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11/02/2016
Lab #7

Part One:

1. All the information displayed is valuable and I appreciate the time and effort you put in to collect and project this data to me. In moving forward, it is necessary to format this data in a way that allows for a better transition into a new framework.

2.

1st Normal Form			
PackageID	TagNumber	InstallDate	SoftwareCostUSD
AC01	32808	09-13-05	754.95
DB32	32808	12-03-05	380.00
DB32	37691	06-15-05	380.00
DB33	57772	05-27-05	412.77
WP08	32808	01-12-06	185.00
WP08	37691	06-15-05	227.50
WP08	57222	05-27-05	170.24
WP09	59836	10-30-05	35.00
WP09	77740	05-27-05	35.00

3. The primary key for the first natural form of this table is a composite key created by combining the data values found in PackageID and TagNumber.

Part Two:

4.

New Table					
PackageID	TagNumber	ComputerModel	PackageName	InstallDate	SoftwareCostUSD
AC01	32808	IBM	Zork	09-13-05	754.95
DB32	32808	IBM	pgSQL	12-03-05	380.00
DB33	37691	Apple	pgAQL	06-15-05	380.00
WP08	57772	MSI	mySQL	05-27-05	412.77
WP08	32808	IBM	Portal	01-12-06	185.00
WP08	37691	Apple	Portal	06-15-05	227.50
WP09	57222	Dell	Portal	05-27-05	170.24
WP09	598.36	Lenovo	ZenMap	10-30-05	35.00
WP09	77740	Asus	ZenMap	05-27-05	35.00

5. a. PackageID = PackageName
b. TagNumber = Computer Model
c. PackageID/TagNumber = Install Date, Software Cost

6. Because the current table isn't even in second normal form, it cannot be in the third normal form. The table must be both the first and second normal forms in order to meet the requirements to be in the third normal form. In relation to the second normal form, there isn't a non-prime attribute that is dependent on any subset of any given candidate key from the table.

Part Three:

7. Primary keys for all tables: a. Software Table Primary Key: PackageID
b. Installation Table Primary Key: PackageID + TagNumber
c. Computers Table Primary Key: TagNumber

8. Functional dependencies for all tables: a. Software Table - PackageID: PackageName
b. Computers Table - TagNumber: ComputerModel
c. Installation Table - PackageID/TagNumber: InstallDate, SoftwareCost

9. The newest tables are in third normal form because the chance for duplicated data is reduced and referential integrity is ensured amongst the existing tables.

The candidate keys determine the attributes of the strong entities in the tables, they aren't determined by non-prime attributes. The weak entity, Installation for example, has attributes that

are declared by a composite key made up of the primary keys of the Software and Computers table.

Because the third table meets the requirements to be in second normal form, it's also in first normal form since no non-prime attribute is dependent on a subset of any candidate key.

This format ensures referential integrity and eliminates the want to input what could be considered duplicate data.

10.

