Software Development Lab Project Proposal Report

Software Development 1 Lab Project Report

Institute Name: Northan University Bangladesh
Course: Software Development 1
Project Title: Super Shop Management System
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1. Introduction

This project is a simple Super Shop Management System created in the C programming language. Its purpose is to simulate a basic point-of-sale system for a small shop. The program allows a user to view a list of available products with their prices, select items to purchase by their ID, specify a quantity, and calculate a final bill. It is a console-based application developed as part of our Software Development Lab project.

2. Features

- Displays a list of all available products with their names and prices.
- Allows the user to add products to a shopping cart by entering the product ID.
- Lets the user specify the quantity for each selected product.
- Calculates and displays the subtotal after each item is added.
- Computes and shows the final total bill upon checkout.

3. Tools & Technologies Used

Language: C / C++
Compiler: GCC / Code::Blocks / Dev-C++
OS: Windows
Optional Tools: VS Code

4. System Design

The program is designed using a `struct` in C called `Product` to hold the `id`, `name`, and `price` of each item. An array of these structs is initialized at the beginning to act as the shop's inventory.

The program's logic follows these steps:

- **Initialization:** An array of `Product` structs is created and populated with five different items. A `total` variable is initialized to zero.
- **Display Menu:** The program first prints a welcome message and then iterates through the product array to display all available items to the user.
- **User Input Loop:** The program enters an infinite `while` loop to allow the user to continuously add items to their cart.
- **Item Selection:** Inside the loop, the user is prompted to enter a product ID.
- **Checkout Condition:** If the user enters '0', the loop breaks, and the program proceeds to the final billing.
- **Calculation:** If a valid product ID (1-5) is entered, the program asks for the quantity. It then calculates the cost for that item (`quantity * price`) and adds it to the running `total`. A confirmation message is shown with the subtotal.
- **Invalid Input:** If the product ID is invalid, an error message is displayed.
- **Final Bill:** After the loop terminates, the program prints the final total bill and a thank you message.

5. Sample Output (Screenshots)

Here is a sample of the program's output in the console.

Initial Product View and Adding Items:

```
Welcome to Super Shop!
Available Products:
1. Milk - $2.50
2. Bread - $1.20
3. Eggs - $3.00
4. Apple - $5.20
5. Coconut - $2.80

Enter product ID to buy (0 to checkout): 1
Enter quantity: 2
Added 2 x Milk to cart. Subtotal: $5.00

Enter product ID to buy (0 to checkout): 4
Enter quantity: 3
Added 3 x Apple to cart. Subtotal: $20.60
```

```
Enter product ID to buy (0 to checkout): 0

Total bill: $20.60
Thank you for shopping with us!
```

6. Challenges Faced

- **Data Management:** Initially, understanding how to effectively use `structs` to manage related product data (ID, name, and price) together was a challenge.
- **Input Loop:** Designing a user-friendly, menu-driven interface with a continuous loop that would only exit on a specific command (entering '0') required careful logical structuring.
- **Array Indexing:** Ensuring the user's choice (e.g., product '1') correctly mapped to the right array index (index '0') was a minor but crucial detail to avoid logical errors during calculation.

7. Conclusion

This project was a practical exercise in applying the fundamentals of structured programming in C. Through this development, we learned how to use `structs` to organize data, handle user input through a console menu, and implement core application logic. It significantly improved our problem-solving abilities and demonstrated how simple data structures can be used to build a functional program.

8. References

- https://www.programiz.com/c-programming
- ChatGPT
- Stack Overflow

9. GitHub Repository

https://github.com/Shihab707/Software-Development-Project-01.git
https://github.com/mdSimanto7/Super-Shop-Management-Systems.c
https://github.com/imranbadsha95/Super-Shop-Management-System.c