

Part One

1. I would say that the spreadsheet shows good information, but the formatting needs a little bit of work. I would recommend a design where each row is unique and is uniquely identified by a primary key.

2.

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	1-12-2006	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

3. The primary key is a combination of the PackageID and the TagNumber.

4.

PackageID	TagNumber	InstallDate	SoftwareCostUSD	SoftwarePackName	CompModel
AC01	32808	09-13-2005	754.95	Zork	IBM
DB32	32808	12-03-2005	380.00	Portal	IBM
DB32	37691	06-15-2005	380.00	Portal	Apple
DB33	57772	05-27-2005	412.77	Pokemon	HP
WP08	32808	1-12-2006	185.00	Minecraft	IBM
WP08	37691	06-15-2005	227.50	Minecraft	Apple
WP08	57222	05-27-2005	170.24	Minecraft	Gateway
WP09	59836	10-30-2005	35.00	League of Legends	Dell
WP09	77740	05-27-2005	35.00	League of Legends	Lenovo

5. SoftwarePackName is functionally dependent on PackageID. CompModel is functionally dependent on TagNumber. InstallDate is functionally dependent on the

Primary Key of PackageID and TagNumber. SoftwareCost is functionally dependent on the Primary Key of PackageID and TagNumber.

6. This table is not in 3NF because there are multi key dependencies, as stated in the question above. To solve this problem, this table has to be separated into many smaller tables.

7. Installs

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	1-12-2006	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

Packages

PackageID	SoftwarePackName
AC01	Zork
DB32	Portal
DB33	Pokemon
WP08	Minecraft
WP09	League of Legends

Computers

TagNumber	ComputerModel
32808	IBM
37691	Apple
57772	HP
57222	Gateway
59836	Dell
77740	Lenovo

Installs table the primary key is a combination of the PackageID and TagNumber. In the Packages table the primary key is PackageID. In the Computers table the primary key is the TagNumber.

8. ComputerModel is functionally dependent on TagNumber. SoftwarePackName is functionally dependent on PackageID. And the columns InstallDate and SoftwareCostUSD are functionally dependent on the combination of PackageID and Tag Number.

9. These new tables are in 3NF because there are no mulit key dependencies. This was violated previously because the primary key determined both the SoftwarePackName and the ComputerModel.

10.

