

## Part 1

1. I would say that it is only in first normal form and can be simplified further than it is. By simplifying it further, it will make it much easier to input data into the database and keep track of more data that will be collected.
- 2.

PackID	TagNum	InstallDate	SoftwareCost
AC01	32808	09/13/95	754.95
DB32	32808	12/03/95	380.00
DB32	37691	06/15/95	380.00
DB33	57772	05/27/95	412.77
WP08	32808	01/12/96	185.00
WP08	37691	06/15/95	227.50
WP08	57222	05/27/95	170.24
WP09	59836	10/30/95	35.00
WP09	77740	05/27/95	35.00

3. PackID is the primary key.

## Part 2

- 4.

PackID	TagNum	InstallDate	SoftwareCost	PackName	CompModel
AC01	32808	09/13/95	754.95	Zork	HP
DB32	32808	12/03/95	380.00	Portal	HP
DB32	37691	06/15/95	380.00	Portal	Apple
DB33	57772	05/27/95	412.77	Fez	Intel
WP08	32808	01/12/96	185.00	Braid	HP
WP08	37691	06/15/95	227.50	Braid	Apple
WP08	57222	05/27/95	170.24	Braid	Intel
WP09	59836	10/30/95	35.00	DSII	Intel
WP09	77740	05/27/95	35.00	DSII	Dell

5. PackName is dependent on PackID. CompModel is dependent on TagNum. Those are all the functional dependencies.
6. It is still one big table that can be separated into multiple different tables. InstallDate and SoftwareCost are also dependent on both PackID *and* TagNum and 3<sup>rd</sup> normal form requires that they are only dependent on one primary key.

Part 3

<u>Software Install</u>		
InstallID	PackID	TagNum
1	AC01	32808
2	DB32	32808
3	DB32	37691
4	DB33	57772
5	WP08	32808
6	WP08	37691
7	WP08	57222
8	WP09	59836
9	WP09	77740

Primary key – InstallID

Functional Dependencies – PackID and TagNum rely on InstallID

<u>Software Install Cost</u>	
InstallID	SoftwareCost
1	754.95
2	380.00
3	380.00
4	412.77
5	185.00
6	227.50
7	170.24
8	35.00
9	35.00

Primary key – InstallID

Functional Dependencies – SoftwareCost relies on InstallID

<u>Software Install Date</u>	
InstallID	InstallDate
1	09/13/95
2	12/03/95
3	06/15/95
4	05/27/95
5	01/12/96

6	06/15/95
7	05/27/95
8	10/30/95
9	05/27/95

Primary key – InstallID

Functional Dependencies – InstallDate relies on InstallID

<u>Package Names</u>	
PackID	PackName
AC01	Zork
DB32	Portal
DB33	Fez
WP08	Braid
WP09	DSII

Primary key – PackID

Functional Dependencies – PackName relies on PackID

<u>Computer Models</u>	
TagNum	CompModel
32808	HP
37691	Apple
57772	Intel
59836	Intel
77740	Dell

Primary key – TagNum

Functional Dependencies – CompModel relies on TagNum

9. The new tables are in 3<sup>rd</sup> normal form because the names of the software and computer models do not depend on the Installation ID and instead rely on PackID and TagNum. Software Install Date and Software Install Cost had to be separated into two separate tables because if they stayed in the Software Install table they would rely on PackID and TagNum and not InstallID. This is not allowed in third normal form.

10. see separate file