Spring 2022 K Project: Bevo’s Books

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# Background

Bevo’s Books, the world’s not-quite-largest collection of literature, has enlisted your team to implement a system for their new website. A recent tornado devastated their IT system. Unfortunately, Bevo’s did not have a disaster recovery plan and, therefore, did not back up anything. Bevo’s would like a brand-new online system so that they can regain the market share they have lost to Sooner Books.

**Katie and the TAs will be your first contacts for requirements questions. Requirements are subject to change/clarification as the project progresses. Katie will have final say on everything. The Piazza discussion board will be the official medium for communication about requirements. No requirements change/clarification is official unless it has been posted on Piazza and tagged with the “project\_requirements” label.**

The system should be a C#-based ASP.NET MVC website using a SQL Server Database hosted on one of your team member’s Azure account. The website should also be hosted in an Azure account. You should consider adding your team members as administrators to the main Azure account.

## Role-Based Access

The system has three roles: Customer, Employee and Admin. Customers can search, buy, and review books. Employees manage customers and the reviews they write. Admins are in charge of managing books, managing promotions, placing book orders to the supplier, and generating reports. Any given user profile (login/password) can be either a customer, a host, or an administrator. That is, a host or administrator who wants to make a reservation for him/herself must log out of the host site and log in with a separate customer account. You MUST use Microsoft Identity in your project to enable role-based authorization.

# Customer Functionality

A customer logs in with their email and password. Login is required to see all customer pages except create account and find books. Upon successful login, the customer should see a welcome message with their name. If the customer tries to do any other actions besides create account and find books, they should be prompted to log in or create an account.

## Create Account

Email, password, first and last name, street address, city, state, zip code and phone number are required.

## Modify/Manage Account

* View account information
* Modify first and last name, street address, or phone number. Customers are NOT allowed to change their email addresses.
* Change password – requires verification by entering in the old password
* All passwords (for customers, employees, and admins) must be at least 6 characters. Do not add any additional password requirements.
* Add credit cards (up to 3 maximum credit cards per customer)
  + Allowed types are Visa, American Express, Discover and MasterCard
  + Credit cards are 16 digits

## Book Search

Search books by title, by author, and by unique number (used instead of ISBN for convenience). Customers should be able to search by genre, title, author, and a combination of title and author.

* There should be an option to show all books
* Search results include the following: Title, Author, Unique Number, whether the item is in stock, and rating. Genre does NOT have to be displayed in search results.
* For all searches (including show all), display a record count (Showing X of Y Books)
* Be able to sort search results by title, author, most popular (the total number of times the book has been purchased), newest first, oldest first (based on publication date), highest rated
* Filter to see only items in stock
* Each book must have ONE genre. A book can have only ONE genre.

Clicking on the book in the search result will bring you to details for the book, which has all of its information (Title, Author, Unique #, Price, Publication Date, and genre), an option to add the item to the cart, reviews/rating, and an option to review the book. If the item is already in the customer’s cart, the customer will see a message on the page informing them of such.

On the customer side, no information about book procurement, or profit margins should ever be available.

## Buy Books

### Shopping Cart

* Customers navigate to a book detail page, which allows them to add the book to the shopping cart. Books that are out of stock cannot be added to the shopping cart.
* The shopping cart is automatically saved for the users. If the customer logs out and logs back in later, all the items in the shopping cart should be preserved.
* Customers can change the quantity of books or delete them entirely.
  + Customers cannot add a quantity greater than the number in stock.
* If something changes in the shopping cart after the book is added…
  + Books remain in the shopping cart until the customer removes them. The shopping cart should always reflect current prices – if the price of the item changes after it is added to the cart, the price that customers see should be the current one.
  + If a book was added to the cart while it was in stock, but then goes out of stock, the customer should see a message that the item went out of stock and was removed from the cart.
  + If a book has been discontinued since it was added to the cart, the customer should see a message that the item has been discontinued and removed from the cart. Customers only have to see this message once – the first time they visit the cart after the item is discontinued.
* Item discounts are automatically applied to items in the shopping cart, and the customer should see an appropriate message about the promotion. Coupon codes are not automatically applied and must be entered at checkout.
* The subtotal and total (which is the subtotal + shipping) for the order should be displayed in the shopping cart
  + You can assume sales tax is included in the price of the book. You do not need to add additional tax.
  + Shipping price is $3.50 for the first book, and $1.50 for each additional book. This may change in the future, so make sure that an Admin could change these values without having to edit code.

### Check Out

* Customers should not be able to check out if they have an empty shopping cart.
* When the customer goes back to check out, he selects his payment method.
  + Customers have the option to add credit cards from the checkout page.
* For the sake of simplicity, you do not have to keep track of multiple addresses – orders will be shipped to the address in the customer’s profile.
* You may also assume that between the time the customer begins the checkout process and when he places the order, the books in the order will not go out of stock. When your system is tested, only one order will be placed at a time.
* Customers have the option to enter a coupon code at checkout.
  + Once the customer enters in the coupon code, the system should update the prices to reflect the promotion. If the coupon code is invalid, disabled, or not applicable to the order, the customer should receive a message that the coupon code is not valid.
* Before the order is finalized, the customer should see a summary of their entire order. The customer can then finalize the order by hitting a “Place Order” button.
* Only the last 4 digits of the credit card should show on this page. All other digits should be hidden with asterisks.
* If at any point, the customer starts checkout but does not finish (i.e. closes the window), you do not have to preserve where in the checkout process the customer left off, but you should keep the items in the cart.
* When the order is placed, the appropriate items should be removed from the shopping cart.
* The system does not encompass the shipping process. Assume that once an order is placed, it is instantly and automatically shipped.

## Book Recommendations

* After customers place an order, they should receive messages suggesting other books they may like.
  + The message should show up on a dedicated order-confirmed page after the customer places the order.
  + The message should be part of the order confirmation email that customers automatically receive.
* The recommendations should include three books whenever possible. The hierarchy for these book suggestions is as follows:
  + The system should not recommend books that the customer has already purchased through our store. This rule trumps all the others below.
  + If the author has another book of the same genre of the book purchased, this should always be in the recommendation
    - Among the author’s other books in the same genre, choose the book with the highest rating.
    - If there are no ratings for this author’s books, or if there are two with the highest rating, any one will be fine.
    - If there are no other books by this author in this genre, choose three books from the category below instead of two
  + Highly-rated books of the same genre should be the other two recommendations
    - These books should have two different authors.
    - Books with a customer rating of 4.0 or higher (See Rate and Review below) should be selected.
    - There may be many books that fall into this category. In that case, the top two will be fine.
  + Books with low or no rating in the same genre should be selected to fill blank spots.
  + If there are no books in the same genre, pick the highest rated books overall to fill in remaining spots.
* If there are multiple books in the shopping cart, only give recommendations for one of the books.

## Email

* The system will send messages to the customer’s email address.
* Customers do not need to be able to send each other messages or respond to messages.
* Customers get messages when
  + They create an account
  + They place an order (include the information about the order)
  + They change their password
  + An item in their cart is discontinued (include the book title/author)
* Include your team number in all emails for ease of grading. All email subjects should start with Team XX:
* For security purposes, it is recommended that each group create a new Gmail account to send these emails.

## View Order History

* Customers can see a list of the orders they’ve placed, most recent first. The history should include all information about the order (except only the last 4 digits of the credit card # should show – all other digits should be replaced with an asterisk.
* This system does not keep track of the shipping status of an item – assume that an item is shipped and delivered as soon as the order is placed.

## Rate and Review Books

* Customers can review books. If writing a review, the customer must include a rating on a scale of 1-5. Reviews are limited to 100 characters.
* Customers are limited to rating books they have purchased.
* Reviews must be approved by an employee before they show up on the website.
* Book ratings are a simple average of approved customer ratings. They should be carried out to 1 decimal place (e.g. 4.3, 3.2)
* A customer can only review a book once, and cannot change their review or rating once it has been submitted.

# Employee

Employees log in with their email address and password. If employees are customers, too, they should have a separate account for each role.

## Modify Employee Account

Employees can modify their street address, phone number and password only. Changing the password requires entering in the old one again.

## Manage Customers

* Employees can create and modify customers – this is the same functionality as the customer side.
* Disable/enable customer account – A customer with a disabled account cannot log in and receives the appropriate message when trying to log in. All information is preserved, so if the employee re-enables the account, everything for that account is back to normal.

## Book Search

Employees should be able to search books just like the customer can. The only difference between the employee side and the customer side searching is that employees do not need the option to add the item to the cart. Employees also should not have the option to write a review for the book, but they should be able to see the reviews.

## Approve/Reject Reviews

Employees see a list of all reviews pending approval. They can approve or reject each review. Approved reviews instantly appear on the website, and the book rating is updated. Employees may edit the text of the review, but they may not change the rating.

# Admin

Admins can do everything that an employee can do, plus the following:

## Create and Manage Promotions

Admins should be able to see a list of all coupon codes (see below). Promotions cannot be modified after they are created, but they can be enabled or disabled by the admin.

### Coupon Codes

The admin creates a coupon code, which are 1–20-digit combinations of letters and numbers (e.g., FREESHIP, 10OFF). This sequence of letters and numbers must be unique for all codes. The admin inputs the coupon code, selects which type it is, and based on type, enters the necessary information. The two types of coupons are detailed below. Admins do NOT need to be able to create other coupon types (buy-one-get one, etc.). Free shipping and X% off your order are THE ONLY types of discounts that need to be supported by your system.

#### Coupon Types

* Free shipping for orders above $X. The admin also has the option to give free shipping for all orders.
* X% off your total order.

#### Additional Coupon Rules

* A given coupon may only be used once by an individual customer
* Coupon codes are advertised on the website on the customer side main page.

## Manage Employees

* Admins should be able to hire new employees and create a new profile for them.
* Admins should be able to fire existing employees. Former employees’ information should be kept in the system and can be rehired at a later date. Former employees should be blocked from logging in and should receive an appropriate message.
* Admins should be able to manage other employees’ profiles, including promoting other employees to Admin. They can also change any of the employees’ information except their emails.

## Manage Books

### Add/Delete Modify Books

* The admin can add new books. Once a new title has been added, the admin can order copies of the book (See Book Procurement, below).
* Unique numbers for books are consecutive numbers starting at 222001. The sample data has books 222001-222300, so the next book added MUST be 222301.
* Books are never deleted, but they can be discontinued. Discontinued books still show up in search results and have their own item detail page, but cannot be added to shopping carts.
* Admins can edit all information about any book, except the automatically generated unique number field.
* The search functionality is the same as the employee side book search.
* The admin should be prompted with the list of existing genres for the book. He or she should be able to add a new genre if needed.

### Book Procurement

#### Order Books from the Supplier

When an admin selects this function, they should have two basic choices – manually ordering books, or automatic inventory check for books below reorder point.

##### Manual Reorders

* When the admin chooses the manual method, they can order one or more titles.
* They should be able to select books via search, see that book’s detailed information, and then order as many copies as they want.
  + The search functionality is the same as the employee side book search, except they can order from the supplier, and they should be able to see the price last paid to the supplier for the book (i.e., the COST of the book). They should also see the average profit margin (see Admin > Reports, below, for details about how to calculate average profit margin.
* The cost defaults to whatever price was paid to the supplier the last time the book was ordered. If the cost changes, the admin can input a different cost (assume they have this information, as it is not part of the project.) Book costs must be greater than zero.

##### Automatic Reorders

* If the admin selects the automatic reorder option, they should see a list of all books that are currently below the reorder point.
* All previous orders that have not yet been received should be included in the inventory count for purposes of reorder (although customers cannot buy them). So, if a book is below the reorder point, but the admin has already ordered enough copies to get over the reorder point, this book should NOT show on the current list.
* When viewing the list of books below the reorder point, the admin should have the choice of editing the list and deleting any books he knows that Bevo’s doesn’t really need. The default number of new copies should be set at 5, but the admin should be able to change this. The number of copies should be zero or greater. The default cost is whatever price was last paid for the book, and the admin should be able to change this.
* Once adjustments are made, the admin pushes a button, and all automatic orders are placed.

##### View Books on Order

The admin must be able to view a list of books currently on order.

#### Book Arrival

When books arrive at the loading dock, an admin will log on and check them in. He should see a list of all current orders, be able to select a book, and enter the number of copies that arrived. If the number of copies that came in is the same as the number ordered, this book should no longer appear on the book order list. Inventory should be updated to show the new book arrivals.

If the supplier accidentally sends more copies than the admin ordered, the system should only allow the number ordered into the system. You can assume the excess copies are returned to the supplier – your system does not need to account for the additional copies.

## Manage Reviews

Admins see a list of all pending reviews, just like employees do. Additionally, they see a list of approved/rejected reviews (most recent first) with the customer name, book title, rating, review text, and whether it was approved or rejected.

## View Reports

Admins should be able to view various reports about book sales and orders. Reports should be as flexible as possible - allow the admin to select the criteria and a single value or range of values.

### General Reporting Rules

* Include a count of the number of records for all reports.
* In order to calculate profit margin, you must keep track of the weighted average price and weighted average cost (price paid to the supplier) for all books.
* Ignore shipping for all reports. Bevo’s charges exactly what it costs for shipping, so shipping does not affect revenue or costs in any way. Do not include the shipping fees in price, cost, profit margin, or order total calculations.

### Required Reports

1. All books sold - a list of every book – the book title, quantity, order number, the customer who bought it, the selling price specific to the order, the weighted average cost for the book, and the profit margin (the specific selling price minus the average cost). Sorting options: most recent first, profit margin (ascending and descending), price (ascending and descending), and most popular (highest quantity sold).
2. All orders – identical to A, above, except grouped by order. For example, the profit margin would be the profit for the entire order, rather than on a per book level. Sorting options: most recent first, profit margin (ascending or descending), price for the order (ascending or descending).
3. All customers – identical to A, except grouped by customer. Sorting options: profit margin (ascending and descending), $ amount of revenue from customer (ascending or descending).
4. Totals – Total profit, total cost, and total revenue. These are not organized by book, order, or customer. This report will contain only three numbers.
5. Current inventory – shows the book title, the number of books in inventory, and the average cost for each book title. At the bottom of this report, you should show the total value of current inventory.
6. Approved/rejected reviews – Displays the number of reviews that each employee has approved/rejected. Sorting Options: EmpID ascending, number of approved/rejected reviews (ascending and descending)

# Project Logistics

## Milestones

There are 7 project milestones due throughout the semester to help you keep on track for the final due date and to allow Katie to give and receive feedback about how your project is going. Collectively, these milestones are worth 5% of your overall course grade. The milestones are listed in the table below. More details (and possibly updated due dates) are available on Canvas. Remember, all MIS 333K dates and times are in Austin time.

|  |  |  |
| --- | --- | --- |
| Milestone # | Description | Due Date |
| 1 | Course Setup/Syllabus Quiz | 5:00pm January 21 |
| 2 | Project Requirements Quiz | 11:00am February 22 |
| 3 | Team Selection | 5:00pm February 24 |
| 4 | Process Flow Diagram  (Show Book Search Through Checkout) | 5:00pm March 4 |
| 5 | Class Diagram (Show ALL model classes) | 5:00pm March 11 |
| 6 | Peer Evaluation #1 | 5:00pm March 11 |
| 7 | Peer Evaluation #2 | 5:00pm May 6 |

## System Project Teams

## The system project teams are made up of 3-4 class members. You will submit peer evaluation forms twice during the semester. These are milestones #6 and #7. Peer Evaluation #1 (Milestone #6) is due by 5:00pm Austin time on March 11. Peer Evaluation #2 (Milestone #7) is due by 5:00pm Austin time on Friday, May 6th. However, if you are having trouble with one of your team members, please let Katie know as early as possible. Katie reserves the right to adjust your grade (up to and including giving you a zero) based on reviews from your group, so be a good teammate!

## Data

We will provide you with seed data for the database in the form of Excel spreadsheets. This seed data (and ONLY this seed data) MUST be pre-loaded on your site when grading begins, or we will not be able to accurately grade your project. See Canvas for the seed data.

Your system should NOT allow any user to delete books, orders, or user accounts. If one of these entities is no longer valid, they should be marked as inactive in the database. Deleting these records could lead to “orphan” data in related tables.

## Grade Script Testing

The night before the project is due, the TAs will need to test the grade script using a live project. We will ask for teams that are done (or mostly done) to use as our “guinea pigs.” One or two teams will be selected for the grade script testing based on the % complete of your project. Teams selected for grade script testing will need to be available for questions via text message (or another channel acceptable to you and the TAs) while the TAs test the script. These teams will NOT get to see the grade script or any specifics about what was tested, but they will be alerted to any serious issues with their project. This “pre-grade” will have ZERO effect on the team’s final score. These projects will still need to be “officially” graded on Friday afternoon

## Project Submission

**You will need to submit a link to your site’s home page and a zipped version of the VS solution on Canvas by 12:00 noon on Friday May 6th.** Unauthorized changes to your website after 12 noon on May 6th will be considered violations of UT/McCombs academic integrity policies and will be reported to Student Judicial Services.

## Project Grading

Project grading will take place via Zoom starting at 12:15pm on Friday December 3rd. **At least one member of your team should plan on being present for grading.**  We will discuss the specifics of grading logistics in class on Thursday, December 2nd. MIS Alumni help us grade the projects, so all teams will be working on their grading simultaneously starting at 12:15pm. You will not be presenting to the class – you will be randomly assigned to an alumni grader, who will follow a VERY detailed gradescript created by Katie and the TAs. The grader will ask you to perform various tasks on your site, and one of your teammates will “drive” the website to show your results. The TAs and Katie will be “floating” on the Zoom call to answer questions and address problems. The length of time it takes to grade your project varies significantly from one team to another, but we will be finished by 5:00pm at the ABSOLUTE latest. Usually, most teams take 2-3 hours. Settle in – this is an EPIC Zoom call with 200+ participants and one of the longest days of the semester for all of us!

## Project Awards

The MIS 333K Team System Project includes cash awards for the top two teams. The first-place team will receive $2000, and the second-place team will receive $1000. This scholarship is sponsored by Praecipio Consulting. Katie has sole discretion for picking the winning teams. Her decision is final. Prize winners will need to submit additional documentation to the IROM office. This documentation includes a thank you letter to the corporate sponsor of the project prizes. Please be aware that it will take several weeks for the University to issue your payment.