

Andrew Langford
Normalization 1
Monday, October 28, 13

Part One:

1. I would say it is pretty much a mess. A few of his columns contain multivalued fields which is a big problem.

2.

PackageID	TagNumber	InstallDate	SoftwareCostUSD
AC01	32808	2005-09-13	754.95
DB32	32808	2005-12-03	380.00
DB32	37691	2005-06-15	380.00
DB33	57772	2005-05-27	412.77
WP08	32808	2006-01-12	185.00
WP08	37691	2005-06-15	227.50
WP08	57222	2005-05-27	170.24
WP09	59836	2005-10-30	35.00
WP09	77740	2005-05-27	35.00

3. The primary would be the composite key of PackageID and TagNumber.

Part Two:

PackageID	TagNumber	InstallDate	SoftwareCostUSD	SoftwarePkgName	Computer Model
AC01	32808	2005-09-13	754.95	Zork	Apple
DB32	32808	2005-12-03	380.00	Cygwin	Apple
DB32	37691	2005-06-15	380.00	Cygwin	HP
DB33	57772	2005-05-27	412.77	Homebrew	Asus
WP08	32808	2006-01-12	185.00	Portal	Apple
WP08	37691	2005-06-15	227.50	Portal	HP
WP08	57222	2005-05-27	170.24	Portal	Asus
WP09	59836	2005-10-30	35.00	Steam	Alienware
WP09	77740	2005-05-27	35.00	Steam	Lenovo

Functional Dependencies:

TagNumber \rightarrow ComputerModel

PackageID \rightarrow SoftwarePkgName

{InstallDate, PackageID, TagNumber} \rightarrow SoftwareCostUSD

-This table is not in third normal form because SoftwareCostUSD (a non-prime attribute), is not dependant on TagNumber. Tag number is part of the primary key. Therefore SoftwareCostUSD is not directly dependant on every superkey, violating the second clause of third normal form.

Part Three:

I created three tables: Software, Computers, Installments. Their primary keys are as follows.

Determinants:

Software: PackageID

Computers: TagNumber

Installments: {PackageID, TagNumber, InstallDate}

Functional Dependencies: (by table)

Computers

TagNumber \rightarrow ComputerModel

Software

PackageID \rightarrow SoftwarePkgName

Installments

{PackageID, TagNumber, InstallDate} \rightarrow SoftwareCostUSD

These tables are in 3rd normal form because they are ACID compliant, no non prime attributes (namely computermode, softwarepkgname, or softwarecostusd) is dependant on candidate keys in any table, and any non prime attribute such as cost are dependant on the key, the whole key, and nothing but the key.

