**Project Code**

#include <iostream>

#include <string>

#include <vector>

#include <map>

#include <iomanip> // For formatting

using namespace std;

// Structure to represent a menu item

struct MenuItem {

string name;

double price;

};

// Function to display the menu

void displayMenu(const vector<MenuItem>& menu) {

cout << "\n===== Welcome, Hope you were doing well.. =====\n";

cout << "Please have a look at our exquisite menu:\n\n";

cout << left << setw(5) << "No." << setw(30) << "Dish" << "Price ($)" << endl;

cout << string(40, '-') << endl;

for (int i = 0; i < menu.size(); i++) {

cout << setw(5) << i + 1 << setw(30) << menu[i].name

<< fixed << setprecision(2) << menu[i].price << endl;

}

cout << endl;

}

// Function to get user input for order

map<int, int> getOrder() {

map<int, int> order;

int choice;

do {

cout << "Enter the item number to order (or 0 to finish): ";

cin >> choice;

if (choice != 0) {

if (cin.fail() || choice < 1 || choice > 15) {

cout << "Invalid choice. Please select a valid item number.\n";

cin.clear();

cin.ignore(1000, '\n');

continue;

}

cout << "Enter quantity: ";

int quantity;

cin >> quantity;

if (cin.fail() || quantity <= 0) {

cout << "Invalid quantity. Please enter a positive number.\n";

cin.clear();

cin.ignore(1000, '\n');

continue;

}

order[choice] += quantity; // Accumulate quantities if the item is selected again

}

} while (choice != 0);

return order;

}

// Function to calculate the total cost

double calculateTotal(const vector<MenuItem>& menu, const map<int, int>& order) {

double total = 0;

for (const auto& item : order) {

total += menu[item.first - 1].price \* item.second;

}

return total;

}

int main() {

// Define the menu items

vector<MenuItem> menu = {

{"Grilled Salmon", 12.50},

{"Steak with Mushroom Sauce", 15.00},

{"Caesar Salad", 8.00},

{"Margherita Pizza", 10.00},

{"Cheeseburger Deluxe", 9.00},

{"Pasta Alfredo", 11.50},

{"Chicken Tikka", 7.50},

{"Lamb Chops", 14.00},

{"Seafood Paella", 16.00},

{"Vegetable Stir Fry", 6.50},

{"Beef Tacos", 7.00},

{"Chicken Wings (Spicy)", 8.50},

{"Shrimp Tempura", 10.50},

{"Chocolate Lava Cake", 6.00},

{"Ice Cream Sundae", 5.50}

};

// Display the menu

displayMenu(menu);

// Get the order from the user

map<int, int> order = getOrder();

// Check if the order is empty

if (order.empty()) {

cout << "\nNo items ordered. Thank you for visiting Gourmet Bistro!\n";

return 0;

}

// Calculate the total cost

double total = calculateTotal(menu, order);

// Print the order summary

cout << "\n========== Order Summary ==========\n";

cout << left << setw(30) << "Dish" << setw(10) << "Quantity"

<< "Price ($)" << endl;

cout << string(50, '-') << endl;

for (const auto& item : order) {

cout << setw(30) << menu[item.first - 1].name

<< setw(10) << item.second

<< fixed << setprecision(2)

<< menu[item.first - 1].price \* item.second << endl;

}

cout << string(50, '-') << endl;

cout << setw(40) << "Total" << "$" << fixed << setprecision(2) << total << endl;

cout << "\nThank you for dining with us. Enjoy your meal!\n";

return 0;

}