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<p align="center">**ASSIGNMENT-7**</p>

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?

Answer: From the given spread sheet it is difficult to understanding the data. The table violating relational database rules that is the intersection of rows and columns must have atomic values but here we have multiple values at the intersection of rows and columns. So, we need to convert this spread sheet into a 1NF.

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?

PackId + TagNum is a primary key.

Part 2 :

4. Display New Table?

PackId	TagNum	InstalDate	SoftwareCost	SoftwareName	ComputerName
AC01	32808	09-13-1995	754.95	MySQL	HP
DB32	32808	12-09-1995	380.00	WinRAR	HP
DB32	37691	06-15-1995	380.00	WinRAR	Wipro
DB33	57772	05-27-1995	412.77	Windows	Apple
WP08	32808	01-12-1996	185.00	AVG	HP
WP08	37691	06-15-1995	227.50	AVG	Wipro
WP08	57222	05-27-1995	170.24	AVG	Samsung
WP09	59836	10-30-1995	35.00	Unix	IBM
WP09	77740	05-27-1995	35.00	Unix	Sony

5. Identify and document all the Functional Dependencies ?

From the above table Software Name depends on PackId and Computer Name depends on TagNum. So, these two are functionally dependent.

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

According to the 3rd normal form every non-prime attributes of a table must be dependent on 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.

Software

PackId	SoftwareName
AC01	MySQL
DB32	WinRAR
DB33	Windows
WP08	AVG
WP09	Unix

Computers

TagNum	ComputerName
32808	HP
37691	Wipro
57772	Apple
57222	Samsung
59836	IBM
77740	Sony

SoftwareInstallation

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

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

Answer: PackId,TagNum and PackId+SoftwareName are primary keys.

8. Identify all functional dependencies for all tables.

From the tables,

   a. { PackId→SoftwareName }
   b. { TagNum→ComputerName }
   c. { PackId,SoftwareName→InstallDate,SoftwareCost }

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

According to the 3rd normal form every non-prime attributes of a table must be dependent on primary key. Here, In all tables the non-prime attributes depends on primary key. So theses are in 3NF.