Edward Demkowicz-Duffy

Crossley Heath School  Halifax

Computer Science COursework 2017

# Analysis

## Brief

My application will be built for a client who produces novelty clocks and coasters. My client presently uses multiple methods for selling their products; the primary four are the two online storefronts eBay and Etsy, the client’s personal website, and a large physical stall held at Christmas in Manchester. The clocks are produced with the central sections of vinyl records, the coasters are made from custom made plastic bases and have (custom made) stickers applied to the top. They are sold in tins of 6, with the tin and the sticker to go on the tin being two separate components too. The client keeps a central inventory which the online storefronts draw from, and takes a different inventory with him each day of the Christmas market.

I plan to use ASP.NET with C# to develop the website and the code behind it, and a Microsoft Access database to manage the data.

## Project Parameters

My goals for the application according to the client’s needs are:

* Keep track of all products in inventory
* Keep track of total sales from all online storefronts via API integration
* Keep track of all user interaction with the application via logging to a text file
* Keep the storefronts up to date with current stock
* Keep track of costs and gross & net profits
* Give a detailed breakdown of sales statistics for the online storefronts (including visual representations) on:
  + A time period divided basis including options for months, days and years
  + Comparisons of different selling statistics:
    - Sales by user
    - Sales by storefront
    - Sales by date/month/season
    - Predict the most popular times of year and outlets for sales from extrapolation of visible data
* Allow the user to add sales manually for physical “face to face” sales, including those at aforementioned Christmas market
* Allow the client to print a customizable catalogue to take with them to the market to display
* Have an authentication system, ie. a user logon page before the user can access sensitive information or be able to edit anything and allow different ID/password combos to be created for other employees with varying permissions level, for example the admin account could remove and change products and sales data, and a employee account could only view these items
* Provide a web-based UI for all these functions with intuitively and clearly displayed information and interactive elements; including but not limited to graphs for statistics with provision for sorting data and the ability to “zoom in” to view individual data and compare specific points

## Data Management and Storage

I will use a relational database to store all the relevant data. The tables will be roughly as follows:

|  |  |
| --- | --- |
| Table Name | Contents |
| Employees | Usernames, hashed passwords and a Boolean “admin” variable which will determine whether the employee has access to certain functions when logged in |
| Customers | Usernames, personal info (i.e. telephone number, address etc.) and a (hashed) password; the credentials will be used for logging in |
| Products | Generic records of all products the site is selling and all the information pertaining to them; their name, price, amount in stock, an image, a description, what product type they are etc. |
| Orders | A record for every different type of product bought by a different customer at a different time; it will store the username of the customer and the name of the product sold referentially, and a timestamp, amount and transaction amount as ordinary entries |

I plan to use no macros or any other function built into the software I choose, instead I will manage all changes to the database, and queries, within the application itself. This will keep all code and functionality in one place, making development quicker and keeping my program transparent to me.

## Notes

-Things I did in development:

* Tried using pure code to handle database but this didn’t work so I used datasets
* Got a custom SQL sanitization class working
* Tried using HTML verification instead of sessions
* Made a custom logging class for development and debugging

## Initial Notes (Please ignore)

Stock:

-Records to be turned into clocks

-Stickers

-Blank Coasters

-Completed coasters (# of sets (6 in a set))

-Clocks – limited selection of records which are ordered frequently:

-Tins

-Costs of stock?

Core features:

-Separate mode for Christmas market or other special occasion:

-Separate inventory

-Printable catalogue

-Inventory management:

-Overview of completed stock

-Separate screen for total inventory/total components?

-Developmental features “add x amount of y”

-Tables:

-Orders

-Deliveries of components

-Production of completed products

-Clients

-Inventory

Extra features:

-Interface with online outlet’s APIs

-Centralize stock values/inventory across all outlets

-Authentication system

-Infographics

-Product comparisons and other data aggregation

Advantages:

-Volume sold; profit and gross

Notes:

-Postage is paid by client

[phil@philfowler.co.uk](mailto:phil@philfowler.co.uk)