

1.

a. I would reply to Mr. Johnson that the table is a good start. There will need to be some modifications in order for the data to be used accessed in a relational database model.

b.

<u>PackageID</u>	<u>TagNumber</u>	<u>InstallDate</u>	<u>SoftwareCostUSD</u>
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	59536	10-30-2005	35.00
WP09	77740	05-27-2005	35.00

c. In this first normal form the primary key is the PackageID and the TagNumber.

2.

a.

<u>PackageID</u>	<u>TagNumber</u>	<u>InstallDate</u>	<u>SoftwareCostUSD</u>	<u>SoftwarePackageName</u>	<u>Computer Model</u>
AC01	32808	09-13-2005	754.95	Zork	Microsoft
DB32	32808	12-03-2005	380.00	Access	Microsoft
DB32	37691	06-15-2005	380.00	Access	Linux
DB33	57772	05-27-2005	412.77	Word	IBM
WP08	32808	01-12-2006	185.00	Portal	Microsoft
WP08	37691	06-15-2005	227.50	Portal	Linux
WP08	57222	05-27-2005	170.24	Portal	Dell
WP09	59536	10-30-2005	35.00	OSX	HP
WP09	77740	05-27-2005	35.00	OSX	Apple

b. Identify and document all functional dependencies.

i. SoftwareCost is functionally dependent on the TagNumber and the PackageID.

ii. SoftwarePackageName is functionally dependent on the PackageID.

iii. Computer Model is functionally dependent on the TagNumber.

c. This table is not in third normal form because it requires multiple columns for key dependencies.

3.

<u>PackageID*</u>	<u>TagNumber*</u>	<u>SoftwareCostUSD</u>
AC01	32808	754.95
DB32	32808	380.00
DB32	37691	380.00
DB33	57772	412.77
WP08	32808	185.00
WP08	37691	227.50
WP08	57222	170.24
WP09	59536	35.00
WP09	77740	35.00

<u>PackageID*</u>	<u>SoftwarePackageName</u>
AC01	Zork
DB32	Access
DB33	Word
WP08	Portal
WP09	OSX

<u>TagNumber*</u>	<u>Computer Model</u>
32808	Microsoft
37691	Linux
57772	IBM
57222	Dell
59536	HP
77740	Apple

- a. The primary keys would be PackageID, TagNumber, and a composite key of PackageID and TagNumber.
- b. Functional Dependencies
  - i. SoftwareCost is functionally dependent on the TagNumber and the PackageID.
  - ii. SoftwarePackageName is functionally dependent on the PackageID.
  - iii. Computer Model is functionally dependent on the TagNumber.
- c. These tables are in third normal form because each column relies on only one key (or composite key).

# Entity Relationship Diagram

