
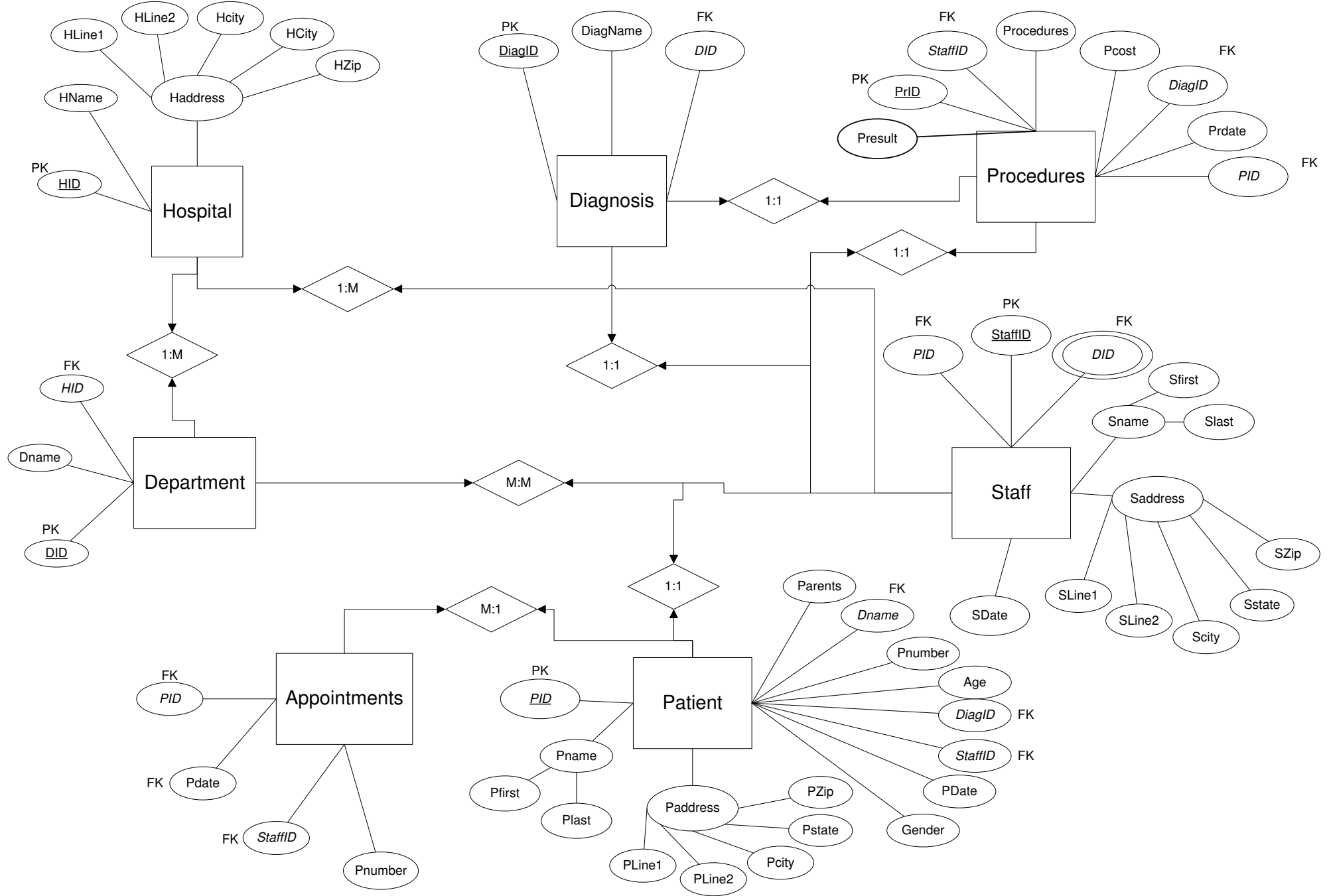


Haiqiang Zou
Student ID: 2717
CS331
2/25/2013





Domains

Hospital

HID: 0-9

HName: A-Z

HLine1: 0-9

HLine2: A-Z

HCity: A-Z

HState: A-Z

HZip: 0-9

Department

DID: 0-9

HID: 0-9

Dname: A-Z

Appointments

PID: 0-9

Appdate: 0-9,"/"

StaffID: 0-9

AppNumber: 0-9,“-“

Diagnosis

DiagID: 0-9

DID: 0-9

Diagname: A-Z

Procedures

PrID: 0-9

Presult: A-Z, 0-9

StaffID: 0-9

Procedures: A-Z

Pcost: 0-9

DiagID: 0-9

PID: 0-9

Prdate: 0-9,"/"

Staff

PID: 0-9

StaffID: 0-9

DID: 0-9

SFirst: A-Z

SLast: A-Z

SLine1: 0-9

SLine2: A-Z

SCity: A-Z

SState: A-Z

SZip: 0-9

Patient

PID: 0-9

PFirst: A-Z

PLast: A-Z

PLine1: 0-9

PLine2: A-Z

PCity: A-Z

PState: A-Z

PZip: 0-9

Parents: A-Z

Dname: A-Z

PNumber: 0-9,“-“

Age: 0-9

DiagID: 0-9

StaffID: 0-9

Pdate: 0-9,"/"

Gender: Male, Female

Haiqiang Zou

Project 1

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Hospital						
HID	Hname	HLine1	HLine2	Hcity	Hstate	Hzip
1	Queens	36-52	Main Street	Flushing	NY	11355
2	Manhattan	25	West 34 Street	New York	NY	10038
3	Brooklyn	26	V Avenue	Brooklyn	NY	10035
4	Bronx	352	153 Street	Bronx	NY	11322
5	Staten Island	3625	1st Street	Staten Island	NY	10052

Department		
DID	Dname	HID
10001	Hematology	1
10002	Cardiology	2
10003	Pediatrics	3
10004	Gastroenterlogy	4
10005	Hematology	5

Diagnosis		
DiagID	DiagName	DID
40001	Leukemia	10001
40002	Broken Bone	10002
40003	Cancer Left Lung	10003
40004	Heart Disease	10004
40005	Kidney Check	10005

Appointments			
Appdate	PID	StaffID	Pnumber
2/7/2013	30001	20001	718-888-8888
2/10/2013	30002	20002	718-444-4444
2/11/2013	30003	20003	718-666-6666
2/12/2013	30004	20004	718-222-2222
2/13/2013	30005	20005	718-333-3333
1/13/2012	30005	20005	718-333-3333

Procedures							
PrID	StaffID	Procedures	PCost	DiagID	Presult	PID	Prdate
50001	20001	Blood test	130	40001	Good	30001	1/17/2013
50002	20002	X-Ray-Left-Toe	230	40002	Good	30002	6/2/2012
50003	20003	Chemotherapy	360	40003	Bad	30003	2/16/2013
50004	20004	Heart Cure	590	40004	Bad	30004	10/6/2012
50005	20005	Kidney Transplant	480	40005	Good	30001	1/6/2013
50006	20001	Blood count	536	40001	65	30005	1/17/2013
50007	20001	Blood count	536	40003	65	30003	2/16/2013
50008	20001	Blood test	130	40003	Good	30003	2/16/2013
50008	20001	Blood test	130	40003	Good	30005	1/17/2013
50007	20001	Blood count	536	40003	70	30005	1/17/2013

Haiqiang Zou

Project 1

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Patient												
PID	PFirst	Plast	Gender	PLine1	PLine2	Pcity	Pstate	Pzip	Dobdate	Parents	Age	Pnumber
30001	Sandy	Johnson	Male	42-95	Main Street	Flushing	NY	11355	1/17/1982	Kevin	31	718-888-8888
30002	Kenny	Smith	Male	136-01	37 Rd	Flushing	NY	11355	6/2/1983	Thomas	32	718-444-4444
30003	Tina	Brown	Female	155-12	Sanford Ave	Flushing	NY	11355	2/16/1984	Michael	33	718-666-6666
30004	Michelle	Zheng	Female	38-01	Main Street	Flushing	NY	11355	10/6/1985	Rebecca	34	718-222-2222
30005	Michael	Thompson	Male	37-08	Main Street	Flushing	NY	11354	1/6/1986	Andrew	35	718-333-3333

Staff										
StaffID	StaffFirst	StaffLast	Title	SLine1	SLine2	Scity	Sstate	Szip	DID	SDate
20001	Sally	Smith	Doctor	321	5th Street	Queens	NY	11355	10001	1/8/2013
20002	Tommy	Chen	Doctor	159	6th Street	Queens	NY	11355	10002	1/25/2013
20003	Linda	Jackson	Doctor	852	7th Street	Queens	NY	11355	10003	2/2/2013
20004	Henry	Johnson	Doctor	902	8th Street	Queens	NY	11355	10004	2/8/2013
20005	Adam	Zheng	Nurse	102	9th Street	Queens	NY	11355	10005	2/8/2013

Hospital (HID, HName, HLine1, HLine2, Hcity, Hstate, Hzip) Degree: 7 Cardinality: 5Department (DID, DName, *HID*) Degree: 3 Cardinality: 5Staff (StaffID, StaffFirst, StaffLast, Title, SDate, Sline1, Sline2, Scity, Sstate, Szip, DID) Degree: 11 Cardinality: 5Patient (PID, PFirst, Plast, Gender, Pline1, Pline2, Pcity, Pstate, Pzip, *DiagID*, *StaffID*, Dobdate, *Dname*, Parents, Age, Pnumber)
Degree: 16 Cardinality: 5Appointment (AppDate, *StaffID*, *PID*, *Pnumber*) Degree: 4 Cardinality: 6Diagnosis (DiagID, DiagName, *DID*) Degree: 3 Cardinality: 5Procedures (PrID, *StaffID*, Procedures, Pcost, *DiagID*, Presult, *PID*, Prdate) Degree: 8 Cardinality: 10

Questions

1. Identify all patients who visited Sally Smith today. Display the Patient name, date of visit, Diagnosis and Procedures.

Today = 2/17/2013

σ StaffID=20001 ^ Prdate=2/17/2013(Procedures) ----> A

σ A.DiagID=Diagnosis.DiagID (A X Diagnosis)----> B

σ B.PID=Patient.PID (B X Patient)----> C

π Pfirst, Plast, Pdate, DiagName, Procedures(C) ----> D

PFirst	Plast	DiagName	Procedures
Sandy	Johnson	Leukemia	Blood test
Sandy	Johnson	Leukemia	Blood count

2. Identify the Patients who visited the Cardiology department last week. Display the patient name, date of visit, diagnosis and procedures.

σ Diagnosis.DID=10002 (Procedures X Diagnosis) ----> A

σ A.Pid=Patient.PID(A X Patient) ----> B

π Pfirst,Plast,Pdate, DiagName, Procedures(D) ----> E

PFirst	Plast	Pdate	DiagName	Procedures
Michelle	Zheng	10/6/2012	Heart Disease	Heart Cure

3. Identify yesterday's blood test results for patient Tina Brown. Display the patient name, blood test, and blood count.

yesterday = 2/16/2013

σ PrID=30003 ^ Procedures = 'Blood Count' v Procedures = 'Blood Count' (Procedures) ----> A

σ Procedures.PID = Patient.PID (Procedures X Patient) ----> D

π Pfirst,Plast, Procedures, Presults (D) ----> E

PFirst	Plast	Procedures	Presult
Tina	Brown	Blood count	65
Tina	Brown	Blood test	Good

4. Identify the red cell blood count for patient Tina Brown for the last five years. Display the blood test and blood count

σ PID=30003 ^ Pdate > 2/17/2008 ^ Pdate < 2/17/2013 (Procedures) ----> A

σ Procedures = 'Blood test' v Procedures = 'Blood Count' (A) ----> B

π Procedures, Presult (C) ----> D

Procedures	Presult
Blood count	65
Blood test	Good

5. Identify the red cell blood count for patient Tina Brown parents. Display the blood test and blood count

σ Pfirst='Tina' ^Plast='Brown' (Patient) ---> A

π Parents(A) ----> B

σ B.Parents=Patient.Pfirst (B X Patients) ---> C

σ B.PID=Procedures.PID (C X Procedures) ---> D

σ Procedures = 'Blood test' v Procedures = 'Blood Count' (D) ----> E

π blood test, blood count (E) ----> F

Procedures	Presult
Blood test	Good
Blood count	70

6. Create a bill for patient Tina Brown for procedures performed yesterday. Display the patient name, date, procedure name and cost

yesterday = 2/16/2013

σ Pfirst='Tina' ^Plast='Brown' (Patient) ---> A

σ P.PID=Procedures.PID (A X Procedures) ----> B

σ B.Prdate='2/16/2013' (B) ----> C

π Pfirst,Plast,Prdate,Procedures, Pcost(C) ---> D

PFirst	Plast	Pdate	Procedures	PCost
Tina	Brown	2/16/2013	Chemotherapy	360
Tina	Brown	2/16/2013	Blood count	536
Tina	Brown	2/16/2013	Blood test	130

7. Identify all patients who received a kidney transplant last year. Display the patient name, date of service and doctor who performed the procedure

σ Patient.PID=Procedures.PID \wedge Procedures='Kidney Transplant' \wedge Prdate \geq 1/1/2012 \wedge Prdate \leq 1/12/2013 (Patient X Procedures) ----> A

σ A.StaffID=Staff.StaffID (A X Staff) ----> B

π Pfirst,Plast,Pdate,StaffFirst,StaffLast(B) ----> C

PFirst	Plast	Pdate	StaffFirst	StaffLast
Michael	Thompson	1/6/2013	Adam	Zheng

Haiqiang Zou

Project 1

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8. Identify staff assigned to the gastroenterology department. Display the staff name, title and start date

σ Staff.DID=Department.DID ^ Dname = 'Gastroenterology' (Staff X Department) ----> A

π StaffFirst,StaffLast,Title, Sdate (A) ----> B

StaffFirst	StaffLast	Title	SDate
Henry	Johnson	Doctor	2/8/2013

9. Identify future appointments for patient Tina Brown. Display the doctor name, date of appointment and department.

Currentdate = 2/9/2013

σ PID=30003 ^ Appdate > 2/9/2013 (Appointment) ----> A

σ A.StaffID=Staff.StaffID (A X Staff) ----> B

σ B.DID=Department.DID (B X Department) ----> C

π StaffFirst,StaffLast, Pdate, Dname (E) ----> F

StaffFirst	StaffLast	Pdate	Dname
Linda	Jackson	2/11/2013	Pediatrics

10. Identify patients without medical appointments (services performed) last year. Display the patient name and phone number

π PID(A) ---> B

σ Pdate \geq 1/1/2012 \wedge Pdate \leq 1/1/2013 (Appointment) ----> C

π PID(C) ---> D

π PID(B - D) ---> E

σ E.PID=Patient.PID(E X Patient) ---> F

π Pfirst,Plast,Pnumber(F) ---> G

PFirst	Plast	Pnumber
Kenny	Smith	718-444-4444
Michelle	Zheng	718-222-2222