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Lab 7: Normalization One

03/18/2017

1. At first I would begin with how he has done a fantastic job with the spreadsheet, which would be a lie, and then tell him I will need to make some adjustments to his magnificent data. I will tell him that the table is not normalized and will create anomaly problems when you try to update, delete, or insert within the spreadsheet. I will explain how he must not group the Package IDs as he did. I would also note that the table is missing some data; the software package name and the computer model.

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 and TagNumber as a composite key.

4.

PackageID	TagNumber	InstallDate	Software CostUSD	Software PackageName	Computer Model
AC01	32808	09-13-2005	754.95	Zork	Apple
DB32	32808	12-03-2005	380.00	Zork	IBM
DB32	37691	06-15-2005	380.00	Portal	Dell
DB33	57772	05-27-2005	412.77	Zork	HP
WP08	32808	01-12-2006	185.00	Portal	IBM
WP08	37691	06-15-2005	227.50	Zork	Apple
WP08	57222	05-27-2005	170.24	Portal	Apple
WP09	59836	10-30-2005	35.00	Portal	Dell
WP09	77740	05-27-2005	35.00	Portal	Apple

5. (PackageID, TagNumber) → InstallDate, SoftwareCostUSD

Software table: PackageID → SoftwarePackageName

Package table: TagNumber →ComputerModel

6. This new table is not in 3NF because it is not in 2NF. PackageID and TagNumber are combined to make the primary key. There exists partial key dependencies and multiple key dependencies.

Installation Table:

PackageID	TagNumber	InstallDate	Software CostUSD
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

Software Table:

PackageID	Software PackageName
AC01	Zork
DB32	Zork
DB32	Portal
DB33	Zork
WP08	Portal
WP08	Zork
WP08	Portal
WP09	Portal
WP09	Portal

Tag Table:

TagNumber	Computer Model
32808	Apple
32808	IBM
37691	Dell
57772	HP
32808	IBM
37691	Apple
57222	Apple
59836	Dell
77740	Apple

7. Installation table primary key is (PackageID, TagNumber). The Software table primary key is PackageID. The Tag table primary key is TagNumber.

8. Installation table: (PackageID, TagNumber) → InstallDate, SoftwareCostUSD

   Software table: PackageID → SoftwarePackageName

   Package table: TagNumber →ComputerModel

9. Each table has their own primary key that have functional dependencies. None of the tables have partial key dependencies or multiple key dependencies. These new tables are in 3NF.

10. Beautiful E/R diagram