*Lab Exercise 3*

#include <iostream>

#include <vector>

#include <iomanip>

using namespace std;

struct Product {

string name;

double unitPrice;

int quantity;

double discountedPrice;

};

Product add\_product() {

Product product;

cout << "Enter product name: ";

cin >> product.name;

cout << "Enter unit price: ";

cin >> product.unitPrice;

cout << "Enter quantity: ";

cin >> product.quantity;

double totalPrice = product.unitPrice \* product.quantity;

if (product.quantity > 10) {

product.discountedPrice = totalPrice \* 0.90;

} else if (product.quantity >= 5) {

product.discountedPrice = totalPrice \* 0.95;

} else {

product.discountedPrice = totalPrice;

}

return product;

}

double apply\_membership\_discount(double total) {

char hasMembership;

cout << "Does the customer have a membership? (y/n): ";

cin >> hasMembership;

if (tolower(hasMembership) == 'y') {

return total \* 0.975;

}

return total;

}

double apply\_voucher\_discount(double total) {

double voucher;

cout << "Enter voucher discount percentage (up to 5%): ";

cin >> voucher;

if (voucher > 5) {

voucher = 5;

}

return total \* (1 - voucher / 100);

}

void display\_final\_bill(const vector<Product>& products, double total) {

cout << "\n--- Final Bill ---\n";

cout << left << setw(20) << "Product"

<< setw(10) << "Unit Price"

<< setw(10) << "Quantity"

<< setw(15) << "Discounted Price" << endl;

cout << string(55, '-') << endl;

for (const auto& product : products) {

cout << left << setw(20) << product.name

<< setw(10) << fixed << setprecision(2) << product.unitPrice

<< setw(10) << product.quantity

<< setw(15) << fixed << setprecision(2) << product.discountedPrice << endl;

}

cout << string(55, '-') << endl;

cout << "Grand Total: " << fixed << setprecision(2) << total << endl;

}

int main() {

vector<Product> products;

double total = 0.0;

while (true) {

cout << "\n--- Menu ---\n";

cout << "1. Add Product to Bill\n";

cout << "2. Apply Membership Discount\n";

cout << "3. Apply Voucher Discount\n";

cout << "4. Display Final Bill and Exit\n";

cout << "Enter your choice: ";

int choice;

cin >> choice;

if (choice == 1) {

Product product = add\_product();

products.push\_back(product);

total += product.discountedPrice;

} else if (choice == 2) {

total = apply\_membership\_discount(total);

} else if (choice == 3) {

total = apply\_voucher\_discount(total);

} else if (choice == 4) {

display\_final\_bill(products, total);

cout << "Thank you for shopping with us!" << endl;

break;

} else {

cout << "Invalid choice. Please try again." << endl;

}

}

return 0;

}