate, a.appointmentTime,
l.lpatientNo, l.lpatientName, l.lpatientphoneNo
from appointment a, medicalDoctor m, localPatient l
where a.mstaffNo = m.mstaffNo and a.lpatientNo=l.lpatientNo
group by m.mstaffNo, m.mstaffName, m.roomNo,
a.appointmentDate, a.appointmentTime,
l.lpatientNo, l.lpatientName, l.lpatientphoneNo
```

Result:

Results		Messages						
	staffNo	staffName	roomNo	appointmentDate	appointmentTime	localPatientNo	localPatientName	localPatientPhoneNo
1	212	Chong Wei Lee	R002	2022-11-14	10:30:00.00000000	1022	Syaza	0195245742
2	212	Chong Wei Lee	R002	2022-12-06	14:00:00.00000000	1037	Khairil	01374253596
3	213	Malavika	R002	2022-11-17	14:30:00.00000000	1021	Afiq	0137542320
4	214	Kavinessh	R004	2022-11-15	10:00:00.00000000	1025	Fahmi	0135424212
5	215	Aileen	R005	2022-11-12	10:00:00.00000000	1028	Ailee	0114525720
6	215	Aileen	R005	2022-11-16	10:00:00.00000000	1026	Katrina	017524762
7	216	Stephenie	R010	2022-11-18	14:30:00.00000000	1028	Ailee	0114525720
8	216	Stephenie	R010	2022-11-24	10:30:00.00000000	1038	Raudhah	0194798530
9	217	Mikael	R012	2022-12-04	09:30:00.00000000	1035	Fatimah	01162595430
10	218	Qaysar	R012	2022-11-26	14:00:00.00000000	1035	Fatimah	01162595430
11	220	Layla	R008	2022-12-12	09:30:00.00000000	1029	Khai Wei	0139434255
12	222	Mikayla	R010	2022-11-18	14:00:00.00000000	1022	Syaza	0195245742
13	223	Haidar	R006	2022-12-05	11:30:00.00000000	1023	Liyana	0194276540
14	224	Aryan	R012	2022-12-02	10:00:00.00000000	1032	Kairina	01734768025

4. inPatientRecord views which combining department table, medicalDoctor table, localPatient table, treatment table, treatmentDetails table and appointment table

Query:

```
create view inPatientRecord(department, attendingDr, patientNo, patientName,
treatmentNo, wardNo, bedNo, admitDate, dischargedDate, drugNo, quantity)
as select d.departmentName, m.mstaffName, l.lpatientNo, l.lpatientName, t.treatmentNo,
td.wardNo, td.bedNo, td.admitDate, td.dischargedDate, td.drugNo, td.quantity
from department d, medicalDoctor m, localPatient l, treatment t, treatmentDetails td,
appointment a
where td.treatmentNo = t.treatmentNo
      AND l.lpatientNo=t.lpatientNo
      AND a.lpatientNo = t.lpatientNo
      AND m.mstaffNo=a.mStaffNo
      AND m.departmentNo = d.departmentNo
      AND td.wardNo is not null

group by d.departmentName, m.mstaffName, l.lpatientNo, l.lpatientName, t.treatmentNo,
td.wardNo, td.bedNo, td.admitDate, td.dischargedDate, td.drugNo, td.quantity;
```

Result:



	department	attendingDr	patientNo	patientName	treatmentNo	wardNo	bedNo	admitDate	dischargedDate	drugNo	quantity
1	Cardiology	Aryan	1032	Kairina	2021	4	418	2022-12-06	2022-12-11	C5650	10
2	Cardiology	Haidar	1023	Liyana	2015	5	515	2022-12-05	2022-12-07	C5400	5
3	General surgery	Aileen	1028	Ailee	2013	3	310	2022-11-18	2022-11-22	G2180	12
4	O&G	Stephenie	1028	Ailee	2013	3	310	2022-11-18	2022-11-22	G2180	12
5	O&G	Stephenie	1038	Raudhah	2024	1	118	2022-11-24	2022-11-30	NULL	NULL

5. DoctorsPerDepartment views which combining specialistDoctor table, medicalDoctor table and department table

Query:

```
CREATE VIEW DoctorsPerDepartment AS
SELECT Department.departmentNo, Department.departmentName,
COUNT(SpecialistDoctor.sstaffName) AS specialistCount,
COUNT(MedicalDoctor.mstaffName) AS medicalCount
FROM Department
LEFT JOIN SpecialistDoctor ON Department.departmentNo = SpecialistDoctor.departmentNo
LEFT JOIN MedicalDoctor ON Department.departmentNo = MedicalDoctor.departmentNo
GROUP BY Department.departmentNo, Department.departmentName;
```

Result:

	departmentNo	departmentName	specialistCount	medicalCount
1	111	A&E	0	3
2	112	Anaesthetics	0	1
3	113	Cardiology	2	2
4	114	ENT	1	1
5	115	General surgery	1	1
6	116	Neurology	2	2
7	117	O&G	2	2
8	118	Ophthalmology	2	2

## vi. Dropping DoctorsPerDepartment views

Query:

```
drop view DoctorsPerDepartment;
```

result:

	departmentNo	departmentName	specialistCount	medicalCount
1	111	A&E	0	3
2	112	Anaesthetics	0	1
3	113	Cardiology	2	2
4	114	ENT	1	1
5	115	General surgery	1	1
6	116	Neurology	2	2
7	117	O&G	2	2
8	118	Ophthalmology	2	2

Commands completed successfully.

Figure 15: After Drop Views

Figure 16: Before Drop Views

## vii. Create five subqueries

1. Query to find all payment made by Etiqa Takaful.

Query:

```
SELECT * from insurancePayment
where insuranceName='Etiqa Takaful';
```

Result:

	ipaymentNo	amount	ipatientNo	lpatientNo	insuranceName	InsuranceContact
1	910	800	NULL	1020	Etiqa Takaful	98799877
2	913	8981	NULL	1024	Etiqa Takaful	98799877
3	917	14657	NULL	1026	Etiqa Takaful	98799877
4	922	21752	NULL	1033	Etiqa Takaful	98799877

2. Query to find IPatientNo 1032's appointment detail

Query:

```
select appointmentNo, appointmentDate, appointmentTime
from appointment
where lpatientNo=1032;
```

Result:

	appointmentNo	appointmentDate	appointmentTime
1	110	2022-11-26	10:30:00.0000000
2	113	2022-12-02	10:00:00.0000000

3. Query to find international patient attended by Dr. Haidar.

Query:

```
select * from internationalPatient
where ipatientNo in (
  select ipatientNo from Appointment
    where mstaffNo in(
      select mstaffNo from MedicalDoctor
        where mstaffName='Haidar'))
```

Result:

	ipatientNo	ipatientName	ipatientPhoneNo	nationality	passportNo	sex
1	5028	Marco	0135324985	Italy	73678625	M

4. To find appointment details for pruBSN policyholder.

Query:

```
select * from appointment
where lpatientNo in(
```

```
select lpatientNo from insuranceCoveredLocalPatient
where insuranceName='PruBSN')
```

Result:

	appointmentNo	appointmentDate	appointmentTime	sstaffNo	mstaffNo	lpatientNo	ipatientNo
1	111	2022-11-26	14:00:00.0000000	NULL	218	1035	NULL
2	115	2022-12-04	09:30:00.0000000	NULL	217	1035	NULL

5. This query is to find local patientNo who has appointment with department number 113.

Query:

```
select * from medDoctorLocalAppointment
where staffNo in(
select mstaffNo from MedicalDoctor
where departmentNo=113)
```

Result:

	staffNo	staffName	roomNo	appointmentDate	appointmentTime	localPatientNo	localPatientName	localPatientPhoneNo
1	223	Haidar	R006	2022-12-05	11:30:00.0000000	1023	Liyana	0194276540
2	224	Aryan	R012	2022-12-02	10:00:00.0000000	1032	Kairina	01734768025

## viii. Create five multi-table queries

1. Multi-table query to find the details of patients' appointment schedule that have been set and their respective doctors.

Query:

```
SELECT a.appointmentDate, a.appointmentTime, a.ipatientNo, a.lpatientNo,
m.mstaffNo, m.mstaffName, m.roomNo
FROM Appointment a, MedicalDoctor m
WHERE a.mstaffNo=m.mstaffNo
```

Result:

	appointmentDate	appointmentTime	ipatientNo	lpatientNo	mstaffNo	mstaffName	roomNo
1	2022-11-12	10:00:00.0000000	NULL	1028	215	Aileen	R005
2	2022-11-14	10:30:00.0000000	NULL	1022	212	Chong Wei Lee	R002
3	2022-11-15	10:00:00.0000000	NULL	1025	214	Kavinessh	R004
4	2022-11-16	10:00:00.0000000	NULL	1026	215	Aileen	R005
5	2022-11-17	14:30:00.0000000	NULL	1021	213	Malavika	R002
6	2022-11-18	14:30:00.0000000	NULL	1028	216	Stephenie	R010
7	2022-11-18	14:00:00.0000000	NULL	1022	222	Mikayla	R010
8	2022-11-24	10:30:00.0000000	NULL	1038	216	Stephenie	R010
9	2022-11-26	14:00:00.0000000	NULL	1035	218	Qaysar	R012
10	2022-11-28	13:00:00.0000000	5028	NULL	223	Haidar	R006
11	2022-12-02	10:00:00.0000000	NULL	1032	224	Aryan	R012
12	2022-12-02	14:30:00.0000000	5021	NULL	219	Afiqah	R008
13	2022-12-04	09:30:00.0000000	NULL	1035	217	Mikael	R012
14	2022-12-05	11:30:00.0000000	NULL	1023	223	Haidar	R006
15	2022-12-06	14:00:00.0000000	NULL	1037	212	Chong Wei Lee	R002
16	2022-12-10	13:00:00.0000000	5023	NULL	224	Aryan	R012
17	2022-12-10	10:30:00.0000000	5027	NULL	216	Stephenie	R010
18	2022-12-12	09:30:00.0000000	NULL	1029	220	Layla	R008

2. Query to find the name, contact number and bill of each policyholder.

Query:

```
select l.lpatientName as 'Patient Name', l.lpatientPhoneNo as 'Contact No.',  
i.amount as bill, i.insuranceName as 'Paid By'  
from LocalPatient l, InsurancePayment i  
where l.lpatientNo=i.lpatientNo;
```

Result:

Results		Messages			
	Patient Name	Contact No.	bill	Paid By	
1	Aini	0128473620	800	Etika Takaful	
2	Afiq	0137542320	17000	Prudential	
3	Aini	0128473620	8981	Etika Takaful	
4	Katrina	017524762	14657	Etika Takaful	
5	Khai Wei	0139434255	16076	FWD Takaful	
6	Arshad	0174252142	17495	PruBSN	
7	Fatimah	01162595430	20333	PruBSN	
8	Azri	0134562160	21752	Etika Takaful	
9	Previna	01182941052	23171	Prudential	
10	Kairina	01734768025	24590	FWD Takaful	

3. Query to find the record of local inpatient in every ward.

Query:

```
SELECT l.lpatientNo as 'ID', l.lpatientName as 'Name', t.treatmentNo as  
'Treatment ID', d.admitDate as 'Admit Date', d.dischargedDate as 'Discharge  
Date', d.bedNo as 'Bed No', d.wardNo as 'Ward No'  
from LocalPatient l, Treatment t, TreatmentDetails d  
where l.lpatientNo=t.lpatientNo and t.treatmentNo=d.treatmentNo and admitDate is  
not null
```

Result:

Results		Messages					
	ID	Name	Treatment ID	Admit Date	Discharge Date	Bed No	Ward No
1	1028	Ailee	2013	2022-11-18	2022-11-22	310	3
2	1023	Liyana	2015	2022-12-05	2022-12-07	515	5
3	1032	Kairina	2021	2022-12-06	2022-12-11	418	4
4	1038	Raudhah	2024	2022-11-24	2022-11-30	118	1

4. Query to find the detail of outpatients' name, treatment ID, drug no and drug quantity

Query:

```
SELECT l.lpatientNo as 'ID', l.lpatientName as 'Name',  
t.treatmentNo as 'Treatment ID',  
d.drugNo as 'Drug No', d.quantity as 'Drug Quantity'  
from LocalPatient l, Treatment t, TreatmentDetails d  
where l.lpatientNo=t.lpatientNo and t.treatmentNo=d.treatmentNo and admitDate is  
null
```

Result:

	ID	Name	Treatment ID	Drug No	Drug Quantity
1	1024	Aini	2010	R1728	12
2	1026	Katrina	2011	H2325	15
3	1022	Syaza	2012	C3246	20
4	1025	Fahmi	2014	R3105	15
5	1035	Fatimah	2017	R6210	10
6	1032	Kairina	2018	R5420	10
7	1029	Khai Wei	2020	R4250	10
8	1033	Azri	2022	H5450	15
9	1021	Afiq	2025	H2540	10

5. Query to know the detail of amount to paid by the patient and their payment method

Query:

```
SELECT l.*, p.amount as 'Amount (RM)', p.typeOfPayment as 'Payment method'
FROM LocalPatient l JOIN
     PersonalPayment p ON p.lpatientNo=l.lpatientNo
```

Result:

	lpatientNo	lpatientName	lpatientPhoneNo	icNo	Amount (RM)	Payment method
1	1023	Liyana	0194276540	840415047642	800	Cash
2	1022	Syaza	0195245742	960503035426	7877	Cash
3	1025	Fahmi	0135424212	860224042435	11819	Debit Card
4	1027	Dharani	0194672535	950512075466	13238	Debit Card
5	1028	Ailee	0114525720	780815015430	14657	Debit Card
6	1031	Safiyah	01985427560	650709088673	16472	Debit Card
7	1034	Fauzi	01754764226	580402057845	17777	Cash
8	1036	Amri	01748529302	520428023863	19083	Debit Card
9	1037	Khairil	01374253596	550918074895	20389	Cash
10	1038	Raudhah	0194798530	841102043042	21,695	Cash
11	1039	Fauziah	0194525980	770625078056	23000	Debit Card

## ix. Create five query that includes aggregate function

1. Query to count the number of policyholder of each insurance company

Query:

```
select insuranceName, count(insuranceName) as noOfInsuranceCompany
from insurancePayment
group By insuranceName
```

Result:

	insuranceName	noOfInsuranceCompany
1	Aetna International	1
2	AMAX Insurance	1
3	AXA Insurance	3
4	Etiqua Takaful	4
5	FWD Takaful	2
6	PruBSN	2
7	Prudential	2
8	Zurich	1

2. Query to count number of patient for each type of payment

Query:

```
select typeOfPayment, count(typeOfPayment) as countPaymentMethod
from personalPayment
group By typeOfPayment
```

Result:

	typeOfPayment	countPaymentMethod
1	Cash	5
2	Debit Card	9

3. Query to find minimum, maximum and average salary of medical doctor

Query:

```
select min(msalary) as min, max(msalary) as max, avg(msalary) as average
from MedicalDoctor
```

Result:

	min	max	average
1	8250.00	104500.00	23650.000000

4. Query to find sum of bill need to be paid by every insurance company.

Query:

```
select insuranceName, sum(amount) as sum
from insurancePayment
group by insuranceName
order by insuranceName.
```

Result:

	insuranceName	sum
1	Aetna International	13238.00
2	AMAX Insurance	90000.00
3	AXA Insurance	37191.00
4	Etqa Takaful	46190.00
5	FWD Takaful	40666.00
6	PruBSN	37828.00
7	Prudential	40171.00
8	Zurich	11819.00

5. To query the number of doctors and specialists on duty on each date

Query:

```
select AppointmentDate, count(mstaffNo) as 'No of attending Dr',
count(sstaffNo) as 'No of attending specialist'
from Appointment
group by appointmentDate
order by appointmentDate
```

Result:

	AppointmentDate	No of attending Dr	No of attending specialist
1	2022-11-12	1	0
2	2022-11-14	1	0
3	2022-11-15	1	0
4	2022-11-16	1	0
5	2022-11-17	1	0
6	2022-11-18	2	0
7	2022-11-22	0	1
8	2022-11-24	1	1
9	2022-11-26	1	1
10	2022-11-28	1	0
11	2022-12-02	2	0
12	2022-12-04	1	0
13	2022-12-05	1	0
14	2022-12-06	1	0
15	2022-12-10	2	0
16	2022-12-12	1	0