

Lab 7

Part One

1. I would reply by saying that the table is a good place to start, however it needs work. The table needs normalization. The table doesn't achieve the logical goal of accurately showing relationships in the data set. In my head, I would be saying yikes.
- 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. The primary key is PackageID + TagNumber.

Part Two

- 4.

PackageID	TagNumber	InstallDate	Software CostUSD	Software Package	Computer Model
AC01	32808	09-13-2005	754.95	Zork	Apple
DB32	32808	12-03-2005	380.00	Portal	Apple
DB32	37691	06-15-2005	380.00	Portal	IBM
DB33	57772	05-27-2005	412.77	Portal	Apple
WP08	32808	01-12-2006	185.00	Zork	Apple

WP08	37691	06-15-2005	227.50	Zork	IBM
WP08	57222	05-27-2005	170.24	Zork	Apple
WP09	59836	10-30-2005	35.00	Zork	Apple
WP09	77740	05-27-2005	35.00	Zork	IBM

5. Functional dependencies:

- PackageID → SoftwarePackage
- TagNumber → ComputerModel
- PackageID + TagNumber → SoftwareCost, InstallDate

6. The above table is not in 3NF because there are multi-key dependencies. For example. SoftwarePackage is dependent on PackageID, but other elements such as SoftwareCost and InstallDate and are dependent on PackageID + TagNumber.
If this was in 3NF, given PackageID, I should easily be able to determine SoftwarePackage. Given SoftwarePackage, I should be able to determine SoftwareCost.

Part Three

Software:

PackageID	SoftwarePackage
AC01	Zork
DB32	Portal
DB33	Portal
WP08	Zork
WP09	Zork

Computers:

TagNumber	ComputerModel
32808	Apple
37691	IBM
57772	Apple
59836	Apple
77740	IBM

Installation:

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

7. Primary keys for tables:

Software: PackageID

Computers: TagNumber

Installation: PackageID+TagNumber

8. Functional dependencies for all tables:

Software: PackageID → SoftwarePackage

Computers: TagNumber → ComputerModel

Installation: PackageID + TagNumber → InstallDate, SoftwareCostUSD

9. This is now in 3NF because it is in 2NF and there are no multi-key, transitive dependencies. For the Computers and Software Tables, each PK value has one prime dependency. In the installation tables, there is one value in SoftwareCost and InstallDate for every PK value.

10. ER diagrams:

