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CMPT 308
October 27, 2013

Part One:

1. While the information is consistent and organized, the current system is poorly designed. In order to improve data entry and software package management, the current data will need to be reorganized.

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. As long as packages cannot be reinstalled, the Primary Key can be a composite key of the PackageID and the TagNumber.

Part Two:

1.

PackageID	TagNumber	PackageName	ComputerModel	InstallDate	SoftwareCostUSD
AC01	32808	uTorrent.rar	HP	09-13-2005	754.95
DB32	32808	CatPix.exe	HP	12-03-2005	380.00
DB32	37691	CatPix.exe	Asus	06-15-2005	380.00
DB33	57772	not%20trojan.exe	Apple	05-27-2005	412.77
WP08	32808	Photoshop CC	HP	01-12-2006	185.00
WP08	37691	Photoshop CC	Lemote	06-15-2005	227.50
WP08	57222	Photoshop CC	System76	05-27-2005	170.24
WP09	59836	Blender3D	Asus	10-30-2005	35.00
WP09	77740	ftl_game.app	AlienWare	05-27-2005	35.00

2. Functional Dependencies:

- PackageID → PackageName
- TagNumber → ComputerModel
- PackageID and TagNumber → InstallDate and SoftwareCostUSD

3. This table is not in third normal form because the table contains attributes that related to part of the primary key but not the entire composite key. For example, the Computer Model provides information that related to the TagNumber but not the PackageID. In the same vain, the PackageName relates to the PackageID but not the TagNumber.

Part 3

1. To put the information in 3rd normal form, the tables would be Packages, Computers, and Installations. Primary keys:
 - a. The primary key of Packages = PackageID
 - b. The primary key of Computers = TagNumber
 - c. The primary key of Installations = composite key (PackageID, TagNumber)
2. The functional Dependencies:
 - a. PackageID \rightarrow PackageName
 - b. TagNumber \rightarrow ComputerModel
 - c. PackageID and TagNumber \rightarrow InstallDate and SoftwareCostUSD
3. The new tables are in 3rd normal form because each attribute provides information “about the key, the whole key, and nothing but the key” (Bill Kent). All of the issues from the last table have been resolved: the Computer Model relates to the primary key TagNumber and nothing else.
- 4.

