Matthew Musich
Alan Labouseur
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Part One:

1)There is no simple way to track each installation and it was designed poorly because there is a lack of a single primary key within the data. You would have to reorganize the data.

2)

	PackageID (PK) Char(4)	TagNumber (PK) Int	InstallDate date	SoftwareCostUSD numeric(16,2)
1	AC01	32808	09-13-2005	754.95
2	DB32	32808	12-03-2005	380.00
3	DB32	37691	06-15-2005	380.00
4	DB33	57772	05-27-2005	412.77
5	WP08	32808	01-12-2006	185.00
6	WP08	37691	06-15-2005	227.50
7	WP08	57222	05-27-2005	170.24
8	WP09	59836	10-30-2005	35.00
9	WP09	77740	05-27-2005	35.00

3) The primary key is a composite key of the PackageID column and the TagNumber column.

Part Two:

1)

	PackageID (PK) Char(4)	TagNumber (PK) Int	PackageName Char(50)	ComputerModel Char(30)	InstallDate date	SoftwareCostUSD numeric(16,2)
1	AC01	32808	Half-Life 2	HP	09-13-2005	754.95
2	DB32	32808	Illustrator	HP	12-03-2005	380.00
3	DB32	37691	Illustrator	Dell	06-15-2005	380.00
4	DB33	57772	Illustrator	Asus	05-27-2005	412.77
5	WP08	32808	Super Hexagon	HP	01-12-2006	185.00
6	WP08	37691	Super Hexagon	Dell	06-15-2005	227.50
7	WP08	57222	Super Hexagon	Acer	05-27-2005	170.24
8	WP09	59836	Garry's Mod	Apple	10-30-2005	35.00
9	WP09	77740	Garry's Mod	Toshiba	05-27-2005	35.00

2) Functional dependencies are as follows

a) PackageID **to** PackageName

b) TagNumber **to** ComputerModel

c) PackageID **and** TagNumber **to** InstallDate **and** SoftwareCostUSD

3)This table is not in the third normal form because some of the columns are not dependent on both primary keys that make up the composite key. If any column is dependent on a single part of the composite key then the table cannot be in the third normal form. For example ComputerModel directly refers to each TagNumber, but has no direct relation to PackageID. So the dependency is only attached to one of the two primary keys.

Part Three:

1) The tables that will be made from third normal form are Software, Computers, and Installations. The primary keys are as follows

a) Software's primary key is PackageID

b) Computers' primary key is TagNumber

c) Installations' primary key is the composite of PackageID and TagNumber

2) Functional dependencies are as follows

a) <u>Software:</u> PackageID **to** PackageName

b) <u>Computers:</u> TagNumber **to** ComputerModel

c) <u>Installations:</u> PackageID **and** TagNumber **to** InstallDate **and** SoftwareCostUSD

3) The new tables are in third normal form because each column depends solely on the single PK in each table. There is no connection to the other part of the composite key like in the last table. For example ComputerModel solely depends on TagNumber and nothing else. Which allows it to be in the third normal form.

4)