

Kyle Wright

CMPT308-111

Labouseur

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Lab 7: Normalization I

1. The data is organized clearly and the column names are satisfactory, but there is some data duplication in the tagNumber column – if a computer’s tag number is changed, it would have to be changed in multiple locations in the table. This leaves room for inconsistencies. Additionally, packageID and tagNumber tell us little about the software or computer. This could result in poor information being expressed when the data is queried, though it is not explicitly wrong.

2.

PackageID	TagNumber	InstallDate	SoftwareCostUSD
AC01	32808	09-13-2005	754.95
DB32	32808	12-03-2005	380.00
DB32	37691	06-15-2005	380.00
DB33	57772	05-27-2005	412.77
WP08	32808	1-12-2006	185.00
WP08	37691	06-15-2005	227.50
WP08	57222	05-27-2005	170.24
WP09	59836	10-30-2005	35.00
WP09	77740	05-27-2005	35.00

3. The primary key of the above table is the composite key of columns “PackageID” and “TagNumber”.

4.

PackageID	PackageName	TagNumber	Computer Model	InstallDate	SoftwareCost USD
AC01	Zoom	32808	Dell	09-13-2005	754.95
DB32	Adobe	32808	Dell	12-03-2005	380.00
DB32	Adobe	37691	Apple	06-15-2005	380.00
DB33	Skype	57772	HP	05-27-2005	412.77
WP08	Office	32808	Dell	1-12-2006	185.00
WP08	Office	37691	Apple	06-15-2005	227.50
WP08	Office	57222	Acer	05-27-2005	170.24
WP09	Norton	59836	Lenovo	10-30-2005	35.00
WP09	Norton	77740	IBM	05-27-2005	35.00

5. Functional Dependencies
 - a. PackageID determines PackageName
 - b. TagNumber determines ComputerModel

- c. PackageID and TagNumber determine InstallDate
 - d. PackageID and InstallDate determine SoftwareCostUSD
- 6. The table is still not in 3NF, because there is still duplication of data with packages and computers.
- 7. Primary Keys
 - a. SoftwarePackages has a primary key of PackageID
 - b. Computers has a primary key of TagNumber
 - c. Installations has the foreign keys of PackageID and TagNumber, and its primary key is the composite of PackageID, TagNumber, and InstallDate
- 8. Functional Dependencies
 - a. PackageID determines PackageName
 - b. TagNumber determines ComputerModel
 - c. PackageID and TagNumber determine InstallDate
 - d. PackageID and InstallDate determine SoftwareCostUSD
- 9. The new tables are in 3NF because duplicate data has been cut out, and the tables have more distinct primary and foreign keys that enforce referential integrity.
- 10.

