Kayla Mesmain

11/6/17

Lab 7- Normalization1

Part one

1. As a data consultant I have found some discrepancies in the spreadsheet collected for Tycho Manufacture. The table must reach a type of normalization. Our goal is to reach 1NF. For the table to be in 1NF it must be in atomic form. Thus, every intersection the data must be atomic or indivisible already broken down.
2.

Tycho Manufacturing

PackageID	TagNumber	InstalDate	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 the PackageID and TagNumber which together is the composite key, because a primary key is a minimal super key to choose a key as primary in which it must uniquely identify a record.

Part Two

4.

Tycho Manufacturing

PackageID	TagNumber	InstalDate	SoftwareCostUSD	SoftwarePackageName	ComputerModel
AC01	32808	09-13-2005	754.95	Zork	IBM
DB32	32808	12-03-2005	380.00	Portal	Apple
DB32	37691	06-15-2005	380.00	Portal	Apple
DB33	57772	05-27-2005	412.77	DigitalDashboard	Lenovo
WP08	32808	01-12-2006	185.00	Pure-play	HP
WP08	37691	06-15-2005	227.50	Pure-play	HP
WP08	57222	05-27-2005	170.24	Pure-play	HP
WP09	59836	10-30-2005	35.00	Oracle	Dell
WP09	77740	05-27-2005	35.00	Oracle	Dell

5. The functional dependencies in the table is that the packageID primary key is dependent on the column SoftwarePackageName. The TagNumber of each computer is dependent or determines each ComputerModel that is being used. Thus the composite key of PackageID/TagNumber would be dependent on both the InstalDate and SoftwareCostUSD.
6. The table is not in third normal form(3NF), because the table has no partial key dependency to be second normal form(2NF). In order to be in 3NF you need to be 2NF first. This violates the 3NF because no attribute can be dependent on one another attribute. As proven in the previous question there is multiple functional dependences from each of the attributes. Therefore, no multikey dependency.

Part 3

7. There will be three tables. In which one table will be the software table. The primary key will be PackageID and will include SoftwarePackageName. The second table will be called devices in which the primary key will be the TagNumber which includes the ComputerModel. The last table would be installation. The primary key would be the PackageID and TagNumber in which it would include the InstalDate and SoftwareCostUSD.

8. The function dependencies include the following where the software would be dependent on the PackageID and PackageName. Then for the devices would be dependent on the TagNumber and ComputerModel. Lastly, the PackageID and TagNumber would be dependent on the InstalDate.

9. The new tables are in third normal form (3NF) because, all the tables are not dependent on one another rather it is dependent on the primary keys which are PackageID, TagNumber and PackageID/TagNumber. Therefore, this reduces chances of duplicate fields. It will be unique across all fields.

10. ER DIAGRAM OF TYCHO MANUFACTURING (made on lucid chart)