Database normalization

Exercise 1

- In which normal form is this table?
- Why?

SID	CID	S_name	C_name	Grade	Faculty	F_phone
1	IS318	Adams	Database	A	Howser	60192
1	IS301	Adams	Program	B	Langley	45869
2	IS318	Jones	Database	A	Howser	60192
3	IS318	Smith	Database	B	Howser	60192
4	IS301	Baker	Program	A	Langley	45869
4	IS318	Baker	Database	B	Howser	60192

Exercise 2

StdSSN	StdCity	StdClass	OfferNo	OffTerm	OffYear	EnrGrade	CourseNo	CrsDesc
S1	SEATTLE	JUN	O1	FALL	2006	3.5	C1	DB
S1	SEATTLE	JUN	O2	FALL	2006	3.3	C2	VB
S2	BOTHELL	JUN	O3	SPRING	2007	3.1	C3	OO
S2	BOTHELL	JUN	O2	FALL	2006	3.4	C2	VB

- Based on this table provide examples of

- The insertion anomaly

- The update anomaly

- The deletion anomaly

Exercise 3

- Normalize the following table:

staffNo	name	position	salary	branchNo	branchAddress	telNo
S1500	Tom Daniels	Manager	46000	B001	8 Jefferson Way, Portland, OR 97201	503-555-3618
S0003	Sally Adams	Assistant	30000	B001	8 Jefferson Way, Portland, OR 97201	503-555-3618
S0010	Mary Martinez	Manager	50000	B002	City Center Plaza, Seattle, WA 98122	206-555-6756
S3250	Robert Chin	Supervisor	32000	B002	City Center Plaza, Seattle, WA 98122	206-555-6756
S2250	Sally Stern	Manager	48000	B004	16 – 14th Avenue, Seattle, WA 98128	206-555-3131
S0415	Art Peters	Manager	41000	B003	14 – 8th Avenue, New York, NY 10012	212-371-3000

Exercise 4

- Create a version of this table(s) in 1NF,2NF and 3 NF

VisitNo	VisitDate	PatNo	PatAge	PatCity	ProvNo	ProvSpecialty	Diagnosis
V10020	1/13/2007	P1	35	DENVER	D1	INTERNIST	EAR INFECTION
V10020	1/13/2007	P1	35	DENVER	D2	NURSE PRACTIONER	INFLUENZA
V93030	1/20/2007	P3	17	ENGLEWOOD	D2	NURSE PRACTIONER	PREGNANCY
V82110	1/18/2007	P2	60	BOULDER	D3	CARDIOLOGIST	MURMUR

Exercise 4

- Create a version of this table(s) in 1NF,2NF and 3 NF

1NF
Big Patient (VisitNo., VisitDate, PatNo, PatAge, PatCity, ProvNo, ProvSpecialty, Diagnosis)

2NF
PatientVisit (VisitNo., VisitDate, PatNo, PatAge, PatCity)
Provider (ProvNo, ProvSpecialty)   [Already in 3NF]
VisitProvDiagnosis(VisitNo., ProvNo, Diagnosis)   [Already in 3NF]

3NF
Patient (PatNo, PatAge, PatCity)
PatientVisit (VisitNo., VisitDate, PatNo)
Provider (ProvNo, ProvSpecialty)
VisitProvDiagnosis(VisitNo., ProvNo, Diagnosis)

Exercise 5

- Work in pairs:
  - Make an example of table in 0NF or 1NF and give it to your neighbor
  - Exchange chaotic tables and compare results