Kelsey O'Brien

Normalization HW 1

10/21/13

Part 1:

- I would tell him the spreadsheet is difficult to read. At first glance it is hard to determine which columns refer to computers and which refer to the software without an explanation. The data is not displayed in an informative manner.

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Output pane

Data Output | Explain | Messages | History

	packageid character(4)	tagnumber integer	installdate date	softwarecostusd double precision
1	AC01	32808	2005-09-13	754.95
2	DB32	32808	2005-12-03	380
3	DB32	37691	2005-06-15	380
4	DB33	57772	2005-05-27	412.77
5	WP08	32808	2006-01-12	185
6	WP08	37691	2005-06-15	227.5
7	WP08	57222	2005-05-27	170.24
8	WP09	59836	2005-10-30	35
9	WP09	77740	2005-05-27	35

- Primary key: (PackageID, TagNumber)

Part 2:

- utput pane

Data Output | Explain | Messages | History

	packageid character(4)	softwarename character varying	tagnumber integer	computermodel character varying	installdate date	softwarecostusd double precision
1	AC01	Zork	32808	HP	2005-09-13	754.95
2	DB32	Portal	32808	HP	2005-12-03	380
3	DB32	Portal	37691	Apple	2005-06-15	380
4	DB33	Adobe	57772	Lenovo	2005-05-27	412.77
5	WP08	Office	32808	HP	2006-01-12	185
6	WP08	Office	37691	Apple	2005-06-15	227.5
7	WP08	Office	57222	Apple	2005-05-27	170.24
8	WP09	Cisco	59836	HP	2005-10-30	35
9	WP09	Cisco	77740	lenovo	2005-05-27	35

- PackageID → SoftwareName
  TagNumber → ComputerModel
  PackageID, TagNumber → InstallDate, SoftwareCostUSD
- This table is not in normal form because it contains partial key dependencies. The primary key is (PackageID, TagNumber) but SoftwareName and ComputerModel only depend on part of the primary key. SoftwareName depends on PackageID but not TagNumber. ComputerModel only depends on TagNumber and not PackageID. Therefore the table violates the principle that attributes of tables in third normal form are determined by the whole key and nothing but the key.

Part 3:

- Table SoftwarePackages

Data Output | Explain | Messages | His

	packageid character(4)	softwarename character varying
1	AC01	Zork
2	DB32	Portal
3	DB33	Adobe
4	WP08	Office
5	WP09	Cisco

- Table Computers

Data Output | Explain | Messages

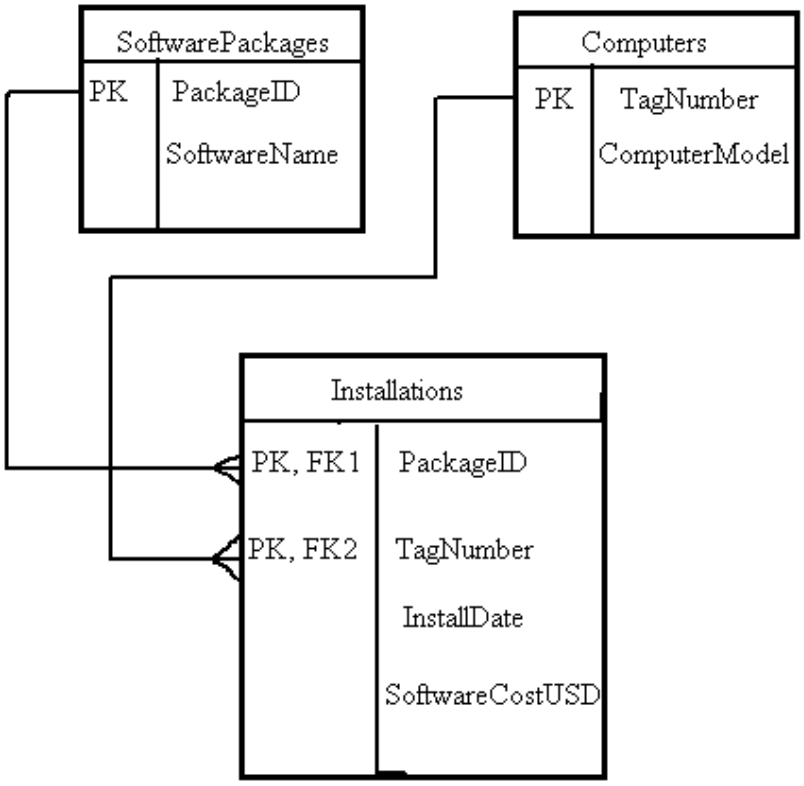
	tagnumber integer	computermodel text
1	32808	HP
2	37691	Apple
3	57772	Lenovo
4	57222	Apple
5	59836	HP
6	77740	Lenovo

- Table Installations

Data Output | Explain | Messages | History

	packageid character(4)	tagnumber integer	installdate date	softwarecost double precision
1	AC01	32808	2005-09-1	745.95
2	DB32	32808	2005-12-0	380
3	DB32	37691	2005-06-1	380
4	DB33	57772	2005-05-2	412.77
5	WP08	32808	2006-01-1	185
6	WP08	37691	2005-06-1	227.5
7	WP08	57222	2005-05-2	170.24
8	WP09	59836	2005-10-3	35
9	WP09	77740	2005-05-2	35

- Primary keys:
    - SoftwarePackages: PackageID
    - Computers: TagNumber
    - Installations: (PackageID, TagNumber)
- Functional Dependencies:
    - SoftarePackages: PackageID → SoftwareName
    - Computers: TagNumber → ComputerModel
    - Installations: PackageID, TagNumber → InstallDate, SoftwareCostUSD
- The new tables are in third normal form because there are no partial key dependencies. Unlike before, PackageID and SoftwareName have been decomposed to their own tables to eliminate the partial key dependency. The same has been done for TagNumber and ComputerModel. In addition, in the Installations table the primary key is the composition of PackageID and TagNumber and the columns InstallDate and SoftwareCostUSD depend on the whole primary key and nothing but the primary key.


SoftwarePackages
PK
PackageID
SoftwareName
Computers
PK
TagNumber
ComputerModel
Installations
PK, FK1
PackageID
PK, FK2
TagNumber
InstallDate
SoftwareCostUSD

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