PHARMACY TRACKING DATABSE SYSTEM

PHASE III

- Entity-Relationship Diagram
- Assumptions of Entity-Relationship Diagram
- Data dictionary listing of attributes
- Default Relational Model
- Normalized Relational Model
- Assumptions for Normalized Relational Model
- Data Definition Language (DDL) Script
- Table Structures for all tables arranges properly
- 12 SQL queries with English version and output
- Screenshot of database on Apex

SUPERMAN

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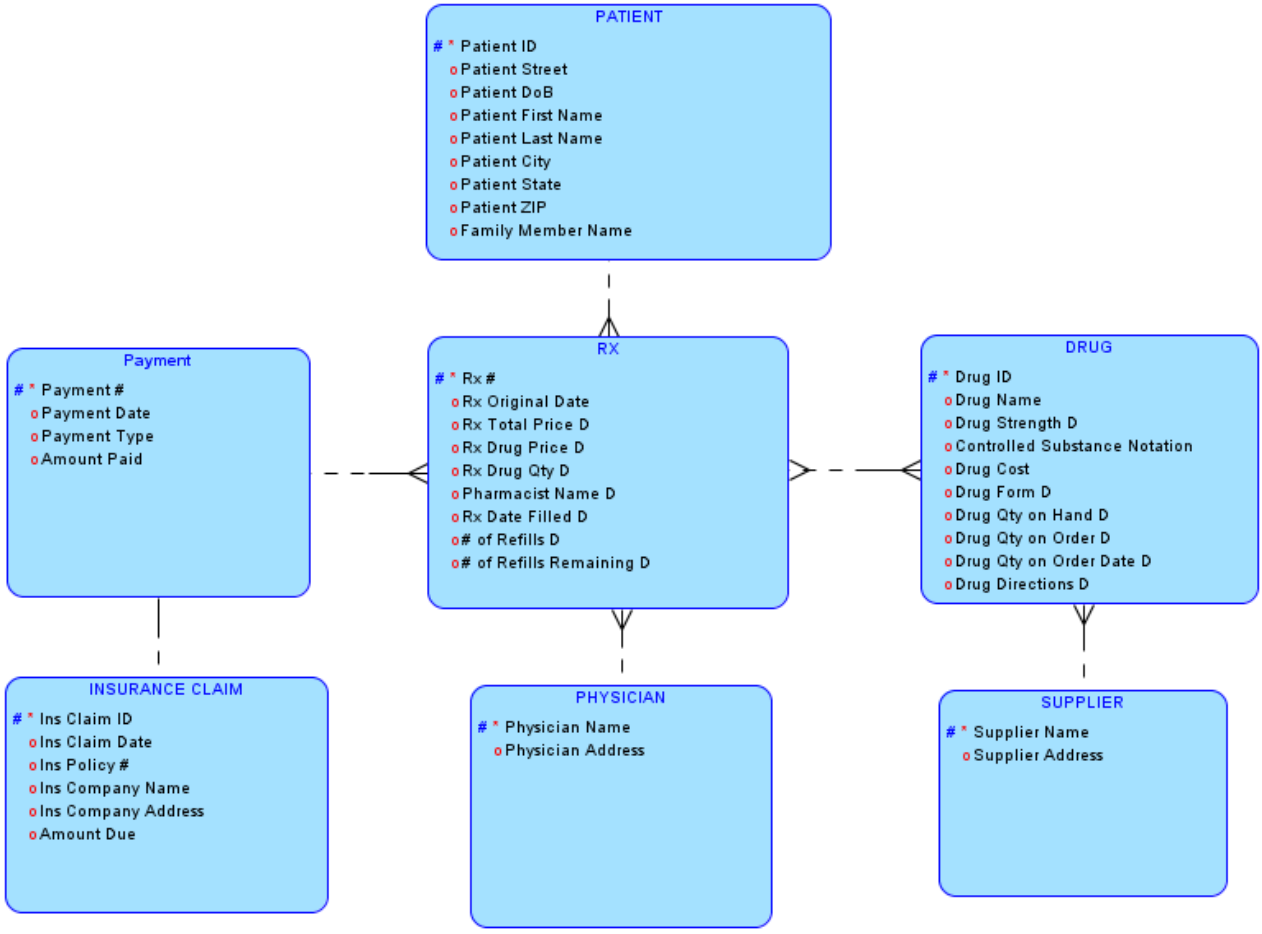
i. Entity Relationship Diagram for Pharmacy tracking database system



ii. Assumptions of Entity Relationship Diagram for Pharmacy tracking database system

1. Drug ID is assumed to be the unique identifier of DRUG table;

2. Ins Claim ID is assumed to be the unique identifier of INSURANCE CLAIM table;

3. Pharmacist_Name_D, #_of_Refills_D, #_of_Refills_Remaining_D, Drug_Directions_D, Rx_Original_Date_D, Rx_Total_Price_D, Drug_Strength_D, Drug_Form_D, Rx_Date_Filled_D, Rx_Drug_Price_D, Rx_Drug_Qty_D are descriptive attributes between Drug and Rx;

4. Drug_Qty_on _Hand_D, Drug_Qty_on_Order_D, Drug_Qty_on_Order_Date_D are descriptive attributes between Drug and Supplier;

5. Controlled Substance Notation is a Boolean attribute: 0 stands for no controlled substance in drug; 1 stands for having controlled substance in drug;

6. Rx Total Price: the sum of each drug price in Rx multiplied by its quantity;

7. Payment type includes: full cash/ flat fee of $1 or 20% of cost/ no pay.

8. Amount Paid: 0/ $1/ 20% of total price or total price;

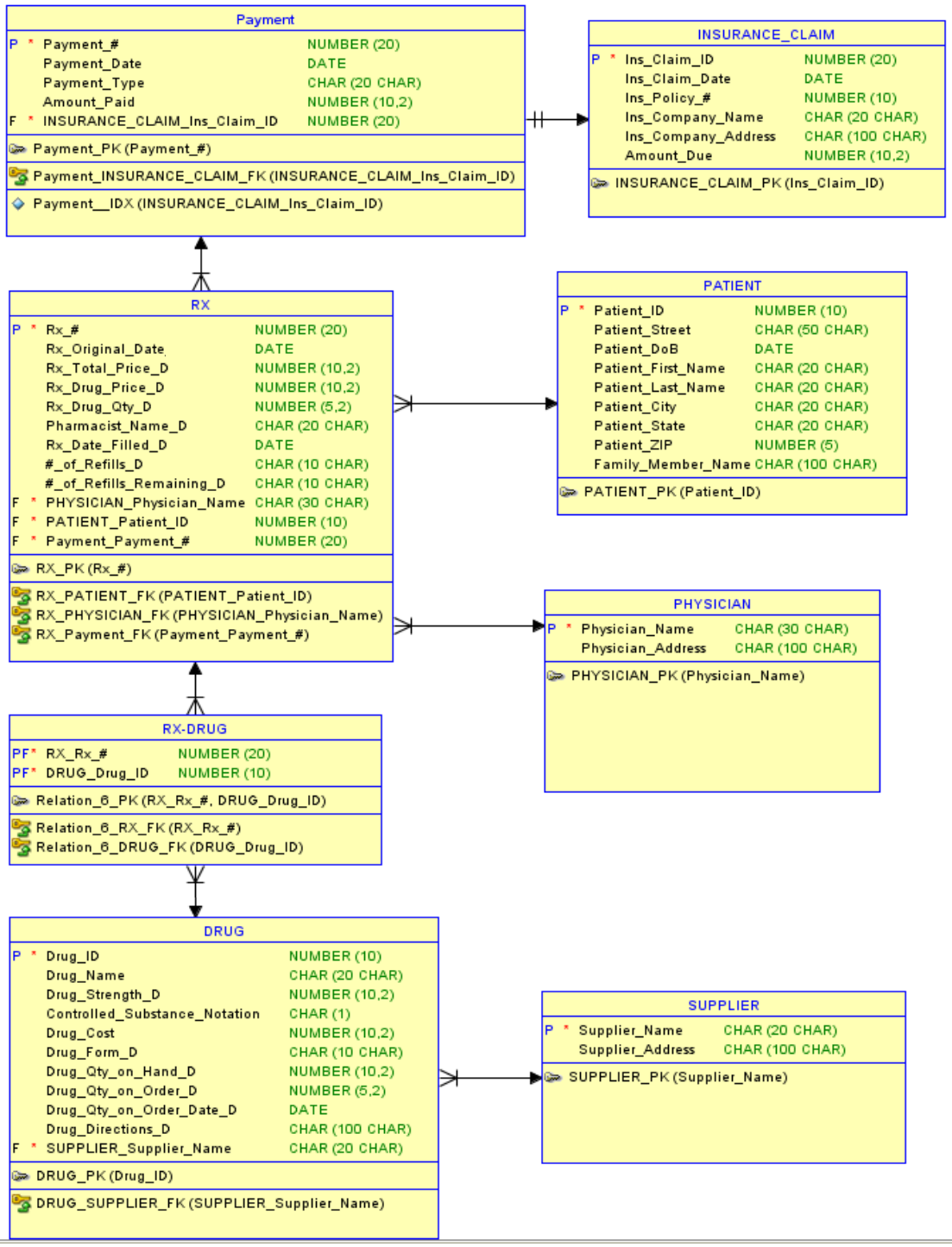
9. Amount Due: Rx Total Price minus Amount Paid;

10. # of refills remaining includes: a number/ zero/unlimited.

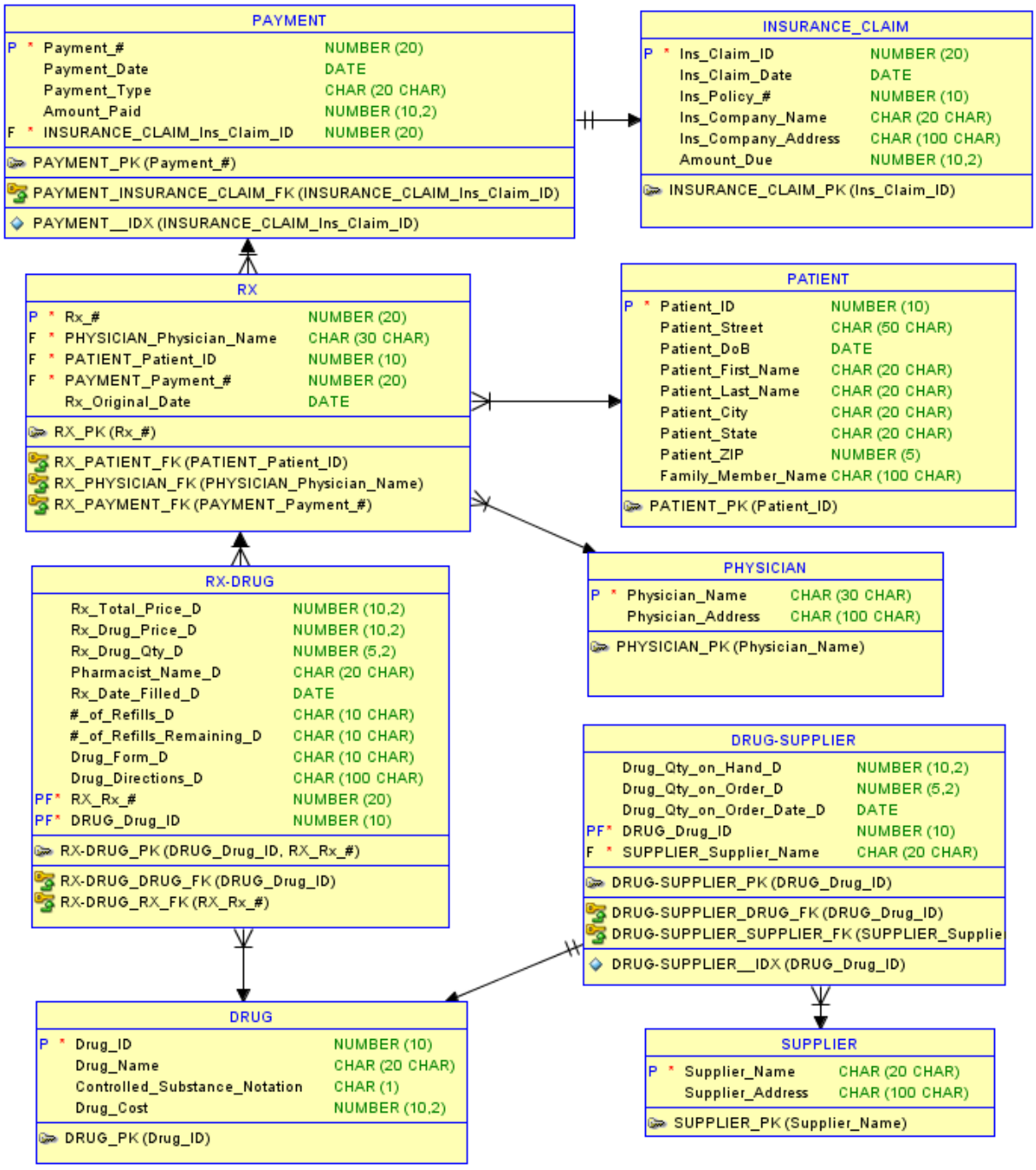
iii. Data Dictionary for Entity Relationship Diagram

Entity	Attributes	Unique Identifier	Datatype
PATIENT	Patient_ID Patient_Street Patient_DoB Patient_First_Name Patient_Last_Name Patient_City Patient_State Patient_ZIP Family_Member_Name	Patient_ID	NUMBER(10) CHAR(50 CHAR) DATE CHAR(20 CHAR) CHAR(20 CHAR) CHAR(20 CHAR) CHAR(20 CHAR) NUMBER(5) CHAR(100 CHAR)
RX	Rx_# Pharmacist_Name_D #_of_Refills_D #_of_Refills_Remaining_D Rx_Original_Date Rx_Total_Price_D Rx_Date_Filled_D Rx_Drug_Price_D Rx_Drug_Qty_D	Rx_No#	NUMBER(20) CHAR(20 CHAR) CHAR(10 CHAR) CHAR(10 CHAR) DATE NUMBER(10.2) DATE NUMBER(10.2) NUMBER(5.2)
PAYMENT	Payment_# Payment_Date Payment_Type Amount Paid	Payment_#	NUMBER(20) DATE CHAR(20 CHAR) NUMERIC(10.2)
INSURANCE_CLAIM	Ins_Claim_ID Ins_Claim_Date Ins_Policy_# Ins_Company_Name Ins_Company_Address Amount Due	Ins_Claim_ID	NUMBER(20) DATE NUMBER(10) CHAR(20 CHAR) CHAR(100 CHAR) NUMERIC(10.2)
PHYSICIAN	Physician_Name Physician_Address	Physician_Name	CHAR(30 CHAR) CHAR(100 CHAR)
DRUG	Drug_ID Drug_Name Controlled_Substance_Notation Drug_Cost Drug_Directions_D Drug_Strength_D Drug_Form_D Drug_Qty_on _Hand_D Drug_Qty_on_Order_D Drug_Qty_on_Order_Date_D	Drug_ID	NUMBER(10) CHAR(20 CHAR) CHAR(1 CHAR) NUMBER(10.2) CHAR(100 CHAR) NUMBER(10.2) CHAR(10 CHAR) NUMBER(10.2) NUMBER(5.2) DATE
SUPPLIER	Supplier_Name Supplier_Address	Supplier_Name	CHAR(20 CHAR) CHAR(100 CHAR)

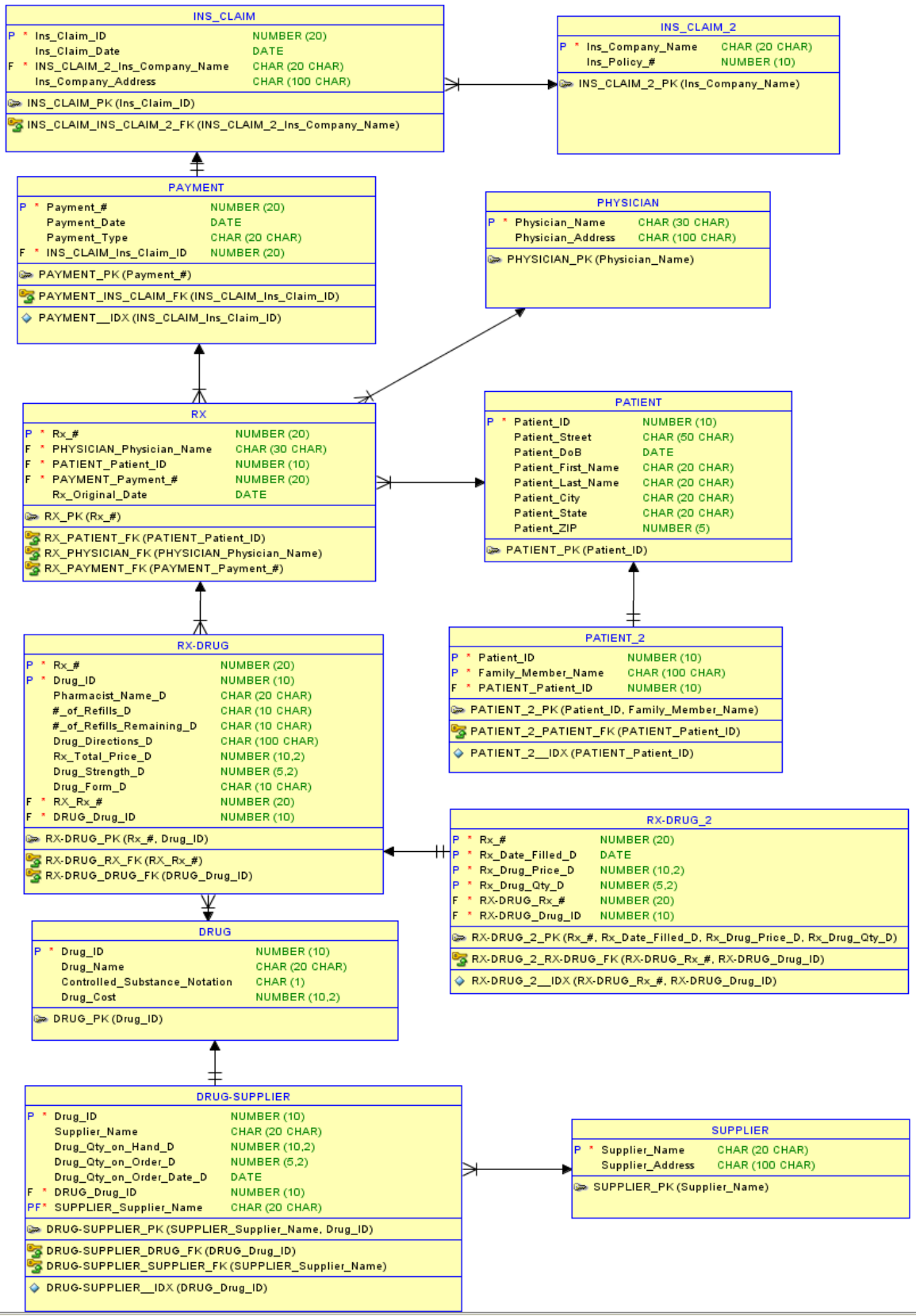
iv. Default Relational Model for Pharmacy Database System



v. Revised Relational Model for Pharmacy Tracking Database System



vi. Normalized Relational Model for Pharmacy Database Tracking System



vii. Assumptions for Normalized Relational Model

1. Remove Rx Total Price: formula: the sum of each drug price in Rx multiplied by its quantity;

2. Remove Amount Paid: Amount Paid is relevant to payment-type and Rx total price. Formula: 0, $1, 20% of total price or total price;

3. Remove Amount Due: formula: Rx Total Price minus Amount Paid;

4. Remove # of refills remaining: formula: # of refills minus the number of Rx date refilled;

5. Rx_Date_Filled_D, Rx_Drug_Price_D, Rx_Drug_Qty_D could have multiple values (repeating group) for a Rx_#. Form new table RX_DRUG_2 with Rx_#, Rx_Date_Filled_D, Rx_Drug_Price_D, Rx_Drug_Qty_D (1NF);

6. Family_Member_Name could have multiple values (repeating group) for a Patient_ID. Form new table PATIENT_2 with Patient_ID, Family_Member_Name (1NF);

7. Ins_Policy_# depends on non-key value: Ins_Company_Name. Form new table INSURANCE_CLAIM_2 with Ins_Company_Name, Ins_Policy_#(3NFa).

viii. DDL script

```
-- Generated by Oracle SQL Developer Data Modeler 18.2.0.179.0756
--   at:       2018-12-07 14:58:44 EST
--   site:     Oracle Database 11g
--   type:     Oracle Database 11g



CREATE TABLE drug (
   drug_id                    NUMBER(10) NOT NULL,
   drug_name                    CHAR(20 CHAR),
   controlled_substance_notation   CHAR(1),
   drug_cost                   NUMBER(10,2)
);

ALTER TABLE drug ADD CONSTRAINT drug_pk PRIMARY KEY ( drug_id );

CREATE TABLE "DRUG-SUPPLIER" (
   drug_drug_id             NUMBER(10) NOT NULL,
   supplier_supplier_name     CHAR(20 CHAR) NOT NULL,
   drug_qty_on_hand_d        NUMBER(10,2),
   drug_qty_on_order_d       NUMBER(5,2),
   drug_qty_on_order_date_d   DATE
);

CREATE UNIQUE INDEX "DRUG-SUPPLIER__IDX" ON
   "DRUG-SUPPLIER" (
      drug_drug_id
   ASC );

ALTER TABLE "DRUG-SUPPLIER" ADD CONSTRAINT "DRUG-SUPPLIER_PK" PRIMARY KEY ( supplier_supplier_name,
                                                drug_drug_id );
```

```
CREATE TABLE ins_claim (
   ins_claim_id                NUMBER(20) NOT NULL,
   ins_claim_date              DATE,
   ins_company_address         CHAR(100 CHAR),
   ins_claim_2_ins_company_name   CHAR(20 CHAR) NOT NULL,
   ins_claim_2_ins_policy_#      NUMBER(10) NOT NULL
);

ALTER TABLE ins_claim ADD CONSTRAINT ins_claim_pk PRIMARY KEY ( ins_claim_id );

CREATE TABLE ins_claim_2 (
   ins_company_name   CHAR(20 CHAR) NOT NULL,
   ins_policy_#      NUMBER(10) NOT NULL
);

ALTER TABLE ins_claim_2 ADD CONSTRAINT ins_claim_2_pk PRIMARY KEY ( ins_company_name,
                                          ins_policy_# );

CREATE TABLE patient (
   patient_id         NUMBER(10) NOT NULL,
   patient_street      CHAR(50 CHAR),
   patient_dob        DATE,
   patient_first_name   CHAR(20 CHAR),
   patient_last_name    CHAR(20 CHAR),
   patient_city       CHAR(20 CHAR),
   patient_state       CHAR(20 CHAR),
   patient_zip        NUMBER(5)
);

ALTER TABLE patient ADD CONSTRAINT patient_pk PRIMARY KEY ( patient_id );

CREATE TABLE patient_2 (
   family_member_name   CHAR(100 CHAR) NOT NULL,
```

```
    patient_patient_id   NUMBER(10) NOT NULL
);

CREATE UNIQUE INDEX patient_2__idx ON
    patient_2 (
        patient_patient_id
    ASC );

ALTER TABLE patient_2 ADD CONSTRAINT patient_2_pk PRIMARY KEY ( family_member_name,
                                                               patient_patient_id );

CREATE TABLE payment (
    payment_#              NUMBER(20) NOT NULL,
    payment_date           DATE,
    payment_type           CHAR(20 CHAR),
    ins_claim_ins_claim_id   NUMBER(20) NOT NULL
);

CREATE UNIQUE INDEX payment__idx ON
    payment (
        ins_claim_ins_claim_id
    ASC );

ALTER TABLE payment ADD CONSTRAINT payment_pk PRIMARY KEY ( payment_# );

CREATE TABLE physician (
    physician_name      CHAR(30 CHAR) NOT NULL,
    physician_address   CHAR(100 CHAR)
);

ALTER TABLE physician ADD CONSTRAINT physician_pk PRIMARY KEY ( physician_name );

CREATE TABLE rx (
```

```
    rx_#                    NUMBER(20) NOT NULL,
    physician_physician_name   CHAR(30 CHAR) NOT NULL,
    patient_patient_id        NUMBER(10) NOT NULL,
    payment_payment_#         NUMBER(20) NOT NULL,
    rx_original_date          DATE
);

ALTER TABLE rx ADD CONSTRAINT rx_pk PRIMARY KEY ( rx_# );

CREATE TABLE "RX-DRUG" (
    rx_rx_#                   NUMBER(20) NOT NULL,
    drug_drug_id              NUMBER(10) NOT NULL,
    pharmacist_name_d          CHAR(20 CHAR),
    "#_of_Refills_D"           CHAR(10 CHAR),
    "#_of_Refills_Remaining_D"   CHAR(10 CHAR),
    drug_directions_d          CHAR(100 CHAR),
    rx_original_date           DATE,
    drug_strength_d            NUMBER(10,2),
    drug_form_d               CHAR(10 CHAR),
    rx_date_filled_d           DATE
);

ALTER TABLE "RX-DRUG" ADD CONSTRAINT "RX-DRUG_PK" PRIMARY KEY ( rx_rx_#,
                                        drug_drug_id );

CREATE TABLE "RX-DRUG_2" (
    rx_drug_price_d     NUMBER(10,2) NOT NULL,
    rx_drug_qty_d       NUMBER(5,2) NOT NULL,
    "RX-DRUG_RX_#"      NUMBER(20) NOT NULL,
    "RX-DRUG_DRUG_ID"   NUMBER(10) NOT NULL
);

CREATE UNIQUE INDEX "RX-DRUG_2__IDX" ON
```

```
   "RX-DRUG_2" (
      "RX-DRUG_RX_#"
   ASC,
      "RX-DRUG_DRUG_ID"
   ASC );

ALTER TABLE "RX-DRUG_2"
   ADD CONSTRAINT "RX-DRUG_2_PK" PRIMARY KEY ( rx_drug_price_d,
                                               rx_drug_qty_d,
                                               "RX-DRUG_DRUG_ID",
                                               "RX-DRUG_RX_#" );

CREATE TABLE supplier (
   supplier_name      CHAR(20 CHAR) NOT NULL,
   supplier_address   CHAR(100 CHAR)
);

ALTER TABLE supplier ADD CONSTRAINT supplier_pk PRIMARY KEY ( supplier_name );

ALTER TABLE "DRUG-SUPPLIER"
   ADD CONSTRAINT "DRUG-SUPPLIER_DRUG_FK" FOREIGN KEY ( drug_drug_id )
      REFERENCES drug ( drug_id );

ALTER TABLE "DRUG-SUPPLIER"
   ADD CONSTRAINT "DRUG-SUPPLIER_SUPPLIER_FK" FOREIGN KEY ( supplier_supplier_name )
      REFERENCES supplier ( supplier_name );

ALTER TABLE ins_claim
   ADD CONSTRAINT ins_claim_ins_claim_2_fk FOREIGN KEY ( ins_claim_2_ins_company_name,
                                                         ins_claim_2_ins_policy_# )
      REFERENCES ins_claim_2 ( ins_company_name,
                               ins_policy_# );
```

```
ALTER TABLE patient_2
   ADD CONSTRAINT patient_2_patient_fk FOREIGN KEY ( patient_patient_id )
      REFERENCES patient ( patient_id );

ALTER TABLE payment
   ADD CONSTRAINT payment_ins_claim_fk FOREIGN KEY ( ins_claim_ins_claim_id )
      REFERENCES ins_claim ( ins_claim_id );

ALTER TABLE rx
   ADD CONSTRAINT rx_patient_fk FOREIGN KEY ( patient_patient_id )
      REFERENCES patient ( patient_id );

ALTER TABLE rx
   ADD CONSTRAINT rx_payment_fk FOREIGN KEY ( payment_payment_# )
      REFERENCES payment ( payment_# );

ALTER TABLE rx
   ADD CONSTRAINT rx_physician_fk FOREIGN KEY ( physician_physician_name )
      REFERENCES physician ( physician_name );

ALTER TABLE "RX-DRUG_2"
   ADD CONSTRAINT "RX-DRUG_2_RX-DRUG_FK" FOREIGN KEY ( "RX-DRUG_RX_#",
                                       "RX-DRUG_DRUG_ID" )
      REFERENCES "RX-DRUG" ( rx_rx_#,
                             drug_drug_id );

ALTER TABLE "RX-DRUG"
   ADD CONSTRAINT "RX-DRUG_DRUG_FK" FOREIGN KEY ( drug_drug_id )
      REFERENCES drug ( drug_id );

ALTER TABLE "RX-DRUG"
   ADD CONSTRAINT "RX-DRUG_RX_FK" FOREIGN KEY ( rx_rx_# )
      REFERENCES rx ( rx_# );
```

ix. Table structures (descriptions) for all tables arranged properly

Object Type **TABLE** Object **DRUG**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
DRUG	DRUG_ID	NUMBER	-	10	0	1	-	-	-
	DRUG_NAME	CHAR	20	-	-	-	✓	-	-
	CONTROLLED_SUBSTANCE_NOTATION	CHAR	1	-	-	-	✓	-	-
	DRUG_COST	NUMBER	-	10	2	-	✓	-	-

Object Type **TABLE** Object **DRUG_SUPPLIER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
DRUG_SUPPLIER	DRUG_DRUG_ID	NUMBER	-	10	0	2	-	-	-
	SUPPLIER_SUPPLIER_NAME	CHAR	20	-	-	1	-	-	-
	DRUG_QTY_ON_HAND_D	NUMBER	-	10	2	-	✓	-	-
	DRUG_QTY_ON_ORDER_D	NUMBER	-	5	2	-	✓	-	-
	DRUG_QTY_ON_ORDER_DATE_D	DATE	7	-	-	-	✓	-	-

Object Type **TABLE** Object **INS_CLAIM**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
INS_CLAIM	INS_CLAIM_ID	NUMBER	-	20	0	1	-	-	-
	INS_CLAIM_DATE	DATE	7	-	-	-	✓	-	-
	INS_COMPANY_ADDRESS	CHAR	100	-	-	-	✓	-	-
	INS_CLAIM_2_INS_COMPANY_NAME	CHAR	20	-	-	-	-	-	-
	INS_CLAIM_2_INS_POLICY_#	NUMBER	-	10	0	-	-	-	-

Object Type **TABLE** Object **INS_CLAIM_2**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
INS_CLAIM_2	INS_COMPANY_NAME	CHAR	20	-	-	1	-	-	-
	INS_POLICY_#	NUMBER	-	10	0	2	-	-	-

Object Type **TABLE** Object **PATIENT**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PATIENT	PATIENT_ID	NUMBER	-	10	0	1	-	-	-
	PATIENT_FIRST_NAME	CHAR	20	-	-	-	✓	-	-
	PATIENT_LAST_NAME	CHAR	20	-	-	-	✓	-	-
	PATIENT_DOB	DATE	7	-	-	-	✓	-	-
	PATIENT_STREET	CHAR	50	-	-	-	✓	-	-
	PATIENT_CITY	CHAR	20	-	-	-	✓	-	-
	PATIENT_STATE	CHAR	20	-	-	-	✓	-	-
	PATIENT_ZIP	NUMBER	-	5	0	-	✓	-	-

Object Type **TABLE** Object **PATIENT_2**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PATIENT_2	FAMILY_MEMBER_NAME	CHAR	100	-	-	1	-	-	-
	PATIENT_PATIENT_ID	NUMBER	-	10	0	2	-	-	-

Object Type **TABLE** Object **PAYMENT**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PAYMENT	PAYMENT_#	NUMBER	-	20	0	1	-	-	-
	PAYMENT_DATE	DATE	7	-	-	-	✓	-	-
	INS_CLAIM_INS_CLAIM_ID	NUMBER	-	20	0	-	-	-	-
	DISCOUNT_VALUE_PER	NUMBER	-	10	0	-	✓	-	-
	DISCOUNT_VALUE_MIN	NUMBER	-	10	3	-	✓	-	-

Object Type **TABLE** Object **PHYSICIAN**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PHYSICIAN	PHYSICIAN_NAME	CHAR	30	-	-	1	-	-	-
	PHYSICIAN_ADDRESS	CHAR	100	-	-	-	✓	-	-

Object Type **TABLE** Object **RX**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
RX	RX_#	NUMBER	-	20	0	1	-	-	-
	PHYSICIAN_PHYSICIAN_NAME	CHAR	30	-	-	-	-	-	-
	PATIENT_PATIENT_ID	NUMBER	-	10	0	-	-	-	-
	PAYMENT_PAYMENT_#	NUMBER	-	20	0	-	-	-	-
	RX_ORIGINAL_DATE	DATE	7	-	-	-	✓	-	-

Object Type **TABLE** Object **RX_DRUG**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
RX_DRUG	RX_RX_#	NUMBER	-	20	0	1	-	-	-
	DRUG_DRUG_ID	NUMBER	-	10	0	2	-	-	-
	PHARMACIST_NAME_D	CHAR	20	-	-	-	✓	-	-
	#_of_Refills_D	CHAR	10	-	-	-	✓	-	-
	#_of_Refills_Remaining_D	CHAR	10	-	-	-	✓	-	-
	DRUG_DIRECTIONS_D	CHAR	100	-	-	-	✓	-	-
	DRUG_STRENGTH_D	NUMBER	-	10	2	-	✓	-	-
	DRUG_FORM_D	CHAR	10	-	-	-	✓	-	-
	RX_DATE_FILLED_D	DATE	7	-	-	-	✓	-	-

Object Type **TABLE** Object **RX_DRUG_2**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
RX_DRUG_2	RX_DRUG_PRICE_D	NUMBER	-	10	2	1	-	-	-
	RX_DRUG_QTY_D	NUMBER	-	5	2	2	-	-	-
	RX_DRUG_RX_#	NUMBER	-	20	0	4	-	-	-
	RX_DRUG_DRUG_ID	NUMBER	-	10	0	3	-	-	-

Object Type **TABLE** Object **SUPPLIER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
SUPPLIER	SUPPLIER_NAME	CHAR	20	-	-	1	-	-	-
	SUPPLIER_ADDRESS	CHAR	100	-	-	-	✓	-	-

x. Tables with data, arranged in alphabetical order

DRUG

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	DRUG_ID	DRUG_NAME	CONTROLLED_SUBSTANCE_NOTATION	DRUG_COST
	111	Acetaminophen	0	1
	112	Adderall	0	1
	113	Alprazolam	0	2
	114	Citalopram	0	2
	115	Codeine	0	3
	116	Cymbalta	0	3
	117	Doxycycline	0	4
	118	Ibuprofen	0	4
	119	Lexapro	0	5

DRUG_SUPPLIER

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	DRUG_DRUG_ID	SUPPLIER_SUPPLIER_NAME	DRUG_QTY_ON_HAND_D	DRUG_QTY_ON_ORDER_D	DRUG_QTY_ON_ORDER_DATE_D
	111	Actelion	30	5	06/05/2018
	112	Actelion	30	5	06/06/2018
	113	Actelion	20	6	06/07/2018
	114	Actelion	20	6	06/08/2018
	115	Baxalta	100	7	06/09/2018
	116	Baxalta	100	7	06/10/2018
	117	Baxalta	100	8	06/11/2018
	118	Baxalta	100	8	06/12/2018
	119	CoCo Therapeutics	50	9	06/13/2018

INS_CLAIM

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	INS_CLAIM_ID	INS_CLAIM_DATE	INS_COMPANY_ADDRESS	INS_CLAIM_2_INS_COMPANY_NAME	INS_CLAIM_2_INS_POLICY_#
	1111	04/06/2018	211E 11TH	21st Century	10001
	1112	04/06/2018	211E 11TH	21st Century	10002
	1113	04/08/2018	212E 12TH	Aetna	10003
	1114	04/09/2018	212E 12TH	Aetna	10004
	1115	04/10/2018	212E 12TH	Aetna	10005
	1116	04/11/2018	212E 12TH	Aetna	10006
	1117	04/12/2018	216E 16TH	CNA Financial	10007
	1118	04/13/2018	216E 16TH	CNA Financial	10008
	1119	04/14/2018	216E 16TH	CNA Financial	10009

INS_CLAIM_2

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	INS_COMPANY_NAME	INS_POLICY_#
	21st Century	10001
	21st Century	10002
	Aetna	10003
	Aetna	10004
	Aetna	10005
	Aetna	10006
	Black Bear Life	10010
	Black Bear Life	10011
	Black Bear Life	10012

PATIENT

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	PATIENT_ID	PATIENT_FIRST_NAME	PATIENT_LAST_NAME	PATIENT_DOB	PATIENT_STREET	PATIENT_CITY	PATIENT_STATE	PATIENT_ZIP
	171717	Dior	Shen	10/01/2003	17st 171E	Cleveland	OH	60032
	111111	Gucci	Li	01/01/1988	11st 111E	New York	NY	10023
	222222	Prada	Wong	01/02/1988	22st 222E	New York	NY	10019
	333333	Givenchy	Zhang	01/03/1988	33st 333E	New York	NY	10018
	444444	Valentino	Ren	01/04/1988	44st 444E	New York	NY	10020
	555555	Burberry	Meng	01/05/1988	55st 555E	New York	NY	10023
	666666	Balenciaga	Liu	01/06/1988	66st 666E	New Jersey	NJ	20037
	777777	Moose	Zheng	01/07/1988	77st 777E	New Jersey	NJ	20036
	888888	Offwhite	Kong	09/04/1995	88st 888E	Boston	MA	30034

PATIENT_2

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	FAMILY_MEMBER_NAME	PATIENT_PATIENT_ID
	Bob, Krystal	151515
	Charlie, Betty	555555
	Dan	131313
	Diana, Paul	888888
	Emily,Jackson	141414
	Henry	444444
	Leon, Jenny	666666
	Lily	161616
	Sally, Patrick	121212

PAYMENT

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	PAYMENT_#	PAYMENT_DATE	PAYMENT_TYPE	INS_CLAIM_INS_CLAIM_ID	DISCOUNT_VALUE_PER	DISCOUNT_VALUE_MIN
	35111	04/01/2018	full coverage	1111	100	-
	35112	04/02/2018	full coverage	1112	100	-
	35113	04/03/2018	full coverage	1113	100	-
	35114	04/03/2018	20% off	1114	80	-
	35115	04/05/2018	20% off	1115	80	-
	35116	04/06/2018	50% off	1116	50	-
	35117	04/07/2018	100$ off	1117	-	100
	35118	04/08/2018	500$ off	1118	-	500
	35119	04/09/2018	500$ off	1119	-	500

PHYSICIAN

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	PHYSICIAN_NAME	PHYSICIAN_ADDRESS
	Whitney	91st 999st
	Gary	92nd 992st
	Thomas	93rd 992st
	Judy	93rd 996st
	George	94th 992st
	Helen	94th 994st
	Sophia	95th 992st
	Richard	95th 999st
	Grace	96th 993st

RX

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	RX_#	PHYSICIAN_PHYSICIAN_NAME	PATIENT_PATIENT_ID	PAYMENT_PAYMENT_#	RX_ORIGINAL_DATE
	87111111	Whitney	111111	35111	03/01/2018
	87111112	Gary	222222	35112	03/02/2018
	87111113	Thomas	333333	35113	03/03/2018
	87111114	Judy	444444	35114	03/04/2018
	87111115	George	555555	35115	03/02/2018
	87111116	Helen	666666	35116	03/06/2018
	87111117	Sophia	777777	35117	03/07/2018
	87111118	Richard	888888	35118	03/07/2018
	87111119	Grace	999999	35119	03/09/2018

RX_DRUG

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	RX_RX_#	DRUG_DRUG_ID	PHARMACIST_NAME_D	#_of_Refills_D	#_of_Refills_Remaining_D	DRUG_DIRECTIONS_D	DRUG_STRENGTH_D	DRUG_FORM_D	RX_DATE_FILLED_D
	87111111	111	Andy Zheng	5	3	once per day	500	capsules	03/15/2018
	87111111	127	Andy Zheng	0	0	twice per day	500	capsules	03/01/2018
	87111111	128	Andy Zheng	0	0	twice per day	500	capsules	03/01/2018
	87111112	129	Andy Zheng	0	0	once per day	500	capsules	03/02/2018
	87111112	112	Andy Zheng	3	1	twice per day	500	tablets	03/16/2018
	87111113	113	Andy Zheng	3	1	twice per day	100	tablets	03/16/2018
	87111114	114	Andy Zheng	2	1	twice per day	100	tablets	03/17/2018
	87111114	115	Andy Zheng	2	1	twice per day	100	tablets	03/17/2018
	87111115	115	Henry Ren	5	3	twice per day	100	tablets	03/18/2018

RX_DRUG_2

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	RX_DRUG_PRICE_D	RX_DRUG_QTY_D	RX_DRUG_RX_#	RX_DRUG_DRUG_ID
	20	10	87111111	111
	20	15	87111118	118
	20	20	87111117	117
	20	30	87111123	111
	25	10	87111112	112
	30	10	87111111	127
	30	15	87111118	119
	30	15	87111119	119
	40	10	87111111	128

SUPPLIER

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Query | Count Rows | Insert Row

Data

EDIT	SUPPLIER_NAME	SUPPLIER_ADDRESS
	Actelion	331W 31TH
	Baxalta	332W 32TH
	CoCo Therapeutics	333W 33TH
	Merck	334W 34TH
	UCB	335W 35TH
	Tasly	336W 36TH

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xi. The 12 queries [English version/sql version/output]

1. English version: find out patient that Whitney served

   SQL version:

```
SELECT PHYSICIAN.PHYSICIAN_NAME, PATIENT.PATIENT_ID,
PATIENT.PATIENT_FIRST_NAME, PATIENT.PATIENT_LAST_NAME,
PATIENT.PATIENT_DOB,PATIENT.PATIENT_CITY
FROM RX
INNER JOIN PATIENT ON RX.PATIENT_PATIENT_ID = PATIENT.PATIENT_ID
INNER JOIN PHYSICIAN ON RX.PHYSICIAN_PHYSICIAN_NAME =
PHYSICIAN.PHYSICIAN_NAME
WHERE PHYSICIAN_NAME = 'Whitney'
```

   Output:

PHYSICIAN_NAME	PATIENT_ID	PATIENT_FIRST_NAME	PATIENT_LAST_NAME	PATIENT_DOB	PATIENT_CITY
Whitney	111111	Gucci	Li	01/01/1988	New York
Whitney	151515	Hermes	Sun	12/15/2000	D.C.
Whitney	161616	Chanel	Ouyang	12/16/2000	Cleveland

2. English version: show each prescriptions' payment type, payment date, ins claim date that Company Aetna received

   SQL version:

```
SELECT
RX.RX_#,PAYMENT.PAYMENT_TYPE,PAYMENT.PAYMENT_DATE,INS_CLAIM.INS_CLAIM_
DATE,INS_CLAIM.INS_CLAIM_2_INS_COMPANY_NAME,INS_CLAIM.INS_COMPANY_ADD
RESS
FROM PAYMENT
INNER JOIN RX ON PAYMENT.PAYMENT_# = RX.PAYMENT_PAYMENT_#
INNER JOIN INS_CLAIM ON PAYMENT.INS_CLAIM_INS_CLAIM_ID =
INS_CLAIM.INS_CLAIM_ID
WHERE INS_CLAIM.INS_CLAIM_2_INS_COMPANY_NAME = 'Atena'
```

   Output:

RX_#	PAYMENT_TYPE	PAYMENT_DATE	INS_CLAIM_DATE	INS_CLAIM_2_INS_COMPANY_NAME	INS_COMPANY_ADDRESS
87111113	full coverage	04/03/2018	04/08/2018	Aetna	212E 12TH
87111114	20% off	04/03/2018	04/09/2018	Aetna	212E 12TH
87111115	20% off	04/05/2018	04/10/2018	Aetna	212E 12TH
87111116	50% off	04/06/2018	04/11/2018	Aetna	212E 12TH
87111125	20% off	04/03/2018	04/09/2018	Aetna	212E 12TH

3. English version: show drug name,directions and payment type in prescription whose rx number is 87111111

   SQL version:

```
SELECT RX.RX_#,
DRUG.DRUG_NAME,RX_DRUG.DRUG_DIRECTIONS_D,PAYMENT.PAYMENT_TYPE
FROM (RX
INNER JOIN RX_DRUG ON RX.RX_# = RX_DRUG.RX_RX_#
INNER JOIN PAYMENT ON RX.PAYMENT_PAYMENT_# = PAYMENT.PAYMENT_#)
INNER JOIN DRUG ON DRUG.DRUG_ID = RX_DRUG.DRUG_DRUG_ID
WHERE RX.RX_# = 87111111
```

   Output:

RX_#	DRUG_NAME	DRUG_DIRECTIONS_D	PAYMENT_TYPE
87111111	Acetaminophen	once per day	full coverage
87111111	Wellbutrin	twice per day	full coverage
87111111	Xanax	twice per day	full coverage

4. English version: show drug name,supplier and qty on order in prescription whose rx number is 87111114

   SQL version:

```
SELECT RX.RX_#, DRUG.DRUG_NAME,
DRUG_SUPPLIER.DRUG_QTY_ON_ORDER_D,SUPPLIER.SUPPLIER_NAME
FROM ((RX_DRUG
INNER JOIN RX ON RX.RX_# = RX_DRUG.RX_RX_#
INNER JOIN DRUG ON DRUG.DRUG_ID = RX_DRUG.DRUG_DRUG_ID)
INNER JOIN DRUG_SUPPLIER ON DRUG.DRUG_ID = DRUG_SUPPLIER.DRUG_DRUG_ID)
INNER JOIN SUPPLIER ON DRUG_SUPPLIER.SUPPLIER_SUPPLIER_NAME =
SUPPLIER.SUPPLIER_NAME
WHERE RX_# = 87111114
```

   Output:

RX_#	DRUG_NAME	DRUG_QTY_ON_ORDER_D	SUPPLIER_NAME
87111114	Citalopram	6	Actelion
87111114	Codeine	7	Baxalta

5. English version: how many patients does Whitney serve?

   SQL version:

```
select count(patient.patient_id)
from RX
inner join patient on rx.patient_patient_id = patient.patient_id
inner join physician on rx.physician_physician_name = physician.physician_name
where physician_name = 'Whitney'
```

   Output:

COUNT(PATIENT.PATIENT_ID)
3

6. English version: sorting prescription information by city

   SQL version:

```
SELECT
RX.RX_#,PHYSICIAN.PHYSICIAN_NAME,PATIENT.PATIENT_FIRST_NAME,PATIENT.PATIEN
T_CITY
FROM RX
INNER JOIN PATIENT ON RX.PATIENT_PATIENT_ID = PATIENT.PATIENT_ID
INNER JOIN PHYSICIAN ON RX.PHYSICIAN_PHYSICIAN_NAME =
PHYSICIAN.PHYSICIAN_NAME
ORDER BY PATIENT.PATIENT_CITY
```

   Output:

RX_#	PHYSICIAN_NAME	PATIENT_FIRST_NAME	PATIENT_CITY
87111120	Alice	Supreme	Boston
87111118	Richard	Offwhite	Boston
87111119	Grace	Fendi	Boston
87111125	Judy	Dior	Cleveland
87111124	Whitney	Chanel	Cleveland
87111123	Whitney	Hermes	D.C.
87111121	Teresa	Moncler	LA
87111122	George	Armani	LA
87111117	Sophia	Moose	New Jersey
87111116	Helen	Balenciaga	New Jersey

7. English version: List all the final payment information that enjoys a percentage discount according to the insurance company they choose.

   SQL version:

```
WITH Q AS
(SELECT
RX.RX_#,
RX_DRUG_2.RX_DRUG_PRICE_D * RX_DRUG_2.RX_DRUG_QTY_D *
PAYMENT.DISCOUNT_VALUE_PER / 100 AS FINALPAY
FROM RX, RX_DRUG_2,PAYMENT
WHERE
RX.RX_# = RX_DRUG_2.RX_DRUG_RX_#
AND PAYMENT.PAYMENT_# = RX.PAYMENT_PAYMENT_#
AND PAYMENT.DISCOUNT_VALUE_PER IS NOT NULL)
```

SELECT
Q.RX_#,PATIENT.PATIENT_FIRST_NAME,PATIENT.PATIENT_LAST_NAME,RX.PHYSICIAN_PHYSICIAN_NAME,SUM(FINALPAY)
FROM Q INNER JOIN RX ON Q.RX_#=RX.RX_#
INNER JOIN PATIENT ON RX.PATIENT_PATIENT_ID=PATIENT.PATIENT_ID
GROUP BY
Q.RX_#,PATIENT.PATIENT_FIRST_NAME,PATIENT.PATIENT_LAST_NAME,PHYSICIAN_PHYSICIAN_NAME
Output:

Results | Explain | Describe | Saved SQL | History

RX_#	PATIENT_FIRST_NAME	PATIENT_LAST_NAME	PHYSICIAN_PHYSICIAN_NAME	SUM(FINALPAY)
87111112	Prada	Wong	Gary	750
87111123	Hermes	Sun	Whitney	1080
87111124	Chanel	Ouyang	Whitney	900
87111115	Burberry	Meng	George	2080
87111116	Balenciaga	Liu	Helen	700
87111121	Moncler	Huang	Teresa	900
87111125	Dior	Shen	Judy	1440
87111113	Givenchy	Zhang	Thomas	1000

8. English version: Compare Patient numbers of Doctor Whitney and Doctor Gary
SQL version:
SELECT PHYSICIAN_NAME, COUNT(*)
FROM RX
INNER JOIN PHYSICIAN ON PHYSICIAN.PHYSICIAN_NAME = RX.PHYSICIAN_PHYSICIAN_NAME WHERE
PHYSICIAN_NAME = 'Whitney'
OR PHYSICIAN_NAME = 'Gary'
GROUP BY PHYSICIAN_NAME
Output:

Results | Explain | Describe | Saved SQL | History

PHYSICIAN_NAME	COUNT(*)
Whitney	3
Gary	1

2 rows returned in 0.01 seconds Download

yren42@fordham.edu henryren en Application Express 18.2.0.00.12

9. English version: See all the payment date according to two insurance companies called '21st Century' and 'Aetna'
   SQL version:
   SELECT PAYMENT_DATE, INS_CLAIM_2_INS_COMPANY_NAME
   FROM PAYMENT
   INNER JOIN INS_CLAIM ON INS_CLAIM_INS_CLAIM_ID =
   INS_CLAIM.INS_CLAIM_ID
   WHERE
   INS_CLAIM_2_INS_COMPANY_NAME = '21st Century'
   OR INS_CLAIM_2_INS_COMPANY_NAME = 'Aetna'
   Output:

Results | Explain | Describe | Saved SQL | History

PAYMENT_DATE	INS_CLAIM_2_INS_COMPANY_NAME
04/01/2018	21st Century
04/02/2018	21st Century
04/03/2018	Aetna
04/03/2018	Aetna
04/05/2018	Aetna
04/06/2018	Aetna

6 rows returned in 0.01 seconds Download

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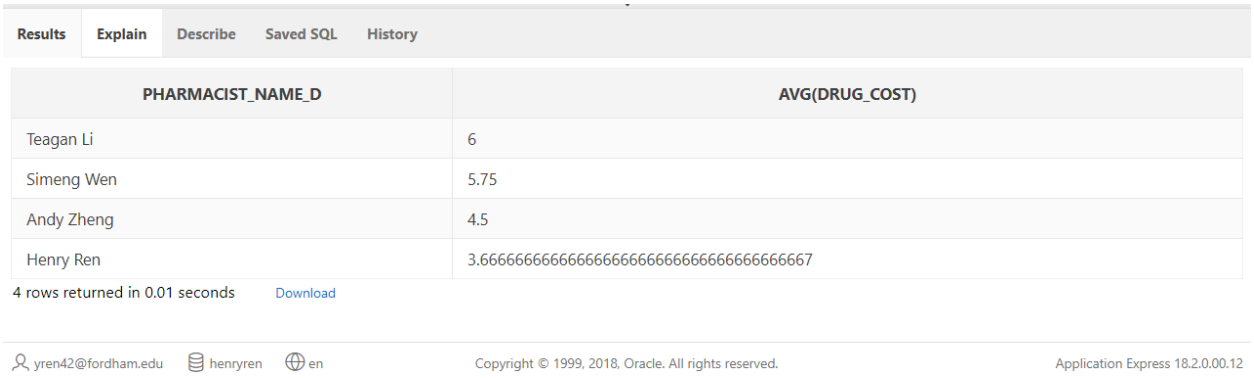
10. English version: see the average cost according to the pharmacist name.
    SQL version:
    SELECT PHARMACIST_NAME_D, AVG(DRUG_COST)
    FROM RX_DRUG
    INNER JOIN DRUG ON DRUG_ID = DRUG_DRUG_ID
    GROUP BY PHARMACIST_NAME_D
    ORDER BY AVG(DRUG_COST) DESC

Output:

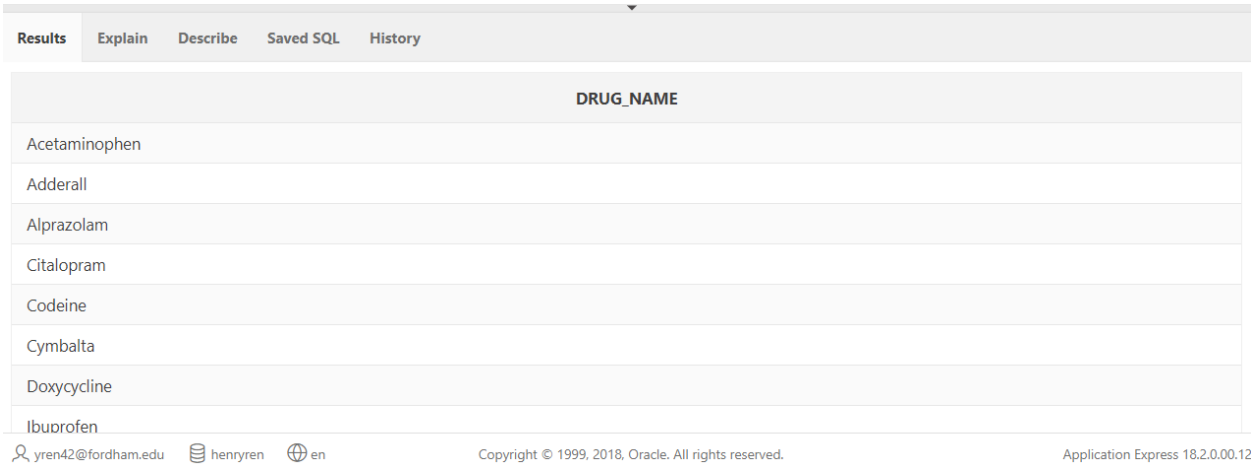


11. English version: list all the drugs that have been used in RX

    SQL version:

    SELECT DRUG_NAME
    FROM DRUG
    WHERE EXISTS
    (SELECT * FROM DRUG, RX_DRUG
    WHERE DRUG_DRUG_ID = DRUG_ID)

    Output:



12. English version: Compare Doctor Whitney's and Doctor Judy's Patient numbers

    SQL version:

    SELECT PHYSICIAN_NAME, COUNT(*)
    FROM RX
    INNER JOIN PHYSICIAN ON PHYSICIAN.PHYSICIAN_NAME = RX.PHYSICIAN_PHYSICIAN_NAME
    WHERE
    PHYSICIAN_NAME = 'Whitney'

OR PHYSICIAN_NAME = 'Judy'
GROUP BY PHYSICIAN_NAME
Output:

Results | Explain | Describe | Saved SQL | History

PHYSICIAN_NAME	COUNT(*)
Judy	2
Whitney	3

2 rows returned in 0.00 seconds Download

xii. Screenshot of database in APEX

DRUG

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
DRUG_ID	NUMBER(10,0)	No	-	1
DRUG_NAME	CHAR(20)	Yes	-	-
CONTROLLED_SUBSTANCE_NOTATION	CHAR(1)	Yes	-	-
DRUG_COST	NUMBER(10,2)	Yes	-	-

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DRUG_SUPPLIER

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
SUPPLIER_SUPPLIER_NAME	CHAR(20)	No	-	1
DRUG_DRUG_ID	NUMBER(10,0)	No	-	2
DRUG_QTY_ON_HAND_D	NUMBER(10,2)	Yes	-	-
DRUG_QTY_ON_ORDER_D	NUMBER(5,2)	Yes	-	-
DRUG_QTY_ON_ORDER_DATE_D	DATE	Yes	-	-

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INS_CLAIM

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
INS_CLAIM_ID	NUMBER(20,0)	No	-	1
INS_CLAIM_DATE	DATE	Yes	-	-
INS_COMPANY_ADDRESS	CHAR(100)	Yes	-	-
INS_CLAIM_2_INS_COMPANY_NAME	CHAR(20)	No	-	-
INS_CLAIM_2_INS_POLICY_#	NUMBER(10,0)	No	-	-

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INS_CLAIM_2

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
INS_COMPANY_NAME	CHAR(20)	No	-	1
INS_POLICY_#	NUMBER(10,0)	No	-	2

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PATIENT

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
PATIENT_ID	NUMBER(10,0)	No	-	1
PATIENT_FIRST_NAME	CHAR(20)	Yes	-	-
PATIENT_LAST_NAME	CHAR(20)	Yes	-	-
PATIENT_DOB	DATE	Yes	-	-
PATIENT_STREET	CHAR(50)	Yes	-	-
PATIENT_CITY	CHAR(20)	Yes	-	-
PATIENT_STATE	CHAR(20)	Yes	-	-
PATIENT_ZIP	NUMBER(5,0)	Yes	-	-

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PATIENT_2

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
FAMILY_MEMBER_NAME	CHAR(100)	No	-	1
PATIENT_PATIENT_ID	NUMBER(10,0)	No	-	2

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PAYMENT

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
PAYMENT_#	NUMBER(20,0)	No	-	1
PAYMENT_DATE	DATE	Yes	-	-
PAYMENT_TYPE	CHAR(20)	Yes	-	-
INS_CLAIM_INS_CLAIM_ID	NUMBER(20,0)	No	-	-
DISCOUNT_VALUE_PER	NUMBER(10,0)	Yes	-	-
DISCOUNT_VALUE_MIN	NUMBER(10,3)	Yes	-	-

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PHYSICIAN

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
PHYSICIAN_NAME	CHAR(30)	No	-	1
PHYSICIAN_ADDRESS	CHAR(100)	Yes	-	-

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RX

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
RX_#	NUMBER(20,0)	No	-	1
PHYSICIAN_PHYSICIAN_NAME	CHAR(30)	No	-	-
PATIENT_PATIENT_ID	NUMBER(10,0)	No	-	-
PAYMENT_PAYMENT_#	NUMBER(20,0)	No	-	-
RX_ORIGINAL_DATE	DATE	Yes	-	-

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RX_DRUG

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
RX_RX_#	NUMBER(20,0)	No	-	1
DRUG_DRUG_ID	NUMBER(10,0)	No	-	2
PHARMACIST_NAME_D	CHAR(20)	Yes	-	-
#_of_Refills_D	CHAR(10)	Yes	-	-
#_of_Refills_Remaining_D	CHAR(10)	Yes	-	-
DRUG_DIRECTIONS_D	CHAR(100)	Yes	-	-
DRUG_STRENGTH_D	NUMBER(10,2)	Yes	-	-
DRUG_FORM_D	CHAR(10)	Yes	-	-
RX_DATE_FILLED_D	DATE	Yes	-	-

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RX_DRUG_2

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
RX_DRUG_PRICE_D	NUMBER(10,2)	No	-	1
RX_DRUG_QTY_D	NUMBER(5,2)	No	-	2
RX_DRUG_DRUG_ID	NUMBER(10,0)	No	-	3
RX_DRUG_RX_#	NUMBER(20,0)	No	-	4

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SUPPLIER

Table | Data | Indexes | Model | Constraints | Grants | Statistics | UI Defaults | Triggers | Dependencies | SQL

Add Column | Modify Column | Rename Column | Drop Column | Rename | Copy | Drop | Truncate | Create Lookup Table

Column Name	Data Type	Nullable	Default	Primary Key
SUPPLIER_NAME	CHAR(20)	No	-	1
SUPPLIER_ADDRESS	CHAR(100)	Yes	-	-

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