

Notes on Relational Databases: - Mozilla Firefox

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Notes on Relational Databases: +

www.pgrocer.net/Cis54/relation.html

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Notes on Relational Databases: Rules for third normal form.

A database can consist of multiple tables/files. These tables/files are related to each other in some way so that the programmer or developer can access information from multiple table/files at the same time. A database management system is the database and its functionality. In today's PC environment, the model of relating the table/files within a database is the relational database model. Things that must be considered in a relational database:

- Analyze the data and determine how to design the files - consider whether the data is in a one to one relationship, a one to many relationship or a many to many relationship.
- Consider functional dependence: An attribute B, is functionally depended on another attribute, A if a value for A determines a single value for B at any one time.
- The primary key has all attributes in the table functionally dependent upon it - to simplify you can think of the primary key as the minimum collection of fields that will get you one and only one record from the table/file.
- We must also consider the rules of normalization and establish the relationships so that the database is in third normal form.
- A relation is in **first normal form** if it does not contain repeating groups.
- A relation is in **second normal form** if it is in first normal form and no non-key attribute is dependent on only a portion of the primary key. (Note: an attribute is a non-key attribute if it is not a part of the primary key).
- A relation is in **third normal form** if it is in second normal form and if the only determinants it contains are candidate keys. (Note: any attribute that determines another attribute is called a determinant).

Windows taskbar: 12:26 PM 12/8/2011

Order
PK Ordno

Item PK
ordno }
Itemno } PK

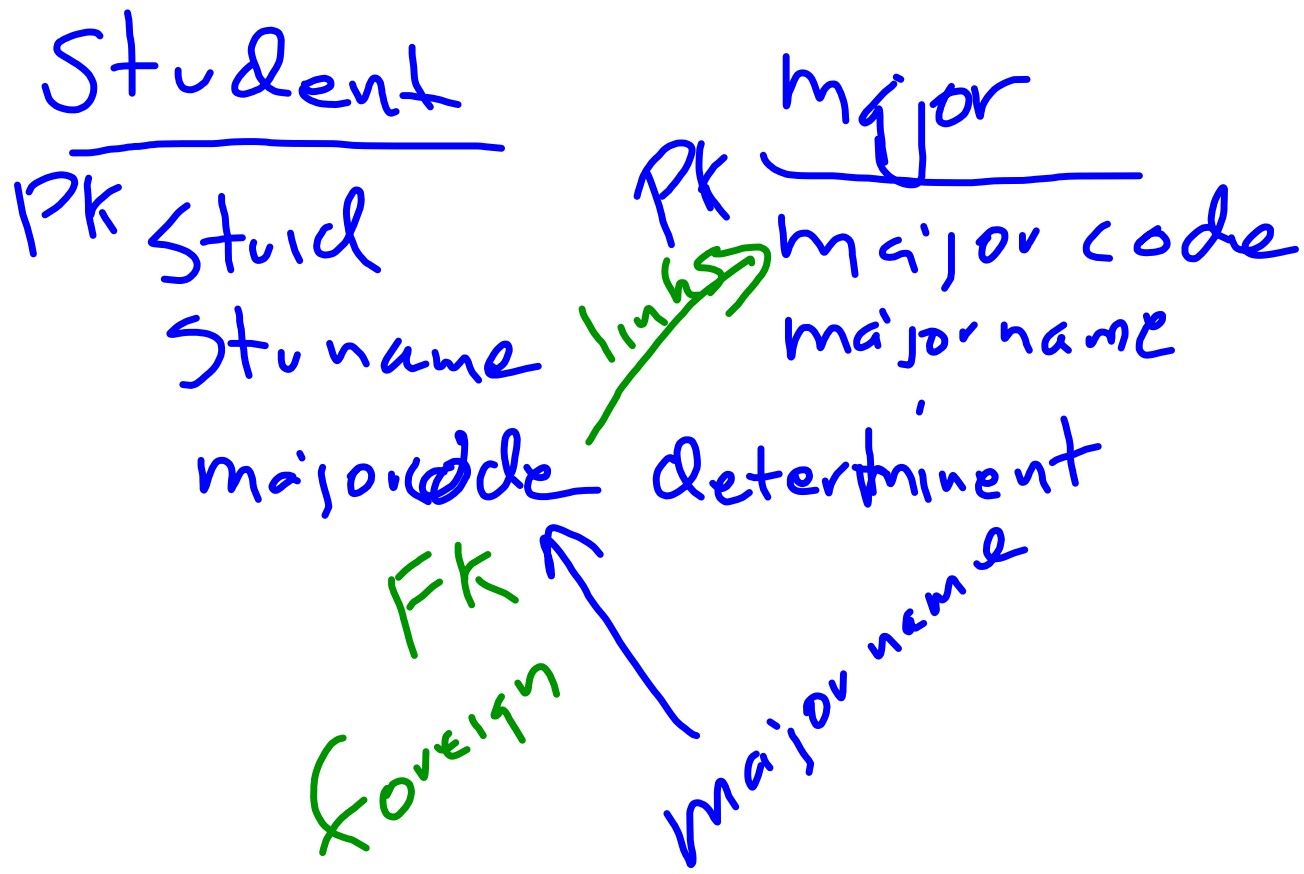
Inv
Itemno
Itemname

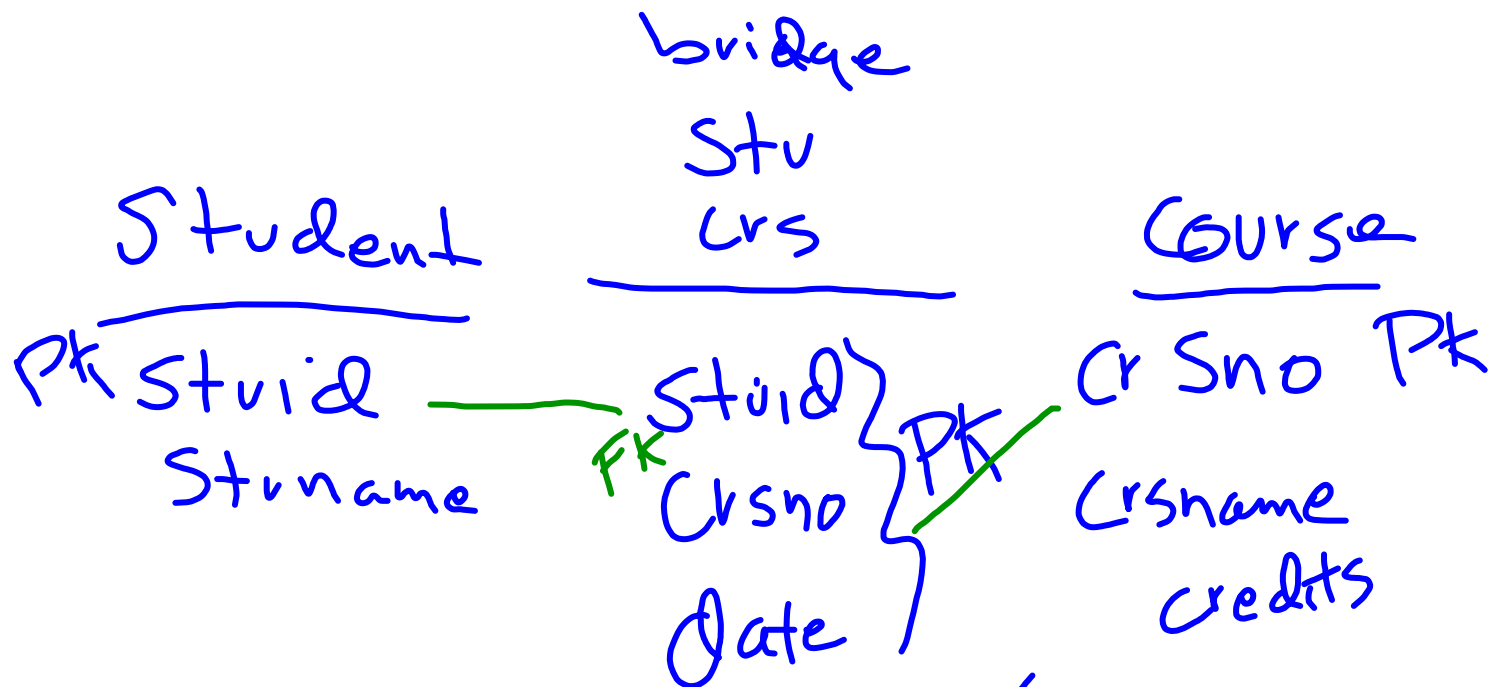
No repeating groups
1st Normal Form

Item		
Item		
Item		

2nd Normal Dependent Key
On whole

Quantity





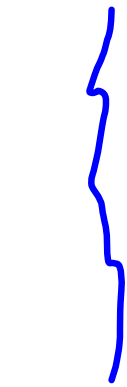
grade PK

	C15120	F	A
	C15122	F	A
	ENG101	F	F
	ENG101	S	A

Sequential

1st rec

2nd rec



last rec

file
table
in a
DIB

Random Index

look up

ID in index

gives me the

adr & I can

retrieve

record

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www.pgrocer.net/Cis17/assign/seqproc.html

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Old Master File:

Idno	Name	Major	Option	GPA	NumCrs	State
11111	John Doe	CIS	CIC	3.0	24	RI
12345	Linda Hall	BUS	BST	2.8	31	MA
13456	David White	CIS	CIX	3.4	15	RI
14567	Ann Page	CIS	CIN	2.3	45	MA
15678	Susan French	CIS	CIW	3.2	36	MA
16789	Alan Ross	CIS	CIM	2.6	45	MA
17890	Jane Alden	CIS	CIW	2.8	39	MA

Good Transactions:

Note: When making a change, only the fields with data entered in the transaction field are changed on the record written to the new master. All other fields stay the same.

Idno	Name	Major	Option	GPA	NumCrs	State	Action
12345		CIS	CIT				C
13333	Richard Smith	CIS	CIB	3.0	15	RI	A
13456	Amy Jones	CIS	CIC	3.2	15	MA	A
14444				3.8			C
14666							D
15678					24		C
15678						RI	C
16789							D
17777						MA	C

Your assignment is to show me the output on the New Master File and the output on the error report. To do this, you should...

Click here to restore ink.

12:56 PM
12/8/2011

Old Master File:

Idno	Name	Major	Option	GPA	NumCrs	State
11111	John Doe	CIS	CIC	3.0	24	RI
12345	Linda Hall	BUS CIS	CIT CIT	2.8	31	MA
13456	David White	CIS	CIX	3.4	15	RI
14567	Ann Page	CIS	CIN	2.3	45	MA
15678	Susan French	CIS	CIW	3.2	36	MA
16789	Alan Ross	CIS	CIM	2.6	45	MA
17890	Jane Alden	CIS	CIW	2.8	39	MA

Sequential - sort files

Copy in same order to new master

write to new master

Good Transactions:

Note: When making a change, only the fields with data entered in the transaction field are changed on the record written to the new master. All other fields stay the same.

M < T
M < T
M = T

Idno	Name	Major	Option	GPA	NumCrs	State	Action
12345		CIS	CIT				C
13333	Richard Smith	CIS	CIB	3.0	15	RI	A
13456	Amy Jones	CIS	CIC	3.2	15	MA	A
14444				3.8			C
14666							D
15678					24		C
15678						RI	C
16789							D
17777						MA	C

Update
C
A
D

Your assignment is to show me the output on the New Master File and the output on the error report. To do this, you should use the

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www.pgrocer.net/Cis17/assign/ranproc.html

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11111	John Doe	CIS	CIC	3.0	24	RI
12345	Linda Hall	BUS	BST	2.8	31	MA
13456	David White	CIS	CIX	3.4	15	RI
14567	Ann Page	CIS	CIN	2.3	45	MA
15678	Susan French	CIS	CIW	3.2	36 24	MA
16789	Alan Ross	CIS	CIM	2.6	45	MA
17890	Jane Alden	CIS	CIW	2.8	39	MA

This is a rather simplistic approach, but I feel it gets the point across:

Index to Master File:

Idno	Record
11111	1
12345	2
13456	3
14567	4
15678	5
16789	6
17890	7

13333 3

advers

Good Transactions:

Note: When making a change, only the fields with data entered in the transaction field are changed on the record written to the new master. All other fields stay the same.

Idno	Name	Major	Option	GPA	NumCr	State	Action
15678					24		C
16789							D
14444				3.8			C
13333	Richard Smith	CIS	CIB	3.0	15	RI	A
17777						MA	C

Red Trans Drivers