PART ONE

1. After looking over the spreadsheet, I would respond to Mr. Johnson by saying that the information is definitely a good start, however there are a few components that will need to be adjusted if the data is to be properly implemented. One obvious note is that the package ID's will need to be repeated, not a big deal for a spreadsheet but very important in database structure.

2. Table in 1NF:

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 in this table is {PackageID, TagNumber}, the two of them combined would provide a unique set.

PART TWO

4. Add two columns,

PackageID	PackageName	TagNumber	ComputerModel	InstallDate	SoftwareCostUSD
AC01	Zork	32808	Apple	09-13-2005	754.95
DB32	Portal	32808	Apple	12-03-2005	380.00
DB32	Portal	37691	IBM	06-15-2005	380.00
DB33	Doom	57772	Lenovo	05-27-2005	412.77
WP08	SpaceInvaders	32808	Apple	01-12-2006	185.00
WP08	SpaceInvaders	37691	IBM	06-15-2005	227.50
WP08	SpaceInvaders	57222	Microsoft	05-27-2005	170.24
WP09	Galaga	59836	Dell	10-30-2005	35.00
WP09	Galaga	77740	Apple	05-27-2005	35.00

5. Functional dependencies:

   PackageID → PackageName
   - The software package name is determined and identified by package ID.

   TagNumber → ComputerModel
   - The computer model is determined and identified by the tag number on the given computer station.

TagNumber, PackageID → SoftwareCostUSD, InstallDate
- The price of the software is dependent on chosen software package and workstation computer.

6. For a table to be in third normal form, the table must also be in second normal form. Since the table has partial dependencies and all the attributes of the table aren't dependent on the primary key, the table is not in third normal form.

PART THREE

SoftwarePackages

PackageID	PackageName
AC01	Zork
DB32	Portal
DB33	Doom
WP08	SpaceInvaders
WP09	Galaga

ComputerStations

TagNumber	ComputerModel
32808	Apple
37691	IBM
57772	Lenovo
57222	Microsoft
59836	Dell
77740	HP

Installations

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

7. Decomposing the table into three tables would yield a table for the software packages, computer stations, and the installations. The software packages table contains PackageID and PackageName, PackageID being the primary key. The computer stations table contains TagNumber and ComputerModel, TagNumber being the primary key. The installations table contains SoftwareCostUSD, InstallDate, PackageID, and TagNumber, {PackageID, TagNumber} being the primary key.

8. Functional dependencies:

Software Packages: PackageID → PackageName
Computer Stations: TagNumber → ComputerModel
Installations: {PackageID, TagNumber} → InstallDate, SoftwareCostUSD

9. The tables are in third normal form because the partial dependencies seen in the previous table has been fixed. The tables now follow second normal form rule, since the partial dependencies have been fixed. The tables are also in third normal form because the values in the fields are atomic, (First normal form rule), and no multi-key dependencies exist.

10. Beautiful E/R diagram: