Lab 7: Normalization One

Part One:

1. This is a good start if we are just using a spread sheet but if we are going to use a database we are going to have to make some changes.

2.

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

3. The primary key is PackageID & TagNumber.

Part Two:

1.

PackageID	PackageName	TagNumber	Model	InstallDate	SoftwareCostUSD
AC01	Zork	32808	IBM	09-13-2005	754.95
DB32	Portal	32808	IBM	12-03-2005	380.00
DB32	Portal	37691	Apple	06-15-2005	380.00
DB33	Portal2	57772	HP	05-27-2005	412.77
WP08	Gazorp	32808	IBM	01-12-2006	185.00
WP08	Gazorp	37691	Apple	06-15-2005	227.50
WP08	Gazorp	57222	Dell	05-27-2005	170.24
WP09	Gazorp2	59836	HP	10-30-2005	35.00
WP09	Gazorp2	77740	IBM	05-27-2005	35.00

2.
- PackageID → PackageName
- TagNumber → Model
- PackageID & TagNumber → InstallDate, SoftwareCostUSD

3. This is not in 3rd Normal form because there are transitive dependencies. None of the functional dependencies only depend on the primary key which is required to be in 3rd Normal Form.

Part Three:

1. .

Package Table

PackageID	PackageName
AC01	Zork
DB32	Portal
DB32	Portal
DB33	Portal2
WP08	Gazorp
WP08	Gazorp
WP08	Gazorp
WP09	Gazorp2
WP09	Gazorp2

Primary Key = PackageID

Computer Table

TagNumber	Model
32808	IBM
32808	IBM
37691	Apple
57772	HP
32808	IBM
37691	Apple
57222	Dell
59836	HP
77740	IBM

Primary Key = TagNumber

Install Table

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

Primary Key = PackageID & TagNumber

2.

PackageID → PackageName
TagNumber → Model
PackageID & TagNumber → InstallDate, SoftwareCostUSD

3. They are in third normal form because all their columns other than the primary key depend on the whole primary key and nothing but the primary key. There are also no multiple key dependencies for any of the tables.

4. .

Package	
PK, FK	PackageID PackageName

Computer Table	
PK, FK	TagNumber Model

Package	
PK, FK PK, FK	PackageID TagNumber InstallDate SoftwareCostUSD