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Lab 7: Normalization

1. I take a look at the spreadsheet and the first thing I notice is that there are some weird little groups in packID. This means that there's no primary key because nothing is unique. That's really bad. I tell him that we can work with this but it'll need some tweaking. Also the software cost should have a unit.

2.

PackID	TagNum	InstallDate	SoftwareCostUSD
AC01	32808	09-13-1995	754.95
DB32	32808	12-03-1995	380.00
DB32	37691	06-15-1995	380.00
DB33	57772	05-27-1995	412.77
WP08	32808	01-12-1996	185.00
WP08	37691	06-15-1995	227.50
WP08	57222	05-27-1995	170.24
WP09	59386	10-30-1995	35.00
WP09	77740	05-27-1995	35.00

3. The primary key is TagNum with a composite key of PackID. Together, they make a unique combination. If the software is reinstalled, we need the InstallDate to also be a composite key.

4.

PackID	TagNum	InstallDate	SoftwareCostUSD	CompModel	SoftwareName
AC01	32808	09-13-1995	754.95	HP	Photoshop CS3
DB32	32808	12-03-1995	380.00	HP	Flash CS3
DB32	37691	06-15-1995	380.00	Not Apple	Flash CS3
DB33	57772	05-27-1995	412.77	Alienware	Illustrator CS3
WP08	32808	01-12-1996	185.00	HP	Xsplit
WP08	37691	06-15-1995	227.50	Not Apple	Xsplit
WP08	57222	05-27-1995	170.24	Custom	Xsplit
WP09	59386	10-30-1995	35.00	ASUS	Half Life 3
WP09	77740	05-27-1995	35.00	Lenovo	Half Life 3

5.   CompModel depends on TagNum, which depends on PackID to be unique.
SoftwareName depends on PackID.
SoftwareCostUSD depends on CompModel and PackID, and therefore TagNum and
        PackID.
InstallDate depends on PackID (I think).

6.   There's still repeating entries. CompModel depends on TagNum, which also depends on
PackID. Software cost is dependent on both CompModel and PackID and is therefore
transitively dependent on TagNum and PackID and oh god this is a mess.   Third normal
form requires that domains be dependent on one thing and one thing only. We'd have to
split this into many tables to make up for this.

7.

Software Packages

PackID	SoftwareName	InstallDate
AC01	Photoshop CS3	09-13-1995
DB32	Flash CS3	12-03-1995
DB32	Flash CS3	06-15-1995
DB33	Illustrator CS3	05-27-1995
WP08	Xsplit	01-12-1996
WP08	Xsplit	06-15-1995
WP08	Xsplit	05-27-1995
WP09	Half Life 3	10-30-1995
WP09	Half Life 3	05-27-1995

Computer Models

TagNum	CompModel
37691	Not Apple
57772	Alienware
32808	HP
57222	Custom
59386	ASUS
77740	Lenovo

Software Installations

PackID	TagNum	SoftwareCost USD
AC01	32808	754.95
DB32	32808	380.00
DB32	37691	380.00
DB33	57772	412.77
WP08	32808	185.00
WP08	37691	227.50
WP08	57222	170.24
WP09	59386	35.00
WP09	77740	35.00

SoftwareName and InstallDate depend on PackID.
CompModel depends on TagNum.

8. Software Packages: InstallDate and SoftwareName depend on PackID
   Computer Models: Computer Model depends on TagNum.
   Software Installations: SoftwareCostUSD depends on TagNum and PackID.
9. The new tables are in third normal form because I say they are. I mean, they are in third normal form because none of them are in tables in which they depend on only one part of a composite key.
10. Here's a ~~ugly as fuck~~ beautiful ER Diagram:

Software Packages

PK,FK1	PackID
	SoftwareName
	InstallDate

Computer Models

PK,FK1	TagNum
	CompModel

Software Installations

PK	PackID
PK	TagNum
	SoftwareCost