Derrick Fox

CS 136

June 20, 2014

Week 4 / Chapter 4

p. 183

Week 4 / Chapter 4

1. List the system requirements, with examples for each category. Review the information that Susan gathered, and assume that she will add her own ideas to achieve more effective outputs, inputs, processes, performance, and controls.

If I were to assemble a systems requirements checklist for Personal Trainer Inc. it would include systems requirements that address outputs, inputs, processes, performance, and control. Examples are as follows:

**Output**

* Identify members and their associated limited or full membership level.
* Report the members’ preferences, activities, and history.
* Generate a charge slip upon a sale.
* Generate a daily sales report.
* Output a monthly accounts receivable summary to their headquarters.
* Generate an exception report for inactive members and late payers.
* Generate a quarterly P&L report that shows the breakdown costs for each separate activity.

**Input**

* Receptionists need to scan ID cards for member entry.
* Receptionists need to input sales transactions.
* Trainers need to input customers’ preferences, activities, and history.

**Process**

* Process whether a member is a full or limited member.
* Process whether a member is delinquent in payment.
* Store preferences, activities, and history of members.
* Calculate transaction data to produce a daily activity report.
* Be able to calculate and transmit accounts receivable report
* Prepare statements to be mailed.
* Apply members’ payments and recalculate their account balances.
* Prepare exception report.
* Prepare profit and loss report.

**Performance**

* System has to service up to 500 members across several locations/branches online simultaneously.
* Response time needs to be four seconds or less.
* The system must operate 24 hours a day 365 days a year.
* Inventory system must flag low items.
* System must generate a variety of reports.

**Controls**

* Must have security at operating system and application level.
* Must be able to process scannable ID cards with encryption.
* Employees must be able to add, delete, and update member accounts.
* Transactions must be recorded every single time.

2. Are there scalability issues that Susan should consider? What are they?

There certainly exist scalability issues that must be considered ahead of time. The most glaring one is the ability of the system to cope with the (hopefully) increasing volume of business. You need to ensure that if the number of members exceeds the initial 500 member estimate that the system will be able to seamlessly expand to in keep with the growing demand. Additionally, if the corporation adds new branches you want to ensure that their store-level systems will integrate seamlessly with little to no downtime.

3. If Susan wants to conduct a survey of current or prospective members to obtain their input, what type of sampling should she use? Why?

I would recommend using a stratified sample. If the typical center has 400 members and there are 7 centers you could choose 40 members from each of the 7 centers. It is stratified and preferred over a more straightforward systematic sample because it takes an even sampling from each of the seven locations which could help to get a more evenly representative sample and could also help to identify trends in the individual locations as their statistics are juxtaposed to one another.

4. Draw an FDD that shows the main operations described in the fact statement.

FDD diagram is on the next page…

