

A SYSTEMS ANALYSIS, DESIGN, AND DEVELOPMENT CASE STUDY: OPEN ARMS FOOD PANTRY CLIENT AND VOLUNTEER SYSTEM

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CASE DESCRIPTION

The primary purpose of this case study is for Systems Analysis and Design, Systems Development, and Database courses. Students examine realistic dialog and Interview Notes, as well as existing documents. For Systems Analysis and Design courses, the students should be able to follow this realistic case study of a non-profit organization and conduct the planning, analysis, and design phases of the System Development Life Cycle (SDLC), using either a traditional or object-oriented approach. Deliverables would include process and data diagrams and modeling, and user interface designs, and should require approximately 12-15 hours to complete, outside normal class time. In System Development courses, e.g., capstone courses for a computer information systems major, students can use this case study to not only analyze and design a solution, but actually develop the solution using various windows or web-based tools. The entire project should require approximately 20-25 hours to complete. For Database courses, this case could be used to illustrate database design techniques, resulting in the creation of appropriate data models and physical database designs. This should require approximately 10-12 hours to complete. The case study is of moderate difficulty – ranging from a three to five, and is designed for junior and senior level students, but could also be used for graduate courses.

CASE SYNOPSIS

Dr. Thomas Waggoner, an information systems professor at the local university, is working with a local food pantry when, in the course of a conversation, he determines that the pantry could greatly benefit by using a computerized system to track pantry clients as well as volunteers. He discusses the idea with the students in his Systems Analysis and Design class, as well as the students in his System Development class. He brings his classes to the pantry for a tour, and has them begin the project.

CASE BODY

“It looks like we are going to have a very good selection of food this weekend,” Dr. Thomas Waggoner mentioned to his fellow volunteer, Leila, as they were shelving food at the Open Arms Food Pantry.

“I agree. We had several great donations this week, and we were able to get quite a bit of frozen meat and produce from the food bank,” responded Leila. “How many families did we help last Saturday?”

“Over 100,” replied Dr. Waggoner. “We are now serving between 350 and 400 families each month.”

“That’s great! How are we doing keeping up with all the paperwork?” asked Leila.

“Well, that is a challenge. We are doing the best we can, but since we have so many forms to keep up with, and everything is paper-based, it is taking a lot of time.” Dr. Waggoner explained.

“Don’t you teach computer information systems? How about having some of your students build a computer system for us? Couldn’t that save us a lot of time?” asked Leila.

“You know, I was thinking about doing just that. The semester just started, and I am still thinking about a comprehensive project for both my Systems Analysis and Design class, as well as my senior System Development course. This would be a great project for both classes. I am going to start by writing up a description of what we do on a daily, weekly, and monthly basis, and also pulling together examples of all the forms we use.”

Dr. Waggoner spent the next few days doing just this, and then presented the opportunity to his courses. The goal was for the SAD class to develop the process and data models, and design the user interfaces for the new system. They would need to complete these with about 6 weeks left in the semester, at which point the students in his System Development course would then take the designs and work to complete the system by the end of the semester. Dr. Waggoner would coordinate between the classes so that, for example, when the data models were completed, the development class could begin to create the database.

Dr. Waggoner arranged for his classes to meet at the food pantry during their regularly scheduled class time. He felt having the students “get a feel” for the environment was an important part to understanding the requirements for a new system. While at the pantry the students asked several questions about how the organization worked, when and where food came from, how food was ordered, how clients were processed, how they selected their food, what activities volunteers performed, and other related questions. While they were at the pantry, the students also had an opportunity to help shelve food from a recent large donation. From their questions and the previous process descriptions Dr. Waggoner had composed, the following interview notes were developed.

Open Arms Food Pantry Description of Business Processes

Food Acquisition Process

Food is generally obtained two ways. The majority of the food available for the clients was purchased from the regional food bank. Orders for food were made through the food bank's online system once or twice a week, and deliveries were made to a central location where all the food pantries in the area would gather to pick up their orders. A couple of volunteers would meet the delivery truck and transfer the food to their pickup. The volunteers would then drive the food order to the pantry and unload. Occasionally one or more additional volunteers would be waiting to help unload and shelve the food. Refrigerated and frozen food was put away first, followed by other food staples.

The other way food was obtained was through donations. Regularly throughout the year, local churches, schools, and businesses hold food drives to benefit the pantry. When the drive is completed, the pantry would be contacted and the organization or pantry volunteers arrange for the food to be taken to the pantry and shelved.

After gaining an understanding of this process, it was decided this part of the organization did not require a computerized system, particularly as the pantry did not keep a perpetual inventory system of their available products, but it was something to be considered at a later time.

Client Intake Process

When a new client (a person in need of food pantry services) arrives at the pantry, they are required to complete a two-sided form, collecting various demographic information – name, address, family size, birthdate, family member names and birthdays, whether they qualify per USDA income guidelines for various types of foods, and what government support they are on. This generally takes about 5 minutes to complete. The form is then placed in a folder, sorted alphabetically.

Both new clients and existing clients will sign in on a form that asks for their name, number of people in their family, what services they are receiving (e.g., food), and their signature. These forms are collected and sorted by date, and the total number of families, household members, and new clients are calculated and written on the top of the form when the pantry closes for the day.

After clients sign in, a volunteer carries a shopping basket and walks around with them as they select food items. When the clients finish choosing their predetermined maximum number of food items, the volunteer carries their basket to a counter and places the food items in paper sacks or recycled shopping bags. Clients are allowed to select at least 10 grocery items, and depending on the size of their family, possibly up to 25 grocery items. A family of 1-2 can select up to 10 items, 3-4 can select up to 15 items, 5-6 can select up to 20 items, and a family with over 6 members can select up to 25 items. A volunteer will then help carry the sacks to the client's car.

Volunteers Process

The pantry is fortunate to have many volunteers who help either pick up food, shelve food, or staff the pantry when it is open. Volunteers are usually people from the community and/or local churches who simply would like to contribute their time to a worthy cause. When a volunteer arrives, if this is the first time they have volunteered at the pantry they will need to fill out a short form with basic demographic information. These forms are kept in a folder, sorted by last name. All volunteers sign in on a form with their name, and time they arrived. When the volunteers are finished working, they enter the time they leave on this form. Once a month the volunteer coordinator calculates the total time worked by all volunteers.

Monthly Reports

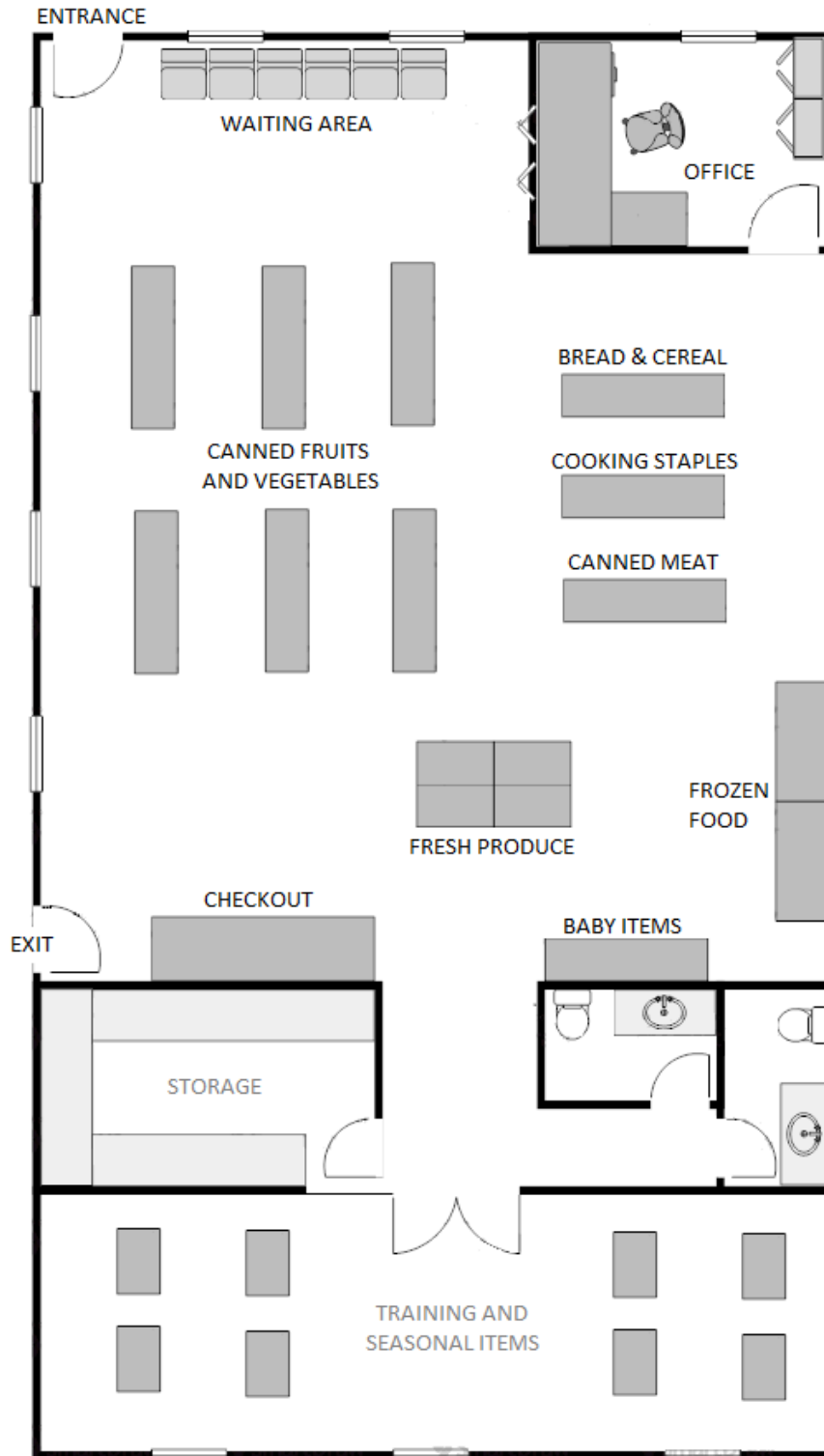
Each month the pantry is required to submit a short report to the regional food bank showing the total number of families served during the month, the total number of individuals served, and the number of new clients.

Dr. Waggoner explained to the students what the Pantry really needed was a database system which would track clients and volunteers, collecting all the information currently on the respective intake forms, and generate reports of the number of clients served by day and month, and the number of volunteer hours provided each day and month. As mentioned in the Description of Business Processes, the pantry currently did not use an inventory system, but he wanted his students to consider what that might look like as a future project. In the event that an inventory system is needed in the future, preliminary data and process models could be developed, and preliminary user interface designs could be created.

After reviewing the business processes with his students, Dr. Waggoner provided his students with the requirements shown below. His SAD students began developing data and process models and designing the user interfaces. As the semester progressed and the analysis and design phases were completed, Dr. Waggoner had his system development class use the specifications and start creating the working system. By the end of the semester the system was completed and implemented, and the recordkeeping and reporting at the pantry was greatly improved.

APPENDIX

Open Arms Food Pantry Layout



Client Intake Form (front)



CLIENT INTAKE FORM

Name: _____

Phone Number: cell or home (____) _____ DL/ID # _____

Address: _____ County _____

City: _____ State: _____ Zip Code: _____

Date of Birth: _____

Number of People in Household: _____

Number of Children (under 18) in Household: _____

	Names of <i>others</i> in Household	Date of Birth	Relationship to you
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

RELEASE OF INFORMATION

The Open Arms Food Pantry Client Intake system is a computerized record keeping system that maintains information about people in need of emergency services. My signature below indicates that I understand that all information gathered about me is personal and private, and that I do not have to participate in this program. I have been given the opportunity to ask questions about the program and to review the basic, identifying information. This Release of Information will remain in effect for 3 years and 90 days from the date noted under my signature at the bottom of this page unless I make a formal request to Open Arms Food Bank that I no longer wish to participate in the program.

Client Signature

Date

By signing I certify that all of the information listed on both sides of this form is true and correct.

- OVER -

1202 S. Main St. | Bell, TX 76543 | phone 254.555.OAFP | fax 254.555.7654
 openarmsfoodbank.org

Client Intake Form (back)



CLIENT INTAKE FORM

PLEASE CIRCLE APPROPRIATE ANSWERS or ALL THAT APPLY

<u>Gender</u>		<u>Education</u>		
Male	Female	High School: GED	Completed	Incomplete College
<u>Marital Status</u>		<u>Employment</u>		
Single Married Partner Divorced Widowed		Full Time Part Time Unemployed Disabled Retired		
<u>Ethnicity/Race</u>		<u>Other</u>		
Hispanic/Latino American Indian or Alaska Native Asian Black or African American Pacific Islander or Native Hawaiian White or Caucasian Other		At Risk of Being Homeless Disabled Homeless None of the Above		
		<u>Military</u>		
		Yes No		
<u>Government Benefits</u>				
Receives SNAP (Food Stamps)		Receives Adult Medicaid		
Receives Children's Medicaid/CHIP		Receives Medicaid for Elderly or Disabled		
Receives Social Security		Receives TANF		
Receives Veterans Benefits		Receives WIC		
Receives Woman's Health Program		None		

NOTICE TO CLIENTS

If you receive food from this emergency pantry, please note the following:

This emergency food pantry is a Partner Agency of the Central Area Food Bank (CAFB), and as such has agreed to follow CAFB policies and procedures and Internal Revenue Service (IRS) regulations regarding distribution of donated goods.

This pantry CANNOT:

- Charge a fee or accept monetary donations for food and non-food items you receive.
- Require you to provide a service, participate in a religious event or join any part of this organization as a condition of receiving food.
- Refuse assistance to you based on race, color, age, religion, national origin, disability, gender, sexual orientation or political affiliation.

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Volunteer Information Form



Volunteer Information Form

Name _____

Company/School/Organization _____

Permanent Address _____

Home Phone _____ Cell Phone _____

E-mail _____ Birthdate _____

Why are you interested in volunteering? _____

Do you have any physical restrictions or special needs? No Yes _____

Do you have any food allergies? No Yes _____

Do you have any special skills or areas of interest? No Yes _____

Consent Form

I understand that being a volunteer at Open Arms Food Pantry ("OAFP") might occasionally involve working in warehouse conditions, and can sometimes include (but is not limited to) lifting, working around heavy equipment and handling damaged and/or spoiled food products. I hereby accept and assume full responsibility for any injury I might suffer while volunteering at OAFP. In the event of injury (volunteers under 18 years of age), parents/guardians authorize OAFP staff to seek treatment for and take other action in a medical emergency, and I hereby waive and release my right for damages.

Parental Permission: OAFP takes precautions to provide and maintain a safe environment for its volunteers. Volunteers are expected to follow safety rules and all other rules related to the warehouse and pantry area.

Photo release: I hereby give OAFP permission to copyright and/or use, reuse and/or publish and/or republish pictures or images of me for the purpose of illustration, advertising, and promoting OAFP through any medium, including local news outlets and/or websites. OAFP maintains the right to modify these images.

I acknowledge having read and understood the above consent form on:

_____ Date _____ Printed Name _____ Signature _____

If under 18, Guardian's Signature

In the event of an emergency, contact (please print):

_____ Name _____ Relationship _____ Phone Number _____

Open Arms Food Pantry Logo

