

1. I would say that the database is alright, however there needs to be a few refactoring. As a database consultant my job is to make sure that each database follows normalization rules, in which this database violates wholeheartedly. In order to fix that, we must make sure this database does so by first refactoring it to the first normalization rule, and seeing if we can push forward to the next normalization rules.

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	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

3. PackageID and TagNumber is the primary key since the combination of both will represent a unique row.

4.

PackageID	PackageName	ComputerModel	TagNumber	InstallDate	SoftwareCostUSD
AC01	Zork	MICROSOFT	32808	09-13-2005	754.95
DB32	Portal	MICROSOFT	32808	12-03-2005	380.00
DB32	Portal	IBM	37691	06-15-2005	380.00
DB33	Shapow	APPLE	57772	05-27-2005	412.77
WP08	Wazzam	MICROSOFT	32808	01-12-2006	185.00
WP08	Wazzam	IBM	37691	06-15-2005	227.50

WP08	Wazzam	APPLE	57222	05-27-2005	170.24
WP09	Badabop	DELL	59836	10-30-2005	35.00
WP09	Badabop	Chromebook	77740	05-27-2005	35.00

5. Functional Dependencies:

Tag Number -> Computer Model

Every computer model has a distinct tag number, which uniquely defines it.

PackageID -> PackageName

Each package name is defined by a unique package ID.

(PackageID, TagNumber) -> InstallDate, SoftwareCostUSD

InstallDate, and SoftwareCostUSD is meaningless without PackageID, and TagNumber.

6.

This table cannot be in third normal form, since there not every non-key attribute is dependent on the primary key, which violates second normal form.

7.

Installs

Primary Key: PackageID, TagNumber

Functional Dependencies:

PackageID, Tagnumber -> InstallDate, SoftwareCostUSD

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
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Software Packages

Primary Key: PackageID

Functional Dependencies:

Package Id - > PackageName

PackageID	PackageName
AC101	Zork
DB32	Portal
DB33	Shapow
WP08	Wazzam
WP09	Badabop

Computers

Primary Key: TagNumber

Functional Dependencies:

TagNumber -> Computer Model

TagNumber	Computer Model
32808	MICROSOFT
37691	IBM
57772	Apple
59836	Dell
77740	Chromebook

9.

The new tables are in third normal form because it satisfies the requirements of 1NF, 2NF, and 3NF. It is in 1NF because there are no fields with multiple values. It is in 2NF because each element is dependant on the primary key. In addition, it is in 3NF because there are no transparent functional dependencies.

10.

