

# **CS307 – Team A**

## **Point of Sale System**

# Topics

- Introduction
  - Purpose
  - Domain
- Constraints
  - Scalability
  - Cost
  - Computation Complexity

# Topics Continued

- Solutions
  - Solutions to Scalability
  - Solutions to Cost
  - Solutions to Computation Complexity
- System Overview
  - Special Features
- Summary
  - Meeting Stakeholders' Needs

# Purpose

- Design a Point of Sale(POS) delivery system for a fast food restaurant:
- Necessary Abilities:
  - Take/place orders from front counter and pickup windows
  - Display orders to kitchen areas
  - Exception handling for special orders
  - Handle Cash and credit/debit card transactions
  - Customer order display in drive-through and at front counter

# Purpose Continued

- Necessary Abilities Continued:
  - Inventory tracking and re-ordering
  - Accumulating daily sales results by shift and batching the results to the corporate HQ

# Domain

- Fast Food Restaurant
  - Different Locations
    - Register System
    - Kitchen System
    - Back Office System
  - User Types:
    - Managers
    - Employees

# Constraints

# Scalability

- Multiple Registers
  - Exact Number is Not Statically Defined
- Multiple Kitchen Displays
  - Exact Number is Not Statically Defined
- Single Back-Office Server
  - Import/Export Relevant Data



# Cost

- Financial Design, Installation and Maintenance Costs
  - Financial Costs Should be Limited
- Time Based Design, Installation, Operation and Maintenance Costs
  - Installation Should be Relatively Quick
  - Operations Should Execute Near Instantaneously

# Cost Continued

- Human Resource Costs
  - Should not require extra employees
  - Should not overly complicate any single employee's job

# Computation Complexity

- Restaurant Menu is a Tree
- Modified Order
- Menu Updates
- Multiple Nodes on Single Database

# Solutions

# Solutions to Scalability

- Multiple Registers, Multiple Kitchen Displays and Single Back-Office Server
  - Have a single point of contact
    - MYSQL DB
  - Implement Rules for Notification of DB Changes

# Solutions to Cost

- Financial Design, Installation and Maintenance Costs
  - Design built on Java and MYSQL
  - Maintenance Does not Pose any Immediate Costs
- Time Based Design, Installation, Operation and Maintenance Costs
  - All Relatively Cheap

# Solutions to Cost Continued

- Human Resource Costs
  - Fairly Self Explanatory Design
  - Touch Screen Implementation for all but Back-Office
  - Minimal Human Interaction Required

# Solutions to Computational Complexity

- Restaurant Menu is a Tree
  - MenuOffering -> FoodItemOption -> FoodItem -> Ingredient
- Modified Order
  - Adding and Subtracting Ingredients
- Menu Updates
  - CSV Reading and Backup
- Multiple Nodes on Single Database
  - Frugal database controllers



# Special Features of the POS

- Dynamic Button System
- Live Feed To Kitchen System
- Daily, Monthly, Yearly Sales Analysis
- Employee Information List


# Summary

- Clients/Users
  - Cashiers
  - Managers
  - Restaurant Owners
- We tried to cater to the fact that this system had to be relatively easy and intuitive to use.
- This would make it cost less and be easier to train new employees which would also cut costs for the owners.
- We believe we have generated a system that is both simple to use while also being a very powerful system

# Kitchen System

[illegible]

# Back Office Application

 Menu

## Inventory Manager

Enter your Search:

By: 

UID

Search

| UID | Name              | UnitMetric | UnitSize | PricePerUnit | Amount | MinimumAmo... | RawPricePer... |
|-----|-------------------|------------|----------|--------------|--------|---------------|----------------|
| 1   | French Fries      | lb         | 0.25     | 0.5          | 1500   | 1000          | 0.2            |
| 2   | Frying Oil        | cup        | 1.0      | 0.5          | 1500   | 1000          | 0.2            |
| 3   | Bagged Iceb...    | bag        | 1.0      | 1.0          | 1500   | 1000          | 0.4            |
| 4   | Chopped Sal...    | packet     | 1.0      | 0.5          | 1500   | 1000          | 0.2            |
| 5   | Italian Dressi... | packet     | 1.0      | 0.5          | 1500   | 1000          | 0.2            |
| 6   | Ranch Dress...    | packet     | 1.0      | 0.5          | 1500   | 1000          | 0.2            |
| 7   | French Dres...    | packet     | 1.0      | 0.5          | 1500   | 1000          | 0.2            |
| 8   | Lcw Fat Italia... | packet     | 1.0      | 0.5          | 1500   | 1000          | 0.2            |
| 9   | Bagged Rom...     | packet     | 1.0      | 1.0          | 1500   | 1000          | 0.4            |
| 10  | Croûtons          | packet     | 1.0      | 0.5          | 1500   | 1000          | 0.2            |
| 11  | Ceaser Dres...    | packet     | 1.0      | 0.5          | 1500   | 1000          | 0.2            |
| 12  | Shredded Pa...    | cup        | 0.1      | 0.25         | 1500   | 1000          | 0.1            |
| 13  | Chili             | cup        | 0.5      | 1.0          | 1500   | 1000          | 0.4            |
| 14  | Potato            | potato     | 1.0      | 1.0          | 1500   | 1000          | 0.4            |
| 15  | Butter            | pad        | 1.0      | 0.25         | 1500   | 1000          | 0.1            |
| 16  | Sour Cream        | cup        | 0.2      | 0.25         | 1500   | 1000          | 0.1            |
| 17  | Chives            | cup        | 0.2      | 1.0          | 1500   | 1000          | 0.4            |
| 18  | Diet Coke         | ounce      | 6.0      | 0.5          | 1500   | 1000          | 0.2            |
| 19  | Coke              | ounce      | 6.0      | 0.5          | 1500   | 1000          | 0.2            |
| 20  | Mountain Dew      | ounce      | 6.0      | 0.5          | 1500   | 1000          | 0.2            |
| 21  | Water             | ounce      | 6.0      | 0.5          | 1500   | 1000          | 0.2            |
| 22  | Cherry Coke       | ounce      | 6.0      | 0.5          | 1500   | 1000          | 0.2            |
| 23  | Milk              | ounce      | 6.0      | 0.5          | 1500   | 1000          | 0.2            |
| 24  | ...               | ...        | ...      | ...          | ...    | ...           | ...            |

# Register

Order Screen

Burger

Chicken

Side

Drink

Desert

|              |             |            |               |            |
|--------------|-------------|------------|---------------|------------|
| Coke         | Diet Coke   | Pibb Extra | Mellow Yellow | Tab        |
| Sprite       | Cherry Coke | Hi-C       | Powerade      | Pepsi      |
| Mountain Dew | Dr. Pepper  | Jones soda | Jones soda    | Jones soda |
| Jones soda   | Jones soda  |            |               |            |

Logout

|                        |       |               |           |             |
|------------------------|-------|---------------|-----------|-------------|
| 9                      | 8     | 7             | + One     | - One       |
| 6                      | 5     | 4             | - All     | Clear Order |
| 3                      | 2     | 1             | Modify    |             |
| 0                      | Clear |               | Hamburger |             |
| Amount Entered: \$0.00 |       | Cowboy Burger |           |             |
| Amount Due: \$8.02     |       | Burger Combo  |           |             |
| Change Due: \$0.00     |       | Burger        |           |             |
|                        |       | Burger        |           |             |
|                        |       | Fries         |           |             |
|                        |       | Cola          |           |             |

|                |                     |
|----------------|---------------------|
| Open Drawer    | Create Urgent Order |
| Complete Order | Cancel Order        |
| Credit/Debit   | Cash Tend           |

|           |        |
|-----------|--------|
| Subtotal: | \$7.57 |
| Tax:      | \$0.45 |
| Total:    | \$8.02 |