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Normalization Homework 1

Part One

#1. I think this is a very good start, but it can be made much better. For example I can organize the data more clearly by introducing normalization. This is the process of organizing the fields and tables of a relational database to minimize redundancy and dependency. By doing this, your spreadsheet will be transformed into something easily understood by anyone you show the data to.

#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 for this table is a composite key of PackageID and TagNumber. This is true because a composite key consists of more than one attribute to uniquely identify an entity occurrence.

Part Two. #1.

PackageID	TagNumber	InstallDate	SoftwareCostUSD	SoftwarePackageName	ComputerModel
AC01	32808	09-13-2005	754.95	Zork	HP
DB32	32808	12-03-2005	380.00	Zork	HP
DB32	37691	06-15-2005	380.00	Zork	Apple
DB33	57772	05-27-2005	412.77	Minecraft	DELL
WP08	32808	01-12-2006	185.00	Portal	HP
WP08	37691	06-15-2005	227.50	Zork	Apple
WP08	57222	05-27-2005	170.24	Portal	DELL
WP09	59836	10-30-2005	35.00	Zork	ACER
WP09	77740	05-27-2005	35.00	Minecraft	AlienWare

#2.

   The Functional Dependencies for this table are:
TagNumber → ComputerModel
PackageID, TagBumber → SoftwareCostUSD, installDate
PackageID → PackageName

#3.

This table is not in third normal form because to be in third normal form there must not be any multiple key dependencies. Two examples showing that this table is not in third normal form are that, ComputerModel only depends on TagNumber, and PackageName only depends on PackageID. This is true because to be in third normal form all non key attributes must depend on the whole entire key, not just parts of it.

Part Three.

 #1.
Our big table in first normal form can be transformed into third normal form by creating three smaller tables from the original table. These three tables each receive their own key, the software table has the software package ID as a primary key, the computer table has

the asset tagNumber for a primary key, and the install table has not only the asset tag number, but also the software package ID to form a composite key.
#2.

The Functional Dependencies for these tables are:
Computer Table = TagNumber → ComputerModel
Install Tabel   = PackageID, TagNumber → SoftwareCostUSD, installDate
Software Table = PackageID → PackageName

#3.
   These tables are in third normal form because each part of the individual table is dependent on only its key. There are no multiple key dependencies at all. This is true because, packageName depends only on packageID, computerModel only depends on TagNumber, and even though there are two aspects, SoftwarecostUSD and InstallDate, both depend on both packageID and TagNumber.

#4.