

Part 1:

1. The spreadsheet right now is basically raw information that has not been normalized. All the info is there in the spreadsheet but it needs to be restructured so it is in 1NF. Once it has been put into first normal form the data can be accessed correctly with SQL queries and it will have been standardized.

2.

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

3.

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

Part 2:

4.

PackageID	TagNumber	InstallDate	SoftwareCostUSD	SoftwarePackageName	ComputerModel
AC01	32808	2005-09-13	754.95	Zork	IBM
DB32	32808	2005-12-03	380.00	Portal	IBM
DB32	37691	2005-06-15	380.00	Portal	Apple
DB33	57772	2005-05-27	412.77	Windows7	LG
WP08	32808	2006-01-12	185.00	SkyWire	IBM
WP08	37691	2005-06-15	227.50	SkyWire	Apple
WP08	57222	2005-05-27	170.24	SkyWire	Dell
WP09	59836	2005-10-30	35.00	Windows8	Samsung
WP09	77740	2005-05-27	35.00	Windows8	Google

5.

Functional dependencies:

PackageID, TagNumber (Primary Key) → installDate

PackageID, TagNumber (Primary Key) → SoftwareCostUSD

TagNumber → ComputerModel

PackageID → PackageName

6.

The table is not in 3NF because to be in 3NF no nonprime attribute of the table can be transitively dependent on the primary key. ComputerModel and PackageName are dependent on TagNumber and PackageID, respectively, and neither TagNumber nor Package ID is a primary key.

Part 3:

Software Packages

PackageID	SoftwarePackageName
AC01	Zork
DB32	Portal
DB33	Windows7
WP08	Skywire
WP09	Windows8

Computers

TagNumber	ComputerModel
32808	IBM
37691	Apple
57772	LG
57222	Dell
59836	Samsung
77740	Google

Orders

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

7.

Primary Keys:

Orders - PackageID and TagNumber composite key

Software Packages - PackageID

Computers - TagNumber

8.

Functional Dependencies:

Orders:

PackageID, TagNumber (Primary Key) → installDate

PackageID, TagNumber (Primary Key) → SoftwareCostUSD

Software Packages:

PackageID → PackageName

Computers:

TagNumber → ComputerModel

9.

It is now in third normal form because all non-key attributes are dependent on the primary key and nothing else. When the database was broken up into several tables, it made the keys that were dependent on non-primary keys into foreign keys. In their respective tables they are the primary key now so in those tables the non-key attributes are dependent on the primary key.

10.

