

Part 1

The provided table contains all of the needed information, but the design can be improved to make it more reliable and efficient.

PackageID	TagNumber	InstallDate	SoftwareCostUSD
AC01	32808	09-13-2005	754.95
DB32	32808	12-03-2005	380.00
DB32	37691	06-15-2005	380.00
DB33	57772	05-27-2005	412.77
WP08	32808	01-12-2006	185.00
WP08	37691	06-15-2005	227.50
WP08	57222	05-27-2005	170.24
WP09	59836	10-30-2005	35.00
WP09	77740	05-27-2005	35.00

Primary Key = packageID, TagNumber

Part 2

packageID	tagNumber	installDate	softwareCostUSD	packageName	model
AC01	32808	09-13-2005	754.95	WinAmp	eMachines
DB32	32808	12-03-2005	380.00	Portal	eMachines
DB32	37691	06-15-2005	380.00	Portal	Compaq
DB33	57772	05-27-2005	412.77	Kony2012	Gateway
WP08	32808	01-12-2006	185.00	Nisco Solutions	eMachines
WP08	37691	06-15-2005	227.50	Nisco Solutions	Compaq
WP08	57222	05-27-2005	170.24	Nisco Solutions	Lenovo
WP09	59836	10-30-2005	35.00	Lotus Notes	MSI
WP09	77740	05-27-2005	35.00	Lotus Notes	NeXT

Functional Dependencies

packageID, tagNumber -> softwareCostUSD

packageID, tagNumber -> installDate

tagNumber -> model

packageID -> packageName

Why this table is not 3NF:

- packageName and model are not needed because they are the same as packageID and tagNumber.
- All new software requires an install date and cost
- If you want to change a package name, you have to change it for all instances where that package was installed.

Part 3

The table can be made into 3NF by converting it to three tables. There would be a table for all the computers, and another table for all the packages. The third table would be all of the installations and it would link computers to packages.

Primary Keys:

Packages: packageID

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Computers: tagNumber
Installations: packageID, tagNumber

Functional Dependancies:
packageID, tagNumber -> softwareCostUSD
packageID, tagNumber -> installDate
tagNumber -> model
packageID -> packageName

The tables are in 3NF form because each table can be modified independently of the other tables. For instance, if you change a package name, it will only have to be changed once and will not affect any other part of the table. All computers linked to that package will return the new package name once it has been changed in the package table.

