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Database Management

3/29/15

Lab # 7

Part One:

1. I would tell the people in charge of Kramerica Enterprises that their values in the table aren't atomic. Later on this will cause issues when attempting to maintain and retrieve data for business purposes. For example the PackID DB32 has two different tagNum, so instead of having two tagNum for one PackID, we make two rows for DB32 so that the TagNums 's are separated, this will make the table atomic.
- 2.

Pack ID	TagNum	InstallDate	SoftwareCost
AC01	32808	9-13-1995	754.95
DB32	32808	12-03-1995	380.00
DB32	32808	6-15-1995	380.00
DB33	57772	5-27-1995	412.77
WP08	32808	1-12-1996	185.00
WP08	37691	6-15-1995	227.50
WP08	57222	5-27-1995	170.24
WP09	59836	10-30-1995	35.00
WP09	77740	5-27-1995	35.00

3. The composite primary key is PackID, and TagNum.

Part Two:

4)

PackID	TagNum	InstallDate	SoftPackID	CompModel	SoftwareCostUSD
AC01	32808	9-13-2005	Zork	Apple	754.95
DB32	32808	12-03-2005	Borderlands	Apple	380.00
DB32	37691	6-15-2005	Borderlands	ASUS	380.00
DB33	57772	5-27-2005	Wasteland	Dell	412.77
WP08	32808	1-12-2006	Portal	Apple	185.00
WP08	37691	6-15-2005	Portal	ASUS	227.50
WP08	57222	5-27-2005	Portal	Lenovo	170.24
WP09	59836	10-30-2005	Minecraft	Alienware	35.00
WP09	77740	5-27-2005	Minecraft	HP	35.00

5) The functional dependencies for the above table are:

TagNum → CompModel

PackID → SoftPackID

- 6) This table is not in 3rd normal form because the table currently isn't in 2nd normal form, and in order to be in 3rd normal form the table must already be in 2nd normal form. We can see this because there is a partial key dependency → SoftPackID depends on PackID but not on TagNum, which is part of the composite primary key.

Part Three:

PackID	SoftPackID
AC01	Zork
DB32	Borderlands
DB33	Wasteland
WP08	Portal
WP09	Minecraft

- Primary Key → PackID
- Functional Dependencies = PackID → SoftPackID

TagNum	CompModel
32808	Apple
37691	ASUS
57772	Dell
57222	Lenovo
59836	Alienware
77740	HP

- Primary Key → TagNum
- Functional Dependencies = TagNum → CompModel

PackID	TagNum	SoftwareCostUSD	InstallDate
AC01	32808	754.95	9-13-2005
DB32	32808	380.00	12-03-2005
DB32	37691	380.00	6-15-2005
DB33	57772	412.77	5-27-2005
WP08	32808	185.00	1-12-2006
WP08	37691	227.50	6-15-2005
WP08	57222	170.24	5-27-2005
WP09	59836	35.00	10-30-2005
WP09	77740	35.00	5-27-2005

- Primary Key → PackID, TagNum
- Functional Dependencies
 - 1) (PackID, TagNum) → SoftwareCostUSD
 - 2) (PackID, TagNum) → InstallDate

- 1) These three new tables are now in 3rd normal form because they exist in 1st and 2nd normal form and each part of the individual table is dependent on only its key. There are no multiple key dependencies at all. This is true because, SoftPackID depends only on PackID, CompModel only depends on TagNum, and even though there are two aspects, SoftwareCost and InstallDate, both depend on both PackID and TagNum.

