

## Part One

1. I feel that the data needs to be sectioned out into different tables in order to ensure no update, insert or delete anomalies occur.
2. First Normal Form

PakageID	TagNumber	InstallDate	SoftwareCostUSD
AC01	32808	9/13/2005	754.95
DB32	32808	12/3/2005	380.00
DB32	37691	6/15/2005	380.00
DB33	57772	5/27/2005	412.77
WP08	32808	1/12/2006	185.00
WP08	37691	6/15/2005	227.50
WP08	57222	5/27/2005	170.24
WP09	59836	10/30/2005	35.00
WP09	77740	5/27/2005	35.00

3. The primary key is the PackageID, TagNumber and InstallDate

## Part Two

- 1.

PakageID	TagNumber	InstallDate	SoftwareCostUSD	SPName	CompModel
AC01	32808	9/13/2005	754.95	Mario	Apple
DB32	32808	12/3/2005	380.00	Pokemon	Apple
DB32	37691	6/15/2005	380.00	Pokemon	Lenovo
DB33	57772	5/27/2005	412.77	The Sims	Dell
WP08	32808	1/12/2006	185.00	Age of Empires	Apple
WP08	37691	6/15/2005	227.50	Age of Empires	Lenovo
WP08	57222	5/27/2005	170.24	Age of Empires	Toshiba
WP09	59836	10/30/2005	35.00	Zork	Asus
WP09	77740	5/27/2005	35.00	Zork	HP

2. PackageID → SPName  
TagNumber → CompModel  
PackageID, TagNumber → InstallDate, SoftwareCosUSD

3. This is not in third normal form because of the partial dependencies within the whole table. To remove the dependencies separate tables need to be created for normalization to be possible. For example if you changed the SPName of the first DB32 it will only change that rows SPName value, the second DB32 SPName would stay the same. This creates inconsistency within the database.

### Part 3

#### 1. Package Table

PakageID	SPName
AC01	Mario
DB32	Pokemon
DB32	Pokemon
DB33	The Sims
WP08	Age of Empires
WP08	Age of Empires
WP08	Age of Empires
WP09	Zork
WP09	Zork

#### Machine Table

TagNumber	CompModel
32808	Apple
32808	Apple
37691	Lenovo
57772	Dell
32808	Apple
37691	Lenovo
57222	Toshiba
59836	Asus
77740	HP

#### Installation Table

PakageID	TagNumber	InstallDate	SoftwareCostUSD
AC01	32808	9/13/2005	754.95
DB32	32808	12/3/2005	380.00
DB32	37691	6/15/2005	380.00
DB33	57772	5/27/2005	412.77
WP08	32808	1/12/2006	185.00
WP08	37691	6/15/2005	227.50
WP08	57222	5/27/2005	170.24
WP09	59836	10/30/2005	35.00
WP09	77740	5/27/2005	35.00

Package Table Primary Key: PackageID

Machine Table Primary Key: TagNumber

Installation Table Primary Key: ( PackageID, TagNumber )

2. PackageID → SPName  
TagNumber → CompModel  
PackageID, TagNumber → InstallDate, SoftwareCosUSD
3. The new tables are in third normal form because the tables are in second normal form and do not have multiple key dependencies.
4. E/R Diagram

