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Database Management

Normalization One

Part 1

1. The spreadsheet includes a lot of useful information but I think some of it is a little redundant and could be organized in a clearer form that would allow for many types of Viewers and would help the viewer understand the data more easily.

Data in 1NF

PackageID	InstallDate	TagNumber	SoftwareCost(USD)
AC01	09-13-1995	32808	754.95
DB32	12-03-1995	32808	380.00
DB32	06-15-1995	37691	380.00
DB33	05-27-1995	57772	412.77
WP08	01-12-1996	32808	185.00
WP08	06-15-1995	37691	227.50
WP08	05-27-1995	57222	170.24
WP09	10-30-1995	59836	35.00
WP09	05-27-1995	77740	35.00

2. The primary key in this situation would be a composite key of the PackageID and the TagNumber. PackageIDs and TagNumbers can be used more than once.

Part 2

3.

PackageID	ComputerModel	TagNumber	PackageName	InstallDate	SoftwareCost(USD)
AC01	Lenovo	32808	Powerpoint	09-13-1995	754.95
DB32	Lenovo	32808	Word	12-03-1995	380.00
DB32	HP	37691	Word	06-15-1995	380.00
DB33	Samsung	57772	Foxnet	05-27-1995	412.77
WP08	Lenovo	32808	Photoshop	01-12-1996	185.00
WP08	HP	37691	Photoshop	06-15-1995	227.50
WP08	Apple	57222	Photoshop	05-27-1995	170.24
WP09	Dell	59836	Foxnet	10-30-1995	35.00
WP09	IBM	77740	Foxnet	05-27-1995	35.00

5. Functional Dependencies

- PackageID to SoftwarePackageName

- TagNumber to ComputerModel
- PackageID and TagNumber to InstallDate and SoftwareCostUSD

6. This table is not in third normal form because some of the keys do not depend on both of the Primary keys that make up the composite key. The columns that have this error are ComputerModel only depending on TagNumber and SoftwarePackageName only depending on PackageID. For a table to be in third normal form, there can be no partial key dependencies.

Part 3

7. To take out the table from 1NF to 3NF I would create three new tables that will be called Computer, Software, and Installation. The primary key of Computer table will be TagNumber. The primary key of the Software table will be PackageID. The primary key of the Installation table will be the composite key of TagNumber and PackageID.

8. Primary Key: Composite key of PackageID and TagNumber
 InstallDate depends on PackageID and TagNumber
 SoftwareCost(USD) depends on PackageID and TagNumber

9. The new tables are in third normal form because all elements in the individual tables are dependent on that table's primary key and there are no multiple key dependencies inside the tables..

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