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Lab 7
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Part 1

1)   "This is a great start! ...Let's brainstorm some thoughts you have about utilizing this database in the future so we can come up with the best design for Kramerica Enterprises!"

2)

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

3)   PackID and TagNum make the primary key.

Part 2

4)

PackID	TagNum	InstallDate	SoftwareCost	PackName	CompModel
AC01	32808	09-13-1995	754.95	Zork	Dell
DB32	32808	12-03-1995	380.00	Portal	Dell
DB32	37691	06-15-1995	380.00	Portal	HP
DB33	57772	05-27-1995	412.77	Elder Scrolls	Asus
WP08	32808	01-12-1996	185.00	Warcraft	Dell
WP08	37691	06-15-1995	227.50	Warcraft	HP
WP08	57222	05-27-1995	170.24	Warcraft	Asus
WP09	59836	10-30-1995	35.00	Full Throttle	Lenovo
WP09	77740	05-27-1995	35.00	Full Throttle	Apple

5)   PackID → PackName
        TagNum → CompModel
        PackID, CompModel → SoftwareCost

6)   This table is not in 3NF because it fails the 2NF rule of having no partial key dependencies. The CompModel doesn't rely on the TagNum piece of the primary key, and only relies on the PackID. Similarly, the PackName doesn't rely on the TagNumber but does rely on the PackID. Any fields that only partially rely on the key mean that the table fails to be in 2NF.

Part 3

New Table: Packages
PackID and PackName

New Table: Computers
CompModel and TagNum

New Table: Installations
InstallDate and SoftwareCost and PackID and TagNum

7)   Packages: Primary Key = PackID
Computers: Primary Key = TagNum

8)   Packages: PackID → PackName
Computers: TagNum → CompModel
Installations: PackID, TagNum → SoftwareCost

9)   The new tables (Packages, Computers and Installations) are all in 3NF because the tables are atomic, there are no partial key dependences, and now there are no multi-key dependencies.   Each table relies on the key and nothing else.

10)