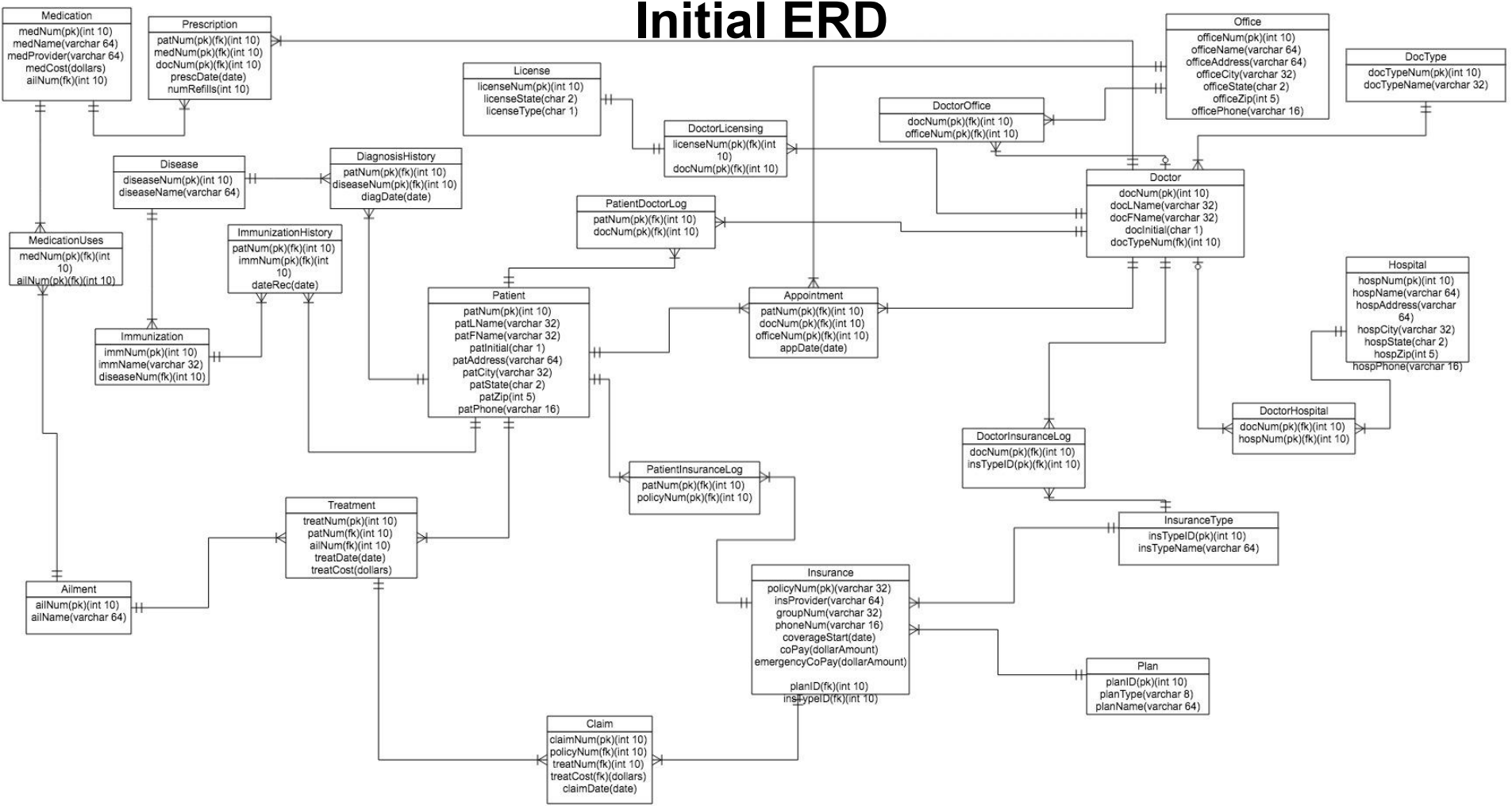
Final Project:
Healthcare System

Taylor Dinkins
Winter Smith

Initial ERD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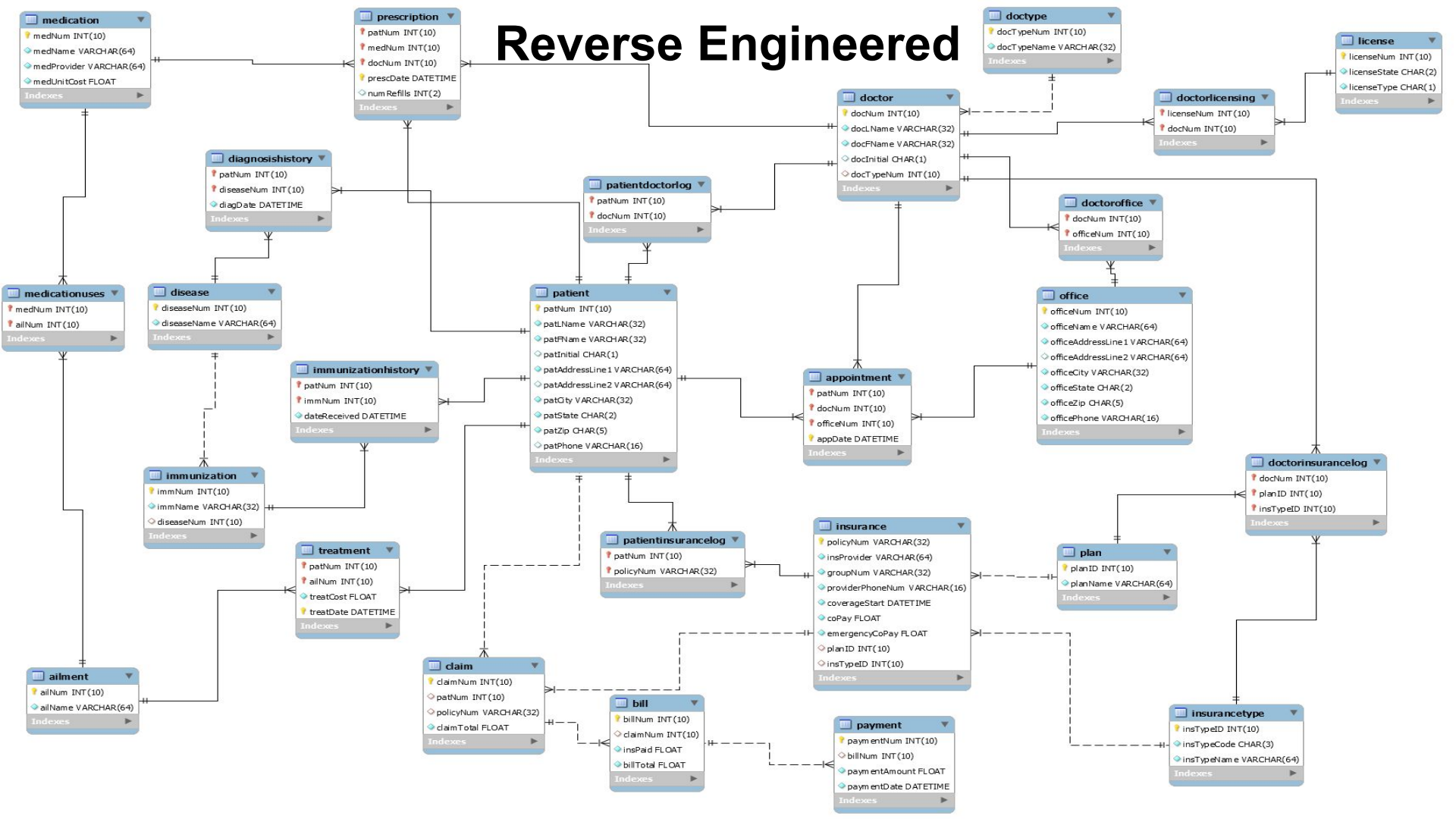
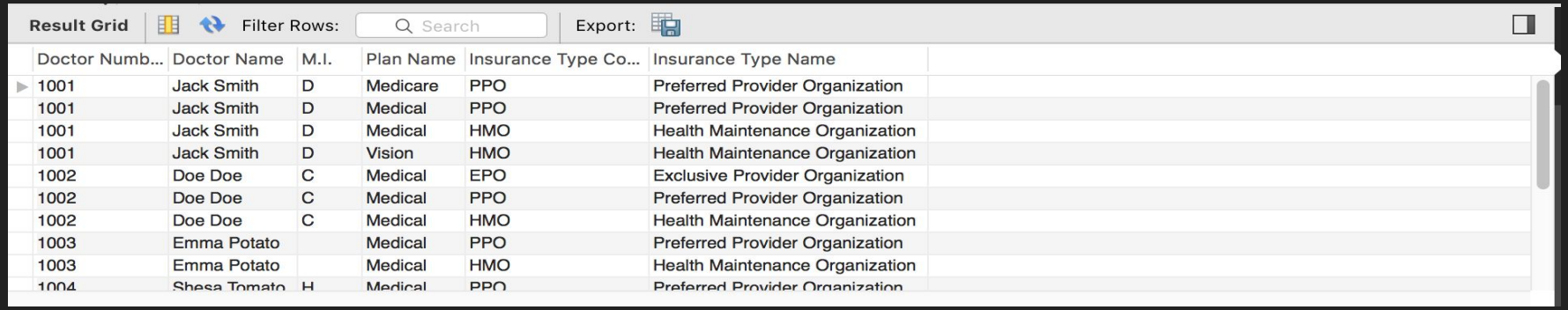
Reverse Engineered



Views

Doctor/Insurance Acceptance



Result Grid | Filter Rows: Search | Export:

Doctor Numb...	Doctor Name	M.I.	Plan Name	Insurance Type Co...	Insurance Type Name
1001	Jack Smith	D	Medicare	PPO	Preferred Provider Organization
1001	Jack Smith	D	Medical	PPO	Preferred Provider Organization
1001	Jack Smith	D	Medical	HMO	Health Maintenance Organization
1001	Jack Smith	D	Vision	HMO	Health Maintenance Organization
1002	Doe Doe	C	Medical	EPO	Exclusive Provider Organization
1002	Doe Doe	C	Medical	PPO	Preferred Provider Organization
1002	Doe Doe	C	Medical	HMO	Health Maintenance Organization
1003	Emma Potato		Medical	PPO	Preferred Provider Organization
1003	Emma Potato		Medical	HMO	Health Maintenance Organization
1004	Shesa Tomato	H	Medical	PPO	Preferred Provider Organization

- Shows which doctors accept which insurance types
- Allows for assignment of patients based on what insurance they have

Patient Balance Remaining

Patient Number	Patient Name	MI	Claim Number	Bill Number	Bill Total	Amount Paid	Amount Outstandi...
1002	Nina Doe	H	7	1	3.33	0.00	3.33
1001	John Smith		4	2	41.32	30.00	11.32
1005	Patrick Johns	L	1	3	35.00	35.00	0.00
1003	William Jackson	M	2	4	31.66	0.00	31.66
1006	Gillian Michaels	G	5	5	1.90	1.90	0.00

- Shows which patients have outstanding balances, and how much
- Useful for billing and collection of money for doctors/insurance

Patients With Claims Not Processed

Patient Number	Patient Name	MI	Claim Number	Claim Total
1013	Taylor Dinkins	C	6	256.87
1002	Nina Doe	H	7	679.55

- Shows patients with insurance claims not yet processed
- Important for processing of insurance claims, and later billing patients

Doctor/Office Locations

Doctor Numb...	Doctor Name	M.I.	Office Name	Address 1	Address 2	Office City	Office State	Office Zip	Office Phone
1001	Jack Smith	D	Smith & Sons	6778 Somewhere		New York	NY	10001	(999)595-9090
1002	Doe Doe	C	Dosey Practice	1234 Pill Place		Concord	CA	94019	(768)589-1237
1003	Emma Potato		Sour Cream & Chives	4321 Lunchtime Blvd.		Boston	MA	10201	(856)192-1232
1004	Shesa Tomato	H	What? Family Practice	7612 Family Way	Suite 13	Phoenix	AZ	85001	(671)581-5831
1005	Hugh Grant	G	HUGE Doctors	1 Large Street	Suite 101	Miami	FL	33018	(717)819-0175
1006	James Jones	P	James' Son	865 B St.		Los Angeles	CA	90001	(805)918-2371
1007	Jack Jill	A	Nursery Rhymes	3 Fake Street	Suite 9	New York	NY	10002	(812)812-1234
1008	Taylor Dinkins		Taylor's Treatments	5 J Street		Reno	NV	89433	(851)821-5555
1008	Taylor Dinkins		Taylor's Treatments	9 L Street	Suite 101	Reno	NV	89433	(851)912-2158
1009	William King	G	King Dental	9876 Pretend Ave		Boulder	CO	12345	(123)456-7890
1009	William King	G	King Dental	6543 Phantom Blvd.	Suite 303	Denver	CO	23456	(234)444-3333

- Shows office locations for each doctor
- Easy access for appointments, patient knowledge, and doctor residence

Doctor Licensing

Doctor Numb...	Doctor Name	M.I.	License Num	License State	License Type
1001	Jack Smith	D	958174	NY	A
1002	Doe Doe	C	819581	CA	G
1003	Emma Potato		758173	MA	C
1004	Shesa Tomato	H	185817	AZ	A
1005	Hugh Grant	G	958173	FL	C
1006	James Jones	P	857193	CA	C
1007	Jack Jill	A	991847	NY	A
1008	Taylor Dinkins		909088	NV	G
1009	William King	G	123487	CA	A
1009	William King	G	123775	CO	A

- Shows doctors' license numbers, and states received in
- Avoids medical malpractice, allows easy renewal, and informs patient knowledge

Patients With Insurance

Patient Num	Patient Name	M.I.	Policy Num	Ins Provider	Provider Phone	Coverage Start Date	CoPay	Emergency CoPay	Plan Name	Ins Type	Ins Type Name
1001	John Smith		GHJ758128	Aetna	(123)120-0002	2008-01-01 00:00:00	45.00	150.00	Medical	PPO	Preferred Provider (
1002	Nina Doe	H	EF0009867	Anthem Blue Cross	(555)889-9988	2009-01-01 00:00:00	30.00	100.00	Medical	PPO	Preferred Provider (
1003	William Jackson	M	TY18123888	Kaiser Permanente	(181)181-8181	2005-01-01 00:00:00	25.00	90.00	Vision	HMO	Health Maintenance
1004	Lily Johns		LM1259129	United Healthcare	(444)239-5959	2015-01-01 00:00:00	40.00	125.00	Dental	PPO	Preferred Provider (
1005	Patrick Johns	L	MK2153333	Medicare	(818)818-1818	2016-01-01 00:00:00	20.00	80.00	Medicare	PPO	Preferred Provider (
1006	Gillian Michaels	G	GH0917236	Aetna	(123)120-0002	2016-01-01 00:00:00	50.00	165.00	Medical	PPO	Preferred Provider (
1011	Donald Trump	J	EF12392913	Anthem Blue Cross	(555)889-9988	2017-05-02 00:00:00	25.00	90.00	Medical	HMO	Health Maintenance
1013	Taylor Dinkins	C	YM1239588	United Healthcare	(444)239-5959	2018-01-01 00:00:00	35.00	150.00	Dental	PPO	Preferred Provider (

- Shows patient insurance information
- Patients can be assigned to doctors accepting certain plans, also important for billing

Patients Without Insurance

Patient Num	Patient Name	M.I.	Status
1007	Randy Randerson	R	No Insurance
1008	Chris Duck	P	No Insurance
1009	Wayne Dwops		No Insurance
1010	Aspartame Phosphate	P	No Insurance
1012	Some Guy		No Insurance

- Shows patients without insurance
- Patients without insurance can be targeted by companies to sign up, also important again for doctors/billing

Stored Procedures

Find Patients With Medication Type

Patient Number	Patient Name	M.I.	Medication Name	Prescribed Date	Medication Usa...
1009	Wayne Dwops		Vicodin 5mg/300mg - 30 Tablets	2014-04-05 00:00:00	Pain
1013	Taylor Dinkins	C	Vicodin 5mg/300mg - 30 Tablets	2017-05-06 12:11:45	Pain
1013	Taylor Dinkins	C	Vicodin 5mg/300mg - 30 Tablets	2017-05-06 12:12:21	Pain
1013	Taylor Dinkins	C	Vicodin 5mg/300mg - 30 Tablets	2017-05-06 12:21:07	Pain
1006	Gillian Michaels	G	OxyContin 80mg ER Tablet	2017-05-01 00:00:00	Pain

- Finds all patients with a given type of medication (ie: pain, high cholesterol, etc.)
- Example above: find ‘pain’ medication
- Important for prescription renewals, medication history, and possible interactions

Find Patients With Specific Disease

	Patient Number	Patient Name	M.I.	Disease	Date Diagnosed
▶	1010	Aspartame Phosphate	P	Diabetes	2010-11-01 00:00:00

- Finds all patients with a given disease name
- Example: find patients with ‘diabetes’
- Important for new medication testing, doctor check-ins, and insurance pre-existing condition screenings

Find Patient Treatments

Patient Number	Patient Name	M.I.	Ailment	Date Treated
1008	Chris Duck	P	Pain	2014-02-02 00:00:00
1009	Wayne Dwops		Pain	2017-02-03 00:00:00
1013	Taylor Dinkins	C	Pain	2017-05-06 12:39:55

- Find all treatments for given symptom
- Example: find patients treated for ‘pain’
- Allows for translation to insurance claims, history of doctor procedures to avoid repeats and ensure patient treatment quality, prescriptions

Find Patients Assigned to Doctor

Doctor Name	Doc M.I.	Doctor Type	Patient Number	Patient Name	M.I.
William King	G	Dentist	1007	Randy Randerson	R
William King	G	Dentist	1013	Taylor Dinkins	C

- Finds patients assigned to specific doctor
- Example: find for doctor ‘king’
- Important for doctor appointment scheduling, patient listing for insurance companies (HMO), and patient contacting

Find Doctor Appointments

Doctor Name	Doc M.I.	Patient Number	Patient Name	M.I.	Appointment Date	Office Name	Address1	Address2	Office City	Office State	Office Zip	Phone
Doe Doe	C	1001	John Smith		2017-01-02 00:00:00	Dosey Practice	1234 Pill Place		Concord	CA	94019	(768)589-1237
Doe Doe	C	1001	John Smith		2017-05-25 00:00:00	Dosey Practice	1234 Pill Place		Concord	CA	94019	(768)589-1237

- Lists all doctor appointments and offices (can be modified for date range)
- Example: appointments for ‘doe’
- Again important for scheduling, also for which days doctors are at different offices

Find Patient Prescriptions

Patient Number	Patient Name	M.I.	Medication Name	Prescribed Date	Medication Usa...
1003	William Jackson	M	Lantus 15mL	2017-04-27 00:00:00	Diabetes
1003	William Jackson	M	Novolog 10mL	2017-01-02 00:00:00	Diabetes
1009	Wayne Dwops		Vicodin 5mg/300mg - 30 Tablets	2014-04-05 00:00:00	Pain

- Find all prescriptions for a given patient
- Example: prescriptions for patient ‘W’
- Important for patient prescription history, billing, conditions, and refills

Find Patient Immunizations

Patient Number	Patient Name	M.I.	Immunization Na...	Disease Name	Date Received
1003	William Jackson	M	Havrix	Hepatitis A	1996-04-15 00:00:00
1003	William Jackson	M	DTaP	Tetanus	1996-04-15 00:00:00
1009	Wayne Dwops		Havrix	Hepatitis A	1972-04-15 00:00:00
1009	Wayne Dwops		DTaP	Tetanus	1972-04-15 00:00:00

- Finds specific patient immunization history
- Example: history for patient ‘W’
- Important for vaccine scheduling and possible susceptibility to diseases

Find Patient Diagnosis

Patient Number	Patient Name	M.I.	Disease	Date Diagnosed
1001	John Smith		COPD	2013-10-15 00:00:00
1010	Aspartame Phosphate	P	COPD	2017-01-05 00:00:00
1010	Aspartame Phosphate	P	Diabetes	2010-11-01 00:00:00
1005	Patrick Johns	L	Lukemia	2016-07-08 00:00:00
1005	Patrick Johns	L	Alzheimer's	2011-01-03 00:00:00

- Find all disease diagnoses for specific patient
- Example: patient ‘t’
- Important for medication prescriptions, health updates, insurance usage, and patient health awareness

Add New Prescription

patNum	medNum	docNum	prescDate	numRefills
1003	1012	1001	2017-01-02 00:00:00	5
1003	1013	1001	2017-04-27 00:00:00	2
1006	1011	1004	2017-05-01 00:00:00	1
1009	1001	1006	2014-04-05 00:00:00	0
1010	1002	1007	2015-11-11 00:00:00	1
1013	1001	1009	2017-05-06 12:11:45	1

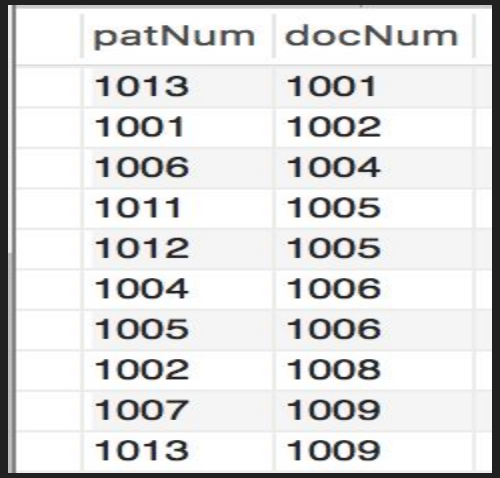
- Call for doctors to add new prescription to system
- Example: ‘addPrescription(1013, 1001, 1009, 1)’
- New prescriptions need to be able to be added, doctors would have ability

Add New Payment

	paymentNum	billNum	paymentAmount	paymentDate
▶	1	2	20	2017-04-21 00:00:00
	2	3	35	2017-01-14 00:00:00
	3	2	10	2017-05-01 00:00:00
	4	5	1.9	2017-05-02 00:00:00
	5	1	0	2017-05-06 12:21:11

- Adds new payment to payments
- Test call: call ‘addPayment(1, 0.0)’
- Important for patients to be able to pay off bills

Assign Patient to Doctor



patNum	docNum
1013	1001
1001	1002
1006	1004
1011	1005
1012	1005
1004	1006
1005	1006
1002	1008
1007	1009
1013	1009

- Adds new entry for assignment of patient to doctor
- Example: ‘assignToDoctor(1013, 1001)’
- Doctors need to be able to accept new patients

Perform Treatment

patNum	ailNum	treatCost	treatDate
1008	1001	15	2014-02-02 00:00:00
1009	1001	85.37	2017-02-03 00:00:00
1010	1003	167.91	2015-06-02 00:00:00
1010	1003	256.98	2015-09-15 00:00:00
1013	1001	20	2017-05-06 12:39:55
1013	1006	30	2017-04-02 00:00:00

- Adds new entry for performed treatment of ailment
- Example: ‘performTreatment(1013, 1001, 20.00)’
- Logs patient, ailment, and cost - important for billing, patient history, and possible prescription