HOTEL DATABASE

Oracle Final Project

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Database Overview

Database Description

This Database is a model of a hospitals, what they are composed of, and how their components interact. This database will have multiple hospitals in it. Each hospital can be composed of one or more buildings as well. The purpose of the database is to organize not only a patient's information but also the employee's information and more. This database will handle many real-world applicable situations to gather necessary information.

Each table is minimized so that it does not have unnecessary data that would belong in a different table. Each table is related to the necessary other tables in order for the database to function correctly.

The Largest table with the most relations is the Patient table. This is because it has various information such as their name, their doctor's name, what their insurance and more. Each piece of the table allows the table to connect to another. The Patient table relates to the doctor table in which a Doctor can have many patients but a Patient can have only one doctor. The relationship works the same with the Nurse table as it had with the Doctor. A Patient is also in a Building which is part of a certain Hospital, both of which are other tables. Another piece is the Bill which the Patient can have one bill for each time they are admitted and discharged from the hospital.

Before, the Hospital and Building tables were mentioned. A Hospital can have many Buildings but a Building can only belong to one particular Hospital. In addition, the Doctor's and Nurse's also belong to only one Building and Hospital.

The Staff table is used to define the varying salaries for the different job positions, the Doctor and the Nurse. The Staff table organizes the overall staff between all hospitals, buildings, and will describe the position and pay.

Every Treatment only has one piece of Equipment that will work for it but a piece of Equipment can be used for multiple Treatments. Both the Treatments and Equipment have costs that will get factored into the Bill at the end. Patients can have Insurance which will lower the total cost of the Bill as well.

ER Diagram

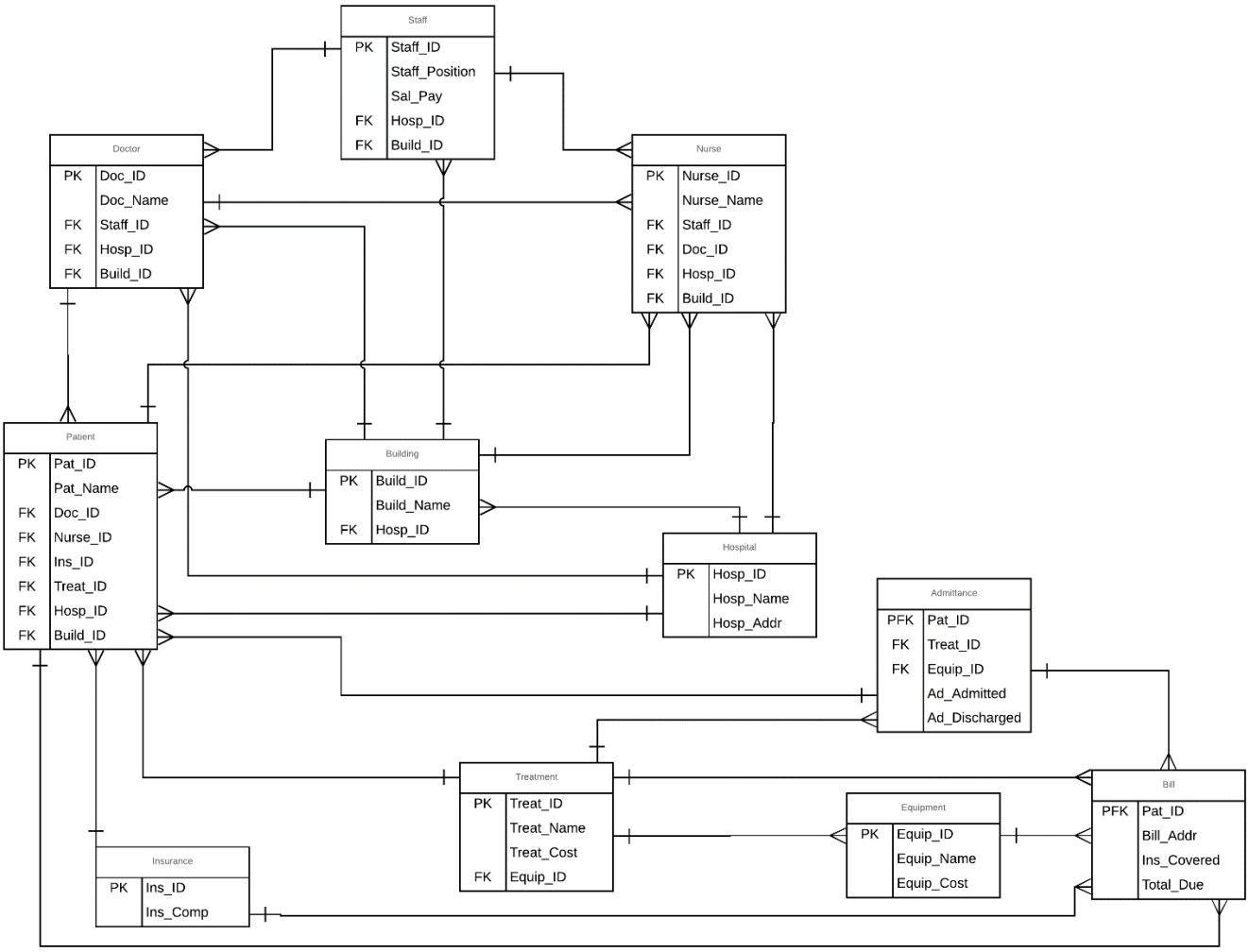

Staff
PK Staff_ID
Staff_Position
Sal_Pay
FK Hosp_ID
FK Build_ID
Doctor
PK Doc_ID
Doc_Name
FK Staff_ID
FK Hosp_ID
FK Build_ID
Nurse
PK Nurse_ID
Nurse_Name
FK Staff_ID
FK Doc_ID
FK Hosp_ID
FK Build_ID
Patient
PK Pat_ID
Pat_Name
FK Doc_ID
FK Nurse_ID
FK Ins_ID
FK Treat_ID
FK Hosp_ID
FK Build_ID
Building
PK Build_ID
Build_Name
FK Hosp_ID
Hospital
PK Hosp_ID
Hosp_Name
Hosp_Addr
Admittance
PFK Pat_ID
FK Treat_ID
FK Equip_ID
Ad_Admitted
Ad_Discharged
Treatment
PK Treat_ID
Treat_Name
Treat_Cost
FK Equip_ID
Equipment
PK Equip_ID
Equip_Name
Equip_Cost
Bill
PFK Pat_ID
Bill_Addr
Ins_Covered
Total_Due
Insurance
PK Ins_ID
Ins_Comp

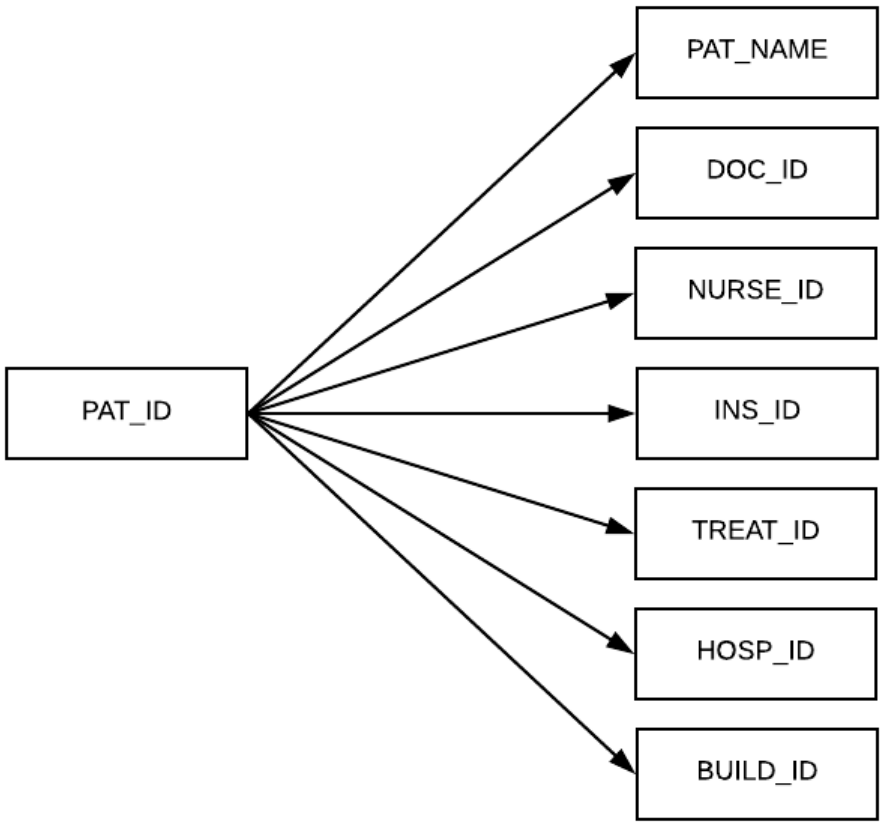
Table Descriptions

Patient

The Patient table is the table the gives most of the patient's data. Any information about the Patient that is not given in the Patient table itself is in another table through a relationship. For example the Patient's billing address is not in this table but each patient has a bill and their address can be found there. This Patient table has one constraint for its primary which is the PAT_ID. There are also six constraints for the foreign keys which are: DOC_ID, NURSE_ID, INS_ID, TREAT_ID, HOSP_ID, BUILD_ID. These foreign keys give the ID's of the patient's doctor and nurse, their insurance company, treatment, the hospital they are in and which building in that hospital they are in.

```
CREATE TABLE FPATIENT
(
        PAT_ID          NUMBER(38,0) NOT NULL ENABLE,
        PAT_NAME        VARCHAR2(26 BYTE),
        DOC_ID          NUMBER(38,0),
        NURSE_ID        NUMBER(38,0),
        INS_ID          NUMBER(38,0),
        TREAT_ID        NUMBER(38,0),
        HOSP_ID         NUMBER(38,0),
        BUILD_ID        NUMBER(38,0),
        CONSTRAINT FPATIENT_PK PRIMARY KEY (PAT_ID)
        CONSTRAINT FK_DOC_ID FOREIGN KEY (DOC_ID) REFERENCES FDOCTOR (DOC_ID),
        CONSTRAINT FK_NURSE_ID FOREIGN KEY (NURSE_ID) REFERENCES FNURSE (NURSE_ID),
        CONSTRAINT FK_INSID FOREIGN KEY (INS_ID) REFERENCES FINSURANCE (INS_ID),
        CONSTRAINT FK_TREATID FOREIGN KEY (TREAT_ID) REFERENCES FTREATMENT (TREAT_ID),
        CONSTRAINT FK_HOSP_I_D_ FOREIGN KEY (HOSP_ID) REFERENCES FHOSPITAL (HOSP_ID),
        CONSTRAINT FK_BUILD_I_D_ FOREIGN KEY (BUILD_ID) REFERENCES FBUILDING (BUILD_ID)
);
```

Third Normal Form Justification:

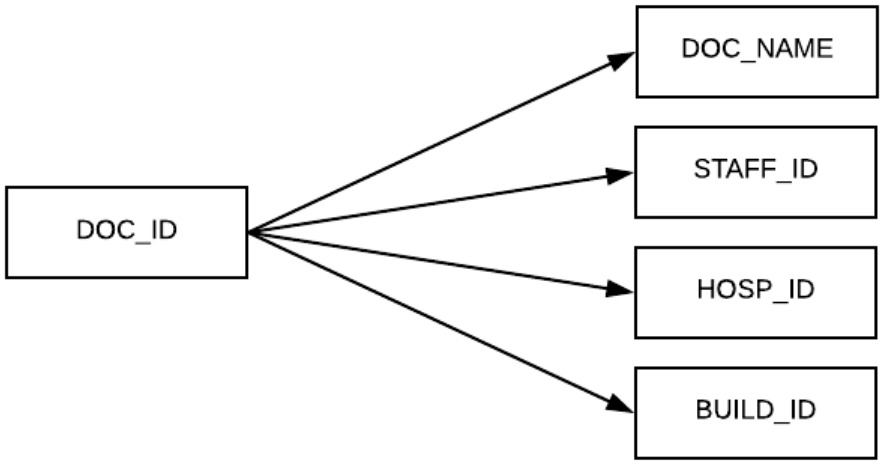

PAT_ID
PAT_NAME
DOC_ID
NURSE_ID
INS_ID
TREAT_ID
HOSP_ID
BUILD_ID

Doctor

The Doctor table is most of the doctor's information. It keeps track of all of the doctor's IDs and names. They are also given a Staff ID so they can be recorded in the Staff table. They also have Hospital and Building IDs so that it is recorded which ones they are correlated with. There is one constraint for the primary key which is the DOC_ID. There are also three constraints for the foreign keys which are STAFF_ID, HOSP_ID, BUILD_ID.

```
CREATE TABLE FDOCTOR
(
        DOC_ID          NUMBER(38,0) NOT NULL ENABLE,
        DOC_NAME        VARCHAR2(26 BYTE),
        STAFF_ID        NUMBER(38,0),
        HOSP_ID         NUMBER(38,0),
        BUILD_ID        NUMBER(38,0),
        CONSTRAINT FDOCTOR_PK PRIMARY KEY (DOC_ID),
        CONSTRAINT FK_STAFFID FOREIGN KEY (STAFF_ID) REFERENCES FSTAFF (STAFF_ID),
        CONSTRAINT FK_HOSPID" FOREIGN KEY (HOSP_ID) REFERENCES FHOSPITAL (HOSP_ID),
        CONSTRAINT FK_BUILDID" FOREIGN KEY (BUILD_ID) REFERENCES FBUILDING (BUILD_ID)
);
```

Third Normal Form Justification:

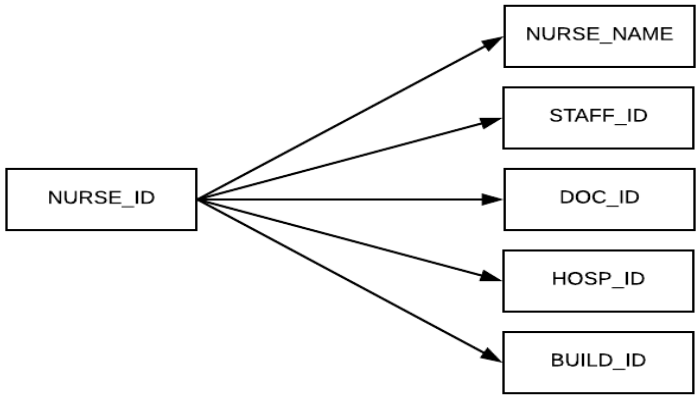


Nurse

The Nurse table is very similar to that of the Doctor table. Every foreign key is the same except there is a fourth additional foreign key which is the DOC_ID. This keeps track of which doctor that this specific nurse is working under. This table has the primary constraint being the NURSE_ID. Every nurse has a NURSE_ID and a NURSE_NAME much like the doctors have a DOC_ID and DOC_NAME.

```
CREATE TABLE FNURSE
(
        NURSE_ID        NUMBER(38,0) NOT NULL ENABLE,
        NURSE_NAME      VARCHAR2(26 BYTE),
        STAFF_ID        NUMBER(38,0),
        DOC_ID          NUMBER(38,0),
        HOSP_ID         NUMBER(38,0),
        BUILD_ID        NUMBER(38,0),
        CONSTRAINT FNURSE_PK PRIMARY KEY (NURSE_ID),
        CONSTRAINT FK_STAFF_ID FOREIGN KEY (STAFF_ID) REFERENCES FSTAFF (STAFF_ID),
        CONSTRAINT FK_DOCID FOREIGN KEY (DOC_ID) REFERENCES FDOCTOR (DOC_ID),
        CONSTRAINT FK_HOSP_ID FOREIGN KEY (HOSP_ID) REFERENCES FHOSPITAL (HOSP_ID),
        CONSTRAINT FK_BUILD_ID FOREIGN KEY (BUILD_ID) REFERENCES FBUILDING (BUILD_ID)
);
```

Third Normal Form Justification:

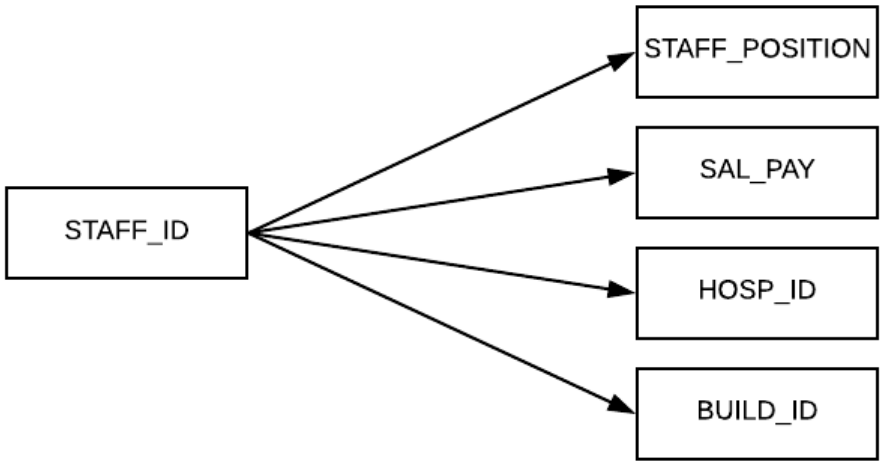


Staff

The Staff table is used to keep track of every employee, regardless of their position, building, or hospital. The Staff table also determines and keeps track of the staff's salary. There is one constraint for the primary key which is the STAFF_ID. There are two constraints for foreign keys which are the HOSP_ID and BUILD_ID.

```
CREATE TABLE FSTAFF
(
        STAFF_ID            NUMBER(38,0) NOT NULL ENABLE,
        STAFF_POSITION      VARCHAR2(26 BYTE),
        SAL_PAY             NUMBER(38,0),
        HOSP_ID             NUMBER(38,0),
        BUILD_ID            NUMBER(38,0),
        CONSTRAINT FSTAFF_PK PRIMARY KEY (STAFF_ID),
        CONSTRAINT F_K_HOSP_ID FOREIGN KEY (HOSP_ID) REFERENCES FHOSPITAL (HOSP_ID),
        CONSTRAINT F_K_BUILD_ID FOREIGN KEY (BUILD_ID) REFERENCES FBUILDING (BUILD_ID)
);
```

Third Normal Form Justification:

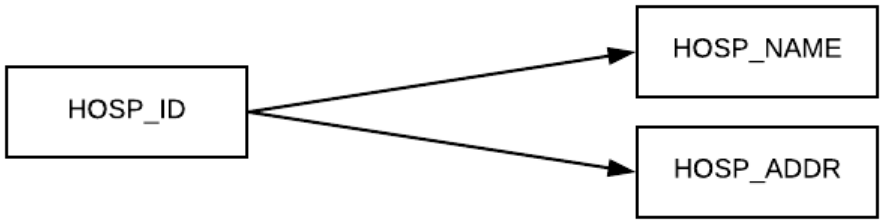


Hospital

The Hospital table is used to keep track of the different hospitals that are in the database. Aside from the hospital's ID and name there is also a hospital address. The primary key constraint is the only constraint for this table which is the HOSP_ID.

```
CREATE TABLE FHOSPITAL
(
        HOSP_ID         NUMBER(38,0) NOT NULL ENABLE,
        HOSP_NAME       VARCHAR2(26 BYTE),
        HOSP_ADDR       VARCHAR2(26 BYTE),
        CONSTRAINT FHOSPITAL_PK PRIMARY KEY (HOSP_ID)
);
```

Third Normal Form Justification:

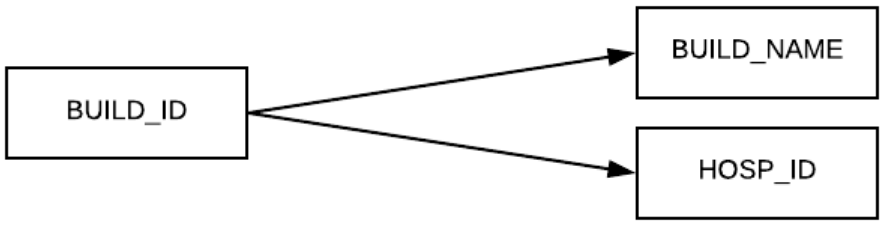


Building

The Building table is similar to that of the Hospital table. There is a given building ID and name. There is also a hospital ID given so it is clear which hospital this building is a part of. There is a constraint for the primary key which is the BUILD_ID. There is also a constraint for the Foreign key which is the HOSP_ID.

```
CREATE TABLE FBUILDING
(
        HOSP_ID         NUMBER(38,0),
        BUILD_ID        NUMBER(38,0) NOT NULL ENABLE,
        BUILD_NAME      VARCHAR2(26 BYTE),
        CONSTRAINT FBUILDING_PK PRIMARY KEY (BUILD_ID)
        CONSTRAINT F_K_HOSP_I_D FOREIGN KEY (HOSP_ID) REFERENCES FHOSPITAL (HOSP_ID)
);
```

Third Normal Form Justification:

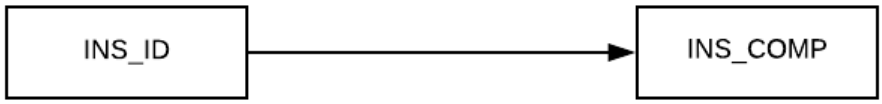


Insurance

The Insurance table is used to simply keep track of the various Insurance companies that the patients could potentially have. The Patient table is connected here via the INS_ID which is the primary key and only constraint on this table. It is possible for there to be nulls in the patients INS_ID record if they do not have insurance. ("No insurance" is not a value in this table instead nulls are used in the patient table).

```
CREATE TABLE FINSURANCE
(
        INS_ID          NUMBER(38,0) NOT NULL ENABLE,
        INS_COMP        VARCHAR2(26 BYTE),
        CONSTRAINT FINSURANCE_PK PRIMARY KEY (INS_ID)
);
```

Third Normal Form Justification:

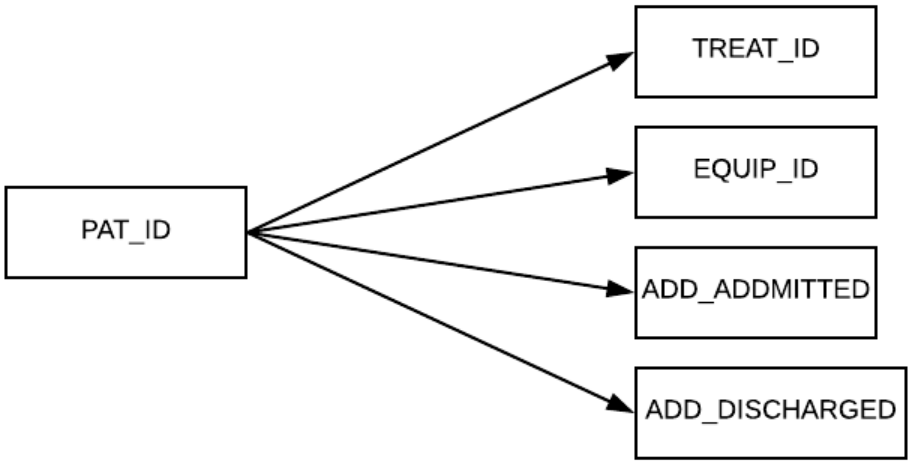


Admittance

The Admittance table is used mainly to track when the patients were admitted to the hospital as well as if/when they are discharged from the hospital. It also adds the EQUIP_ID and TREAT_ID which are two of the table's foreign keys. This is listed here so that we can see what the particular patients needed treatment wise and what equipment was needed for the treatments. The primary key is also a foreign key and is the PAT_ID.

```
CREATE TABLE FADDMITANCE
(
        PAT_ID              NUMBER(38,0) NOT NULL ENABLE,
        TREAT_ID            NUMBER(38,0),
        EQUIP_ID            NUMBER(38,0),
        ADD_ADDMITTED       DATE,
        ADD_DISCHARGED      DATE,
        CONSTRAINT FADDMITANCE_PK PRIMARY KEY (PAT_ID),
        CONSTRAINT FK_PAT_ID FOREIGN KEY (PAT_ID) REFERENCES FPATIENT (PAT_ID),
        CONSTRAINT FK_TREAT_ID FOREIGN KEY (TREAT_ID) REFERENCES FTREATMENT (TREAT_ID),
        CONSTRAINT FK_EQUIP_I_D FOREIGN KEY (EQUIP_ID) REFERENCES FEQUIPMENT (EQUIP_ID)
);
```

Third Normal Form Justification:

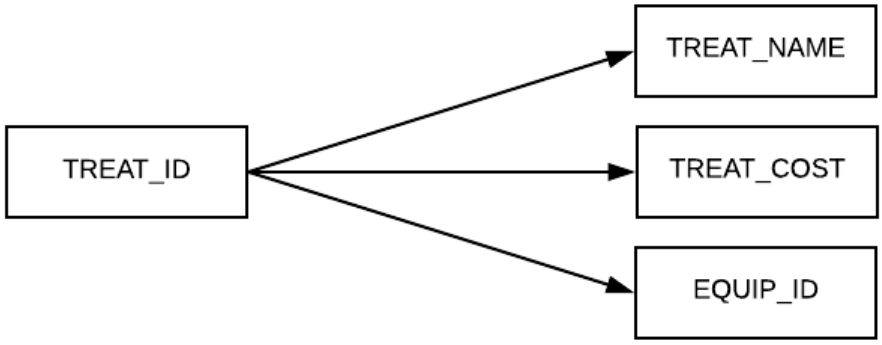


Treatment

The Treatment table is to organize the various aspects of what goes into a treatment. Each treatment is identified by the primary key which is the TREAT_ID. Along with the id is the treatments name. The TREAT_COST is located here but is factored into the total amount of the bill. The EQUIP_ID is a foreign key here because treatments need to have certain equipment that correspond to it.

```
CREATE TABLE FTREATMENT
(
        TREAT_ID        NUMBER(38,0) NOT NULL ENABLE,
        TREAT_NAME    VARCHAR2(26 BYTE),
        TREAT_COST     NUMBER(38,0),
        EQUIP_ID        NUMBER(38,0),
        CONSTRAINT FTREATMENT_PK PRIMARY KEY (TREAT_ID),
        CONSTRAINT FK_EQUIP_ID FOREIGN KEY (EQUIP_ID) REFERENCES FEQUIPMENT (EQUIP_ID)
);
```

Third Normal Form Justification:

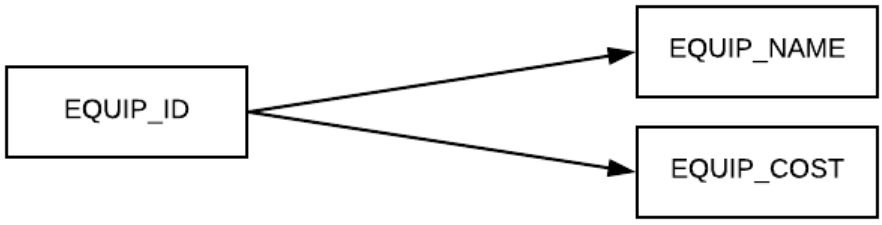


Equipment

The Equipment table is used to identify equipment and its cost that will get factored into the patient's bill. The EQUIP_ID is the primary key as well as the only constraint for this table. The EQUIP_NAME is also included.

```
CREATE TABLE FEQUIPMENT
(
        EQUIP_ID        NUMBER(38,0) NOT NULL ENABLE,
        EQUIP_NAME      VARCHAR2(26 BYTE),
        EQUIP_COST      NUMBER(38,0),
        CONSTRAINT FEQUIPMENT_PK PRIMARY KEY (EQUIP_ID)
);
```

Third Normal Form Justification:

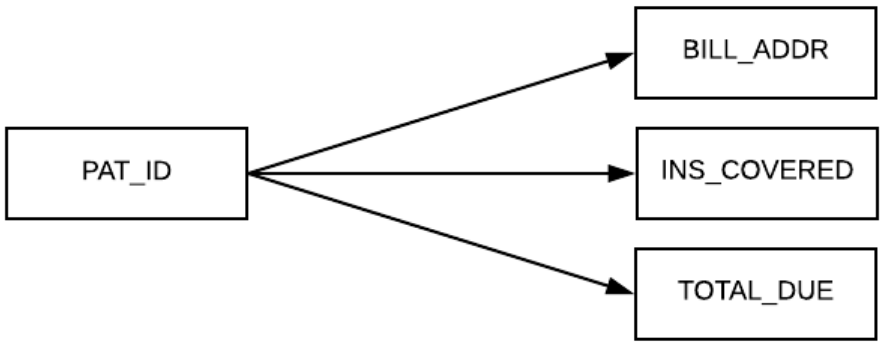


Bill

The Bill is used to tie together more Patient information that is not directly given in the patient table. This is separate because the information here is indirectly about the patient but more about how the information can appear on the bill. The PAT_ID makes up the two constraint for this table since it is the primary key as well as a foreign key. The patients billing addresses are listed here. This is where it is shown whether or not the insurance covered any, all, or none of the TOTAL_DUE.

```
CREATE TABLE FBILL
(
        PAT_ID          NUMBER(38,0) NOT NULL ENABLE,
        BILL_ADDR       VARCHAR2(26 BYTE),
        DOCTOR_COST NUMBER(38,0),
        INS_COVERED   NUMBER(38,2),
        TOTAL_DUE       NUMBER(38,2),
        CONSTRAINT FBILL_PK PRIMARY KEY (PAT_ID),
        CONSTRAINT FK_PAT_ID_ FOREIGN KEY (PAT_ID) REFERENCES FPATIENT (PAT_ID)
);
```

Third Normal Form Justification:



Queries

Query1FinalEvery

English statement:

For every patient that is in building Foy get the hospital name

SQL:

```
SELECT fpatient.pat_name
FROM fpatient
WHERE NOT EXISTS
    (SELECT *
    FROM fbuilding
    WHERE fbuilding.build_name = 'Foy'
    AND NOT EXISTS
        (SELECT *
        FROM fhospital
        WHERE fbuilding.hosp_id = fhospital.hosp_id));
```

Table:

PAT_NAME
Sam Beson
Sam Berenberg
Nico Agostini
Tobi Omotoso
Matt Gronert
Laura Tucker
Chris Lauria
Ben Mazza
Michael Leitner
Pat Dilloin
Ethan Black
Jack Andrus
Scottie German
Jared Babsky
Laura Moelis
Amy Sky
Matt Kretz
Chris Ravosa
Miller Fink
Luke Skywalker
Han Solo
Indiana Jones
Boba Fett
Chuck Kautz
Kaitlyn Durso
Andrew Crawford
Sarah Crawford
Larry David
Jerry Seinfeld
Arthur Morgan

Cardinality: 30

Query2FinalOnly

English Statement:

Name the staff who are only nurses in a hospital other than Monmouth Medical.

SQL:

```
SELECT fstaff.staff_id
FROM fstaff
WHERE fstaff.staff_id NOT IN(
        SELECT fdoctor.staff_id
        FROM fdoctor
        WHERE fdoctor.hosp_id NOT IN(
                SELECT fhospital.hosp_id
                FROM fhospital
                WHERE fhospital.hosp_name = 'Monmouth Medical'));
```

Table:

STAFF_ID
2016
2017
2015
2011
2002
2010
2014
2008
2005
2018
2001
2007
2012
2013
2019
2003
1001
2006
1002
2009
2020
2004

Cardinality: 22

Query3FinalNone

English Statement:

Name patients not in Jersey Shore.

SQL:

```
SELECT fpatient.pat_name
FROM fpatient
WHERE fpatient.hosp_id NOT IN(
    SELECT fhospital.hosp_id
    FROM fhospital
    WHERE fhospital.hosp_name = 'Jersey Shore');
```

Table:

PAT_NAME
Arthur Morgan
Jerry Seinfeld
Larry David
Sarah Crawford
Andrew Crawford
Kaitlyn Durso
Chuck Kautz
Boba Fett
Indiana Jones
Ben Mazza
Chris Lauria
Laura Tucker
Matt Gronert
Tobi Omotoso
Nico Agostini
Sam Berenberg
Sam Beson

Cardinality: 17

Query4FinalLeftJoin

English Statement:

Give all patient names along with the name of their Insurance company if any.

SQL:

SELECT fpatient.pat_name, finsurance.ins_id, finsurance.ins_comp

FROM fpatient LEFT JOIN finsurance ON fpatient.ins_id = finsurance.ins_id;

Table:

PAT_NAME	INS_ID	INS_COMP
Jerry Seinfeld	100	Blue Cross Blue Shield
Chuck Kautz	100	Blue Cross Blue Shield
Boba Fett	100	Blue Cross Blue Shield
Matt Kretz	100	Blue Cross Blue Shield
Ethan Black	100	Blue Cross Blue Shield
Nico Agostini	100	Blue Cross Blue Shield
Sam Beson	100	Blue Cross Blue Shield
Arthur Morgan	200	Anthem
Sarah Crawford	200	Anthem
Kaitlyn Durso	200	Anthem
Indiana Jones	200	Anthem
Han Solo	200	Anthem
Jack Andrus	200	Anthem
Pat Dilloin	200	Anthem
Michael Leitner	200	Anthem
Tobi Omotoso	200	Anthem
Sam Berenberg	200	Anthem
Andrew Crawford	300	United Healthcare
Scottie German	300	United Healthcare
Ben Mazza	300	United Healthcare
Laura Tucker	300	United Healthcare
Matt Gronert	300	United Healthcare
Larry David	400	Highmark
Miller Fink	400	Highmark
Chris Ravosa	400	Highmark
Jared Babsky	400	Highmark
Chris Lauria	400	Highmark
Luke Skywalker	(null)	(null)
Amy Sky	(null)	(null)
Laura Moelis	(null)	(null)

Cardinality: 30

Query5FinalRightJoin

English Statement:

Give all Patient names and their discharge date if any.

SQL:

SELECT faddmitance.add_discharged, fpatient.pat_name, faddmitance.pat_id

FROM fpatient RIGHT JOIN faddmitance ON fpatient.pat_id = faddmitance.pat_id;

Table:

ADD_DISCHARGED	PAT_NAME	PAT_ID
10-JAN-19	Sam Beson	1
01-MAR-19	Sam Berenberg	2
10-JAN-19	Nico Agostini	3
03-NOV-18	Tobi Omotoso	4
06-JUL-18	Matt Gronert	5
19-JAN-18	Laura Tucker	6
24-JAN-18	Chris Lauria	7
06-DEC-18	Ben Mazza	8
04-MAR-18	Michael Leitner	9
12-MAY-18	Pat Dilloin	10
12-MAY-18	Ethan Black	11
11-JUL-18	Jack Andrus	12
16-MAY-18	Scottie German	13
16-MAY-18	Jared Babsky	14
(null)	Laura Moelis	15
19-NOV-18	Amy Sky	16
17-NOV-18	Matt Kretz	17
09-AUG-18	Chris Ravosa	18
19-JUL-18	Miller Fink	19
26-AUG-18	Luke Skywalker	20
01-MAR-18	Han Solo	21
29-JUL-18	Indiana Jones	22
24-DEC-18	Boba Fett	23
31-OCT-18	Chuck Kautz	24
01-AUG-18	Kaitlyn Durso	25
02-AUG-18	Andrew Crawford	26
07-AUG-18	Sarah Crawford	27
(null)	Larry David	28
26-OCT-18	Jerry Seinfeld	29
03-SEP-19	Arthur Morgan	30

Cardinality: 30

Query6FinalFull

English Statement:

Give all Patient names along with Doctor IDs and Names if any.

SQL:

SELECT fpatient.pat_name, fdoctor.doc_id, fdoctor.doc_name

FROM fpatient FULL JOIN fdoctor ON fpatient.doc_id = fdoctor.doc_id;

Table:

PAT_NAME	DOC_ID	DOC_NAME
Sam Beson	111	Bob Kelso
Sam Berenberg	111	Bob Kelso
Nico Agostini	111	Bob Kelso
Tobi Omotoso	111	Bob Kelso
Matt Gronert	111	Bob Kelso
Laura Tucker	112	Elliot Reid
Chris Lauria	112	Elliot Reid
Ben Mazza	112	Elliot Reid
Michael Leitner	113	Perry Cox
Pat Dilloin	113	Perry Cox
Ethan Black	113	Perry Cox
Jack Andrus	113	Perry Cox
Scottie German	113	Perry Cox
Jared Babsky	113	Perry Cox
Laura Moelis	(null)	(null)
Amy Sky	114	John Dorian
Matt Kretz	114	John Dorian
Chris Ravosa	114	John Dorian
Miller Fink	114	John Dorian
Luke Skywalker	115	Ross Geller
Han Solo	115	Ross Geller
Indiana Jones	116	Rachel Green
Boba Fett	117	Monica Geller
Chuck Kautz	117	Monica Geller
Kaitlyn Durso	118	Chandler Bing
Andrew Crawford	118	Chandler Bing
Sarah Crawford	118	Chandler Bing
Larry David	(null)	(null)
Jerry Seinfeld	120	Joey Tribbiani
Arthur Morgan	120	Joey Tribbiani
(null)	119	Phoebe Buffay

Cardinality: 31

Query7Final -Six Table query

English Statement:

For every patient give their name and the name of their doctor, nurse, hospital, building, and insurance company.

SQL:

```
SELECT fpatient.pat_name, fdoctor.doc_name, fnurse.nurse_name, fhospital.hosp_name,
fbuilding.build_name, finsurance.ins_comp
  FROM fpatient, fdoctor, fnurse, fhospital, fbuilding, finsurance
  WHERE fpatient.doc_id = fdoctor.doc_id
  AND fpatient.nurse_id = fnurse.nurse_id
  AND fpatient.hosp_id = fhospital.hosp_id
  AND fpatient.build_id = fbuilding.build_id
  AND fpatient.ins_id = finsurance.ins_id;
```

Table:

PAT_NAME	DOC_NAME	NURSE_NAME	HOSP_NAME	BUILD_NAME	INS_COMP
Sam Berenberg	Bob Kelso	Jon Snow	Monmouth Medical	Marian	Anthem
Sam Beson	Bob Kelso	Jon Snow	Monmouth Medical	Marian	Blue Cross Blue Shield
Nico Agostini	Bob Kelso	Jon Snow	Monmouth Medical	Marian	Blue Cross Blue Shield
Matt Gronert	Bob Kelso	Kit Harrington	Monmouth Medical	Marian	United Healthcare
Tobi Omotoso	Bob Kelso	Kit Harrington	Monmouth Medical	Marian	Anthem
Laura Tucker	Elliot Reid	Emilia Clarke	Monmouth Medical	Champ	United Healthcare
Chris Lauria	Elliot Reid	Sophie Turner	Monmouth Medical	Champ	Highmark
Ben Mazza	Elliot Reid	Arya Stark	Monmouth Medical	Champ	United Healthcare
Matt Kretz	John Dorian	Peter Dinklage	Jersey Shore	Foy	Blue Cross Blue Shield
Chris Ravosa	John Dorian	Tyrion Lannister	Jersey Shore	Foy	Highmark
Miller Fink	John Dorian	Tyrion Lannister	Jersey Shore	Foy	Highmark
Han Solo	Ross Geller	Samwell Tarly	Jersey Shore	Fulton	Anthem
Indiana Jones	Rachel Green	Khal Drogo	Sacred Heart	Foxrun	Anthem
Boba Fett	Monica Geller	Richard Madden	Sacred Heart	Hancock	Blue Cross Blue Shield
Chuck Kautz	Monica Geller	Jack Gleeson	Sacred Heart	Hancock	Blue Cross Blue Shield
Andrew Crawford	Chandler Bing	Sean Bean	Sacred Heart	Dyson	United Healthcare
Kaitlyn Durso	Chandler Bing	Sean Bean	Sacred Heart	Dyson	Anthem
Sarah Crawford	Chandler Bing	Joe Dempsie	Sacred Heart	Dyson	Anthem
Jerry Seinfeld	Joey Tribbiani	Theon Greyjoy	Sacred Heart	Winterfell	Blue Cross Blue Shield
Arthur Morgan	Joey Tribbiani	Hodor Bronn	Sacred Heart	Winterfell	Anthem

Cardinality: 20

Query8Final

English Statement:

name the doctors that have at least one patient with the insurance Blue Cross Blue Shield

SQL:

```
SELECT DISTINCT fdoctor.doc_name

FROM fdoctor, fpatient, finsurance

WHERE fdoctor.doc_id = fpatient.doc_id

AND fpatient.ins_id = finsurance.ins_id

AND finsurance.ins_comp = 'Blue Cross Blue Shield';
```

Table:

DOC_NAME
John Dorian
Joey Tribbiani
Perry Cox
Bob Kelso
Monica Geller

Cardinality: 5

Query9Final

English Statement:

Get Patient IDs and Names for those who have a lower total bill than Ben Mazza.

SQL:

```
SELECT patient2.pat_id, patient2.pat_name

FROM fpatient patient1, fpatient patient2, fbill bill1, fbill bill2

WHERE patient1.pat_name = 'Ben Mazza'

AND patient1.pat_id = bill1.pat_id

AND patient2.pat_id = bill2.pat_id

AND bill1.total_due < bill2.total_due;
```

Table:

PAT_ID	PAT_NAME
2	Sam Berenberg
3	Nico Agostini
4	Tobi Omotoso
13	Scottie German
15	Laura Moelis
16	Amy Sky
20	Luke Skywalker
22	Indiana Jones
23	Boba Fett
29	Jerry Seinfeld

Cardinality: 10

Query10Final

English Statement:

Get the Nurse's ID and Name that is first in the alphabetic list of of the other nurses.(by first name)

SQL:

```
SELECT fnurse.nurse_ID, fnurse.nurse_name

FROM fnurse

WHERE fnurse.nurse_name IN

    (SELECT MIN(fnurse.nurse_name)

    FROM fnurse);
```

Table:

NURSE_ID	NURSE_NAME
205	Arya Stark

Cardinality: 1