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Lab 7

1. Many of the fields are not atomic and SoftwareCost should be specific to a currency like SoftwareCostUSD.


2.

PackID	TagNum	InstallDate	SoftwareCostUSD
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. Primary Key is PackID, TagNum composite key

Partial Dependency

4.



PackID	TagNum	InstallDate	SoftwareCostUSD	PackName	CompMod
AC01	32808	09-13-1995	754.95	Halo	HP
DB32	32808	12-03-1995	380.00	Titanfall	HP
DB32	37691	06-15-1995	380.00	TitanFall	Apple
DB33	57772	05-27-1995	412.77	Portal	Dell
WP08	32808	01-12-1996	185.00	Halfife	HP
WP08	37691	06-15-1995	227.50	Halfife	Apple
WP08	57222	05-27-1995	170.24	Halfife	Lenovo
WP09	59836	10-30-1995	35.00	Spore	Alien Ware
WP09	77740	05-27-1995	35.00	Spore	Apple



Full Dependency

Partial Dependency

5. PackID → PackName

TagNum → CompMod

PackID, TagNum → InstallDate, SoftwareCost

6. Not in 3NF because PackName is dependent on PackID but not TagNum or any other field. This is called a partial dependency

Pack Table

PackID	PackName
AC01	Halo
DB32	TitanFall
DB33	Portal
WP08	HalfLife
WP09	Spore

Computer Table

TagNum	CompMod
32808	HP
37691	Apple
57772	Dell
57222	Lenovo
59836	Alien Ware
77740	Apple

Orders Table

Pack.PackID	Computer.TagNum	InstallDate	SoftwareCostUSD
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

7. Pack table: PK=PackID.

Computer Table: PK=TagNum.

Orders Table: PK=Pack.PackID, Computer.TagNum.

8.

PackID → PackName

TagNum → CompMod

Pack.PackID, Computer.TagNum → InstallDate, SoftwarePriceUSD

9. These tables are in 3NF because there are no longer any partial dependencies, and all intersections of row and column are atomic. Every table has its own primary key that refers to every attribute in the table with no attributes existing that are not related to that single primary key.

10.

