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DBMS ASSIGNMENT-7

Part 1 :

1. As he shows you the spreadsheet, having just signed your consulting agreement, he asks what you think of it. How do you reply?

From the spread sheet understanding the data is typical. The table violating the E F Codd relational database rules i.e. the intersection of row and column must have atomic values but here we have multiples values at the intersection of row and column. So, due to this multiple values we don't get a clarity in understanding the spread sheet. So, we need to convert this spread sheet into a normal form.

2. Put his data in 1NF and display it.

PackId	TagNum	InstalDate	Software cost
AC01	32808	09-13-1995	754.95
DB32	32808	12-09-1995	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. What is the Primary key?

Here we don't have a unique primary key because the row cannot be identified by a single primary key. So, we use { PackId, TagNum } combinedly as a primary key.

Part 2 :

4. Display New Table?

PackId	TagNum	InstalDate	SoftwareCost	PackName	CompMod
AC01	32808	09-13-1995	754.95	Zork	HP
DB32	32808	12-09-1995	380.00	Portal	HP
DB32	37691	06-15-1995	380.00	Portal	Apple
DB33	57772	05-27-1995	412.77	KM Player	Dell
WP08	32808	01-12-1996	185.00	Picasa	HP
WP08	37691	06-15-1995	227.50	Picasa	Apple
WP08	57222	05-27-1995	170.24	Picasa	Toshiba
WP09	59836	10-30-1995	35.00	Nero	Sony
WP09	77740	05-27-1995	35.00	Nero	IBM

5. Identify and document all the Functional Dependencies ?

From the table it is clear that same pakage id will have same package name and same tag number will have same computer model. So, these two are functionally dependent.

a. { PackId → PackName }
b. { TagNum → CompMod }

6. Explain why this new table is not in third normal form ?

In a table all the columns should be dependent on the primary key according to the 3rd normal form. But this is not happening here because there is no perfect primary key and all the columns are not dependent on the primary key. So, it is not in 3rd normal form.

Part 3 :

Decompose your 1NF table into a set of tables that are in at least third normal form.

Packages

PackId	PackName
AC01	Zork
DB32	Portal
DB33	KM Player
WP08	Picasa
WP09	Nero

Computers

TagNum	CompMod
32808	HP
37691	Apple
57772	Dell
57222	Toshiba
59836	Sony
77740	IBM

System Softwares

PackId	InstalDate	SoftwareCost
AC01	09-13-1995	754.95
DB32	12-09-1995	380.00
DB32	06-15-1995	380.00
DB33	05-27-1995	412.77
WP08	01-12-1996	185.00
WP08	06-15-1995	227.50
WP08	05-27-1995	170.24
WP09	10-30-1995	35.00
WP09	05-27-1995	35.00

7. Identify all primary keys (determinants) for all tables.

Packages : PackId

Computers : TagNum

System Softwares : { PackId, InstalDate }

8. Identify all functional dependencies for all tables.

From the tables it is clear that same Pakage id will have same Package name and same Tag number will have same Computer model and SoftwareCost is dependent on PackId, InstalDate. So, these three are functionally dependent.

a. { PackId → PackName }
b. { TagNum → CompMod }
c. { PackId,InstalDate → SoftwareCost }

9. Explain why the new tables are in third normal form.

From the definition of 3rd normal form it is clear that every column should be dependent on the primary key of the table. Here in all the three tables the primary keys of the tables are used to retrieve any data from the table. So, all the columns in all tables are depended on their corresponding primary keys. Hence we can say that these ne tables are in 3rd normal form.

10. Draw a beautiful E/R diagram.