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Lab 7 – Normalization

Part 1

1. I would say that the spreadsheet is fine, but it is inconvenient in terms of adding, deleting, and updating the data. I would also explain that there is a better way to display this information, such as in a normalized group of tables. This would then allow the table to be updated much more easily without creating inconsistent data.

2.

SoftwarePackID	ComputerTagNumber	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. Out of what is given, SoftwarePackID is the best fit to be the primary key.

Part 2

4.

SoftwarePackID	SoftwarePackName	ComputerTagNumber	ComputerModel	InstallDate	SoftwareCostUSD
AC01	Microsoft Office	32808	HP	09-13-1995	754.95
DB32	Portal	32808	HP	12-03-1995	380.00
DB32	Portal	37691	Dell	06-15-1995	380.00
DB33	Adobe	57772	Apple	05-27-1995	412.77
WP08	Zork	32808	HP	01-12-1996	185.00
WP08	Zork	37691	Dell	06-15-1995	227.50
WP08	Zork	57222	Lenovo	05-27-1995	170.24
WP09	Oracle	59836	LG	10-30-1995	35.00
WP09	Oracle	77740	Apple	05-27-1995	35.00

5. Functional Dependencies:
   - SoftwarePackID → SoftwarePackName, SoftwareCostUSD
   - ComputerTagNumber → ComputerModel
6. This table is not in third normal form rule because not every field is directly dependent on one single key. A table in third normal form cannot have multiple key dependencies.

Part 3

Software

SID	SoftwarePackID	SoftwarePackName	SoftwareCostUSD
S01	AC01	Microsoft Office	754.95
S02	DB32	Portal	380.00
S03	DB32	Portal	380.00
S04	DB33	Adobe	412.77
S05	WP08	Zork	185.00
S06	WP08	Zork	227.50
S07	WP08	Zork	170.24
S08	WP09	Oracle	35.00
S09	WP09	Oracle	35.00

Installations

SID	CID	InstallDate
S01	C01	09-13-1995
S02	C02	12-03-1995
S03	C03	06-15-1995
S04	C04	05-27-1995
S05	C05	01-12-1996
S06	C06	06-15-1995
S07	C07	05-27-1995
S08	C08	10-30-1995
S09	C09	05-27-1995

Computers

CID	ComputerTagNumber	ComputerModel
C01	32808	HP
C02	32808	HP
C03	37691	Dell
C04	57772	Apple
C05	32808	HP
C06	37691	Dell
C07	57222	Lenovo
C08	59836	LG
C09	77740	Apple

7. Primary keys (determinants):
   - Table 1: SID
   - Table 2: SID and CID
   - Table 3: CID
8. Functional Dependencies
   - Table 1: SID → SoftwarePackID, SoftwarePackName, SoftwareCostUSD
   - Table 2: SID, CID → InstallDate
   - Table 3: CID → ComputerTagNumber, ComputerModel
9. They are in third normal form rule because each table has a single key that the rest of the fields depend on.
10.

Software

SID	SoftwarePackID	SoftwarePackName	SoftwareCostUSD
S01	AC01	Microsoft Office	754.95
S02	DB32	Portal	380.00
S03	DB32	Portal	380.00
S04	DB33	Adobe	412.77
S05	WP08	Zork	185.00
S06	WP08	Zork	227.50
S07	WP08	Zork	170.24
S08	WP09	Oracle	35.00
S09	WP09	Oracle	35.00

SID

Installations

SID	CID	InstallDate
S01	C01	09-13-1995
S02	C02	12-03-1995
S03	C03	06-15-1995
S04	C04	05-27-1995
S05	C05	01-12-1996
S06	C06	06-15-1995
S07	C07	05-27-1995
S08	C08	10-30-1995
S09	C09	05-27-1995

CID

Computers

CID	ComputerTagNumber	ComputerModel
C01	32808	HP
C02	32808	HP
C03	37691	Dell
C04	57772	Apple
C05	32808	HP
C06	37691	Dell
C07	57222	Lenovo
C08	59836	LG
C09	77740	Apple