

Database Systems

Juan S. Vasquez

March 28, 2016

Lab 7: Normalization One

Part One:

1.) “Thank you for the data. There is some work to be done here, however, as the data in the table is too open to interpretation. I will now proceed to do my job and fix the data.”

2.) Data in 1NF:

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	01-12-2006	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 only kind of primary key we can use in this table is a composite key of PackageID and TagNumber.

Part Two:

4.)

PackageID	TagNumber	InstallDate	SoftwareCostUSD	SoftPackName	ComModel
AC01	32808	09-13-2005	754.95	Paint	IBM
DB32	32808	12-03-2005	380.00	Sticks	IBM
DB32	37691	06-15-2005	380.00	Sticks	Apple
DB33	57772	05-27-2005	412.77	Stones	ASUS
WP08	32808	01-12-2006	185.00	Office	IBM
WP08	37691	06-15-2005	227.50	Office	Apple
WP08	57222	05-27-2005	170.24	Office	Dell
WP09	59836	10-30-2005	35.00	Officev2	Acer
WP09	77740	05-27-2005	35.00	Officev2	Lenovo

5.) -SoftPackName is functionally dependent on PackageID.

-ComModel is functionally dependent on TagNumber.

-Both InstallDate and SoftwareCostUSD are functionally dependent on the composite primary key of PackageID/TagNumber.

6.) This new table is not in 3NF because there exist functional dependencies that do not contain the primary key; in this case, the 2NF is simultaneously violated as well, as these same functional dependencies do not depend on the ENTIRE key.

Part Three:

Table One:

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	01-12-2006	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

Table Two:

PackageID	SoftPackName
AC01	Paint
DB32	Sticks
DB32	Sticks
DB33	Stones
WP08	Office
WP08	Office
WP08	Office
WP09	Officev2
WP09	Officev2

Table Three:

TagNumber	ComModel
32808	IBM
32808	IBM
37691	Apple
57772	ASUS
32808	IBM
37691	Apple
57222	Dell
59836	Acer
77740	Lenovo

7.) -Table One's primary key: PackageID, TagNumber (Composite)

-Table Two's primary key: PackageID

-Table Three's primary key: TagNumber

8.) - Table One's functional dependencies: Both InstallDate and SoftwareCostUSD are functionally dependent on the composite primary key of PackageID/TagNumber.

- Table Two's functional dependencies: SoftPackName is functionally dependent on PackageID.

-Table Three's functional dependencies: ComModel is functionally dependent on TagNumber.

9.) The new group of tables all follow 3NF because each table has functional dependencies that include each table's full primary keys, while having no redundancy.

10.)

