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Database Management
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Lab 7- Normalization One

Part One

1. "Well you had the right spirit but I think I can take it from here if thats okay with you. At least you got the data out but I don't think it is appropriate to have all of your data in one table- it is very hard to read and track information. On top of that, nobody likes to read dates like that, lets just make it a new rule from now on to follow the format YYYY-MM-DD because it is more helpful across the board for databases in general. You are also breaking many normalization rules and Codd is definitely turning in his grave right now."
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 keys are the packageId and the tagNumber. This is because this database revolves around software downloads and each software download is uniquely identified with the packageID of the software downloaded to the computers. TagNumber is also a primary key because it identifies where the actual packages have been installed and can likely relay because the installDate and softwareCostUsd info.

Part Two

4.

packageId	tagNumber	installDate	softwareCostUsd	packageName	compModel
AC01	32808	2005-09-13	754.95	Zork	Apple
DB32	32808	2005-12-03	380.00	Portal	Apple
DB32	37691	2005-06-15	380.00	Portal	Dell
DB33	57772	2005-05-27	412.77	CryEngine	HP
WP08	32808	2006-01-12	185.00	VxWorks	Apple
WP08	37691	2005-06-15	227.50	VxWorks	Dell
WP08	57222	2005-05-27	170.24	VxWorks	Microsoft
WP09	59836	2005-10-30	35.00	AutoCAD	Linux
WP09	77740	2005-05-27	35.00	AutoCAD	IBM

5. packageId → packageName

tagNumber, packageId → installDate
tagNumber, packageId→ softwareCostUsd
tagNumber → compModel

6. This table is not in 3rd normal form because the data is not in 2nd normal form since there are two primary keys for this database and there should really only be one.

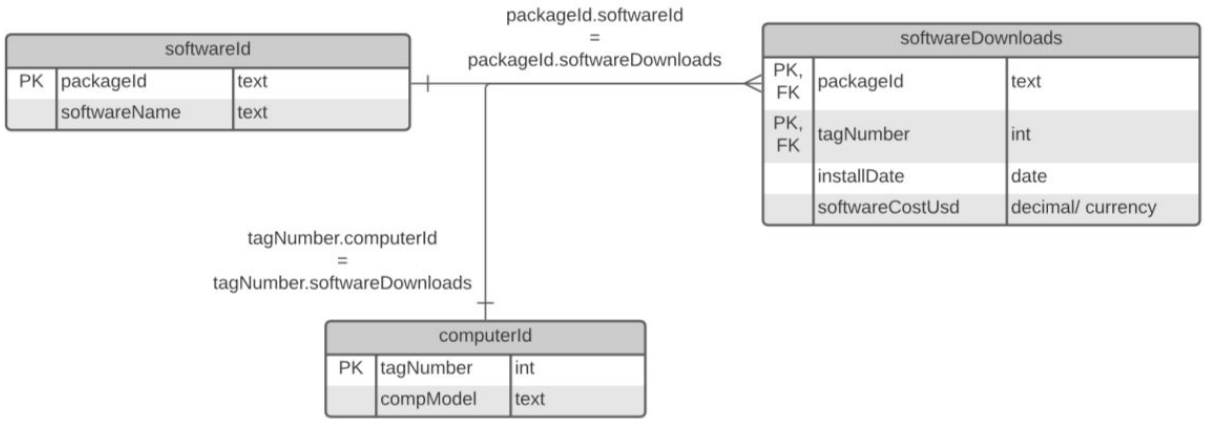
Part Three

7. packageId is a determinate for the softwareId table. tagNumber is a determinate for the computerId table. packageId and tagNumber are determinants for softwareDownloads.

8. <u>SoftwareId Table:</u>
   packageId → softwareName
   <u>ComputerId Table:</u>
   tagNumber → compModel
   <u>SoftwareDownloads Table:</u>
   packageId, tagNumber → installDate, softwareCostUsd

9. The new tables are in third normal form because there is complete atominity, there is no partial key dependencies, no multiple key dependencies, and the transitive dependencies are among non-key attributes.

10. (softwareDownloads table in itself is the composite key table)



Parting note: please keep in mind that the data was given with little context as to where the actual numbers came from. For all I know, the date may have a large dependency upon the cost- so can the tagNumber but that was not specified. We are unable to tell if it is the tagNumber or installDate (or both) that are giving us the cost outcome.