Blaise Spinelli
Alan Labouseur
3.21.17
Lab 7 : Normalization One

# Part One

**Question 1:** When asked for my constructive criticism I would commend CEO Fred Johnson for his efforts, however, I would explain to him that he has breached some of the fundamentals which the core of Normalization is built on. Although this information presented is helpful in creating the initial table, it is redundant at some point and contains multiple entries within a single field.

**Question 2:**

| PackageID | TagNumber | InstallDate | SoftwareCostUSD |
|---|---|---|---|
| AC01 | 32808 | 09-12-2005 | 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 |

**Question 3:**

The Primary Key of this table is a combination of the **PackageID** and the **TagNumber**. This could also be referred to as the Primary Composite Key.

# Part 2

**Question 4:**

| ackageID | TagNumber | InstallDate | SoftwareCostUSD | ComputerModel | SoftwarePackageNam |
|---|---|---|---|---|---|
| .C01 | 32808 | 09-12-2005 | 754.95 | IBM | Trunks |
| )B32 | 32808 | 12-03-2005 | 380.00 | IBM | COD |
| )B32 | 37691 | 06-15-2005 | 380.00 | Apple | COD |
| )B33 | 57772 | 05-27-2005 | 412.77 | Lenovo | Zork |
| /P08 | 32808 | 01-12-2006 | 185.00 | IBM | Minx |
| /P08 | 37691 | 06-15-2005 | 227.50 | Apple | Minx |
| /P08 | 57222 | 05-27-2005 | 170.24 | Lenovo | Minx |
| /P09 | 59836 | 10-30-2005 | 35.00 | Dell | Portal |
| /P09 | 77740 | 05-27-2005 | 35.00 | HP | Portal |

**Question 5: Functional Dependencies**

1. PackageID→→→SoftwarePackageName
2. TagNumber→→→ComputerModel
3. PackageID & TagNumber→→→InstallDate, SoftwareCost

**Question 6:**

This table fails to meet the standard essential to qualify for third normal form simply because it doesn't even qualify to meet second normal form. Second normal form states that there must exist no partial key dependencies and it must already be in first normal form. This table has several partial and multiple key dependencies. Not all data values stored within this given table can be determined by the candidate key.

# Part Three

**Question 7: Identify all Primary Keys (determinates) for all tables**
**Question 8: Identify all Functional Dependencies for all tables**

1. **Table: SoftwarePackage**
   **Primary Key: PackageID**
   **Functional Dependencies: PackageID→SoftwarePackageName**

| PackageID | SoftwarePackageName |
|---|---|
| AC01 | Trunks |
| DB32 | COD |
| DB32 | COD |
| DB33 | Zork |
| WP08 | Minx |
| WP08 | Minx |
| WP08 | Minx |
| WP09 | Portal |
| WP09 | Portal |

2. **Table: Installations**
   **Primary Key: PackageID, TagNumber**
   **Functional Dependencies:PackageID & TagNumber→InstallDate,SoftwareCostUSD**

| PackageID | TagNumber | InstallDate | SoftwareCostUSD |
|---|---|---|---|
| AC01 | 32808 | 09-12-2005 | 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. **Table: Computers**
   **Primary Key: TagNumber**
   **Functional Dependencies: TagNumber→ComputerModel**

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

**Question 9:**

**Question 10:**