

## Introduction

This is a simple invoice system for a small business by the name “Loki’s Store”, which was made using C++ programming language. This invoice system implements a lot of features of the programming language. For instance, it uses class, features of classes and objects for various items like product, customer, invoice. Similarly, the invoice system also uses function for all most all of its operations. This invoice allows different users of different roles, namely the worker(admin) and the customer. The worker can add new products and see the products while the customer is able to see the product, buy the product, and even contact the help desk. This invoice system is designed around OOP, including features like inheritance, encapsulation, polymorphism, class and objects etc to name the few.

## Objective

The main objective of this project is to familiarize students with C++ and to make them capable of making softwares according to their own wishes. The second objective of this project is to make the students capable of making software using object oriented programming languages.

## System Design

The system is designed with the following key modules:

1. **Admin Module:** Allows administrators to add products, view product details, and manage customer information.
2. **Customer Module:** Enables customers to browse available products, make purchases, and receive invoices.
3. **Invoice Management:** Generates invoices for purchases and calculates the total cost.
4. **Data Storage:** Stores product and customer information in external files for persistence.

## Implementation

### Key Functions

1. **addCustomer():** Adds a new customer with name and email address
2. **addProducts():** Displays the list of available products with details.
3. **createInvoice ():** Asks the user to enter the products name and price to create invoice.
4. **saveData():** Saves the customer and invoice details in the file.
5. **loadData():** Loads the saved data from the file to the program

## **Data Storage**

- Customer information is stored in a file (customer.txt).
- Product information is stored in a file (customer.txt).

## Sample Output

- For admin page
  1. Login Credential

```

Welcome to Loki's Store

1) Admin Login
2) Exit

Please select an option: 1
Admin Login
Enter username: lokesh
Enter password: pass1
Login successful!
```

2. Adding Customer

```

1. Add Customer
2. Add Product
3. Create Invoice
4. Save Data
5. Load Data
0. Exit
Enter your choice: 1
Enter customer name: Nischal
Enter customer email: nischalvai@gmail.com
Customer Successfully added!
```

### 3. Add Product

```
1. Add Customer
2. Add Product
3. Create Invoice
4. Save Data
5. Load Data
0. Exit
Enter your choice: 2
Enter product type (1: Electronics, 2: Clothing, 3: Groceries): 1
Enter product name: Guitar
Enter product price: 50000
Product Successfully added!!

1. Add Customer
2. Add Product
3. Create Invoice
4. Save Data
5. Load Data
0. Exit
Enter your choice: 2
Enter product type (1: Electronics, 2: Clothing, 3: Groceries): 2
Enter product name: Hat
Enter product price: 3200
Product Successfully added!!

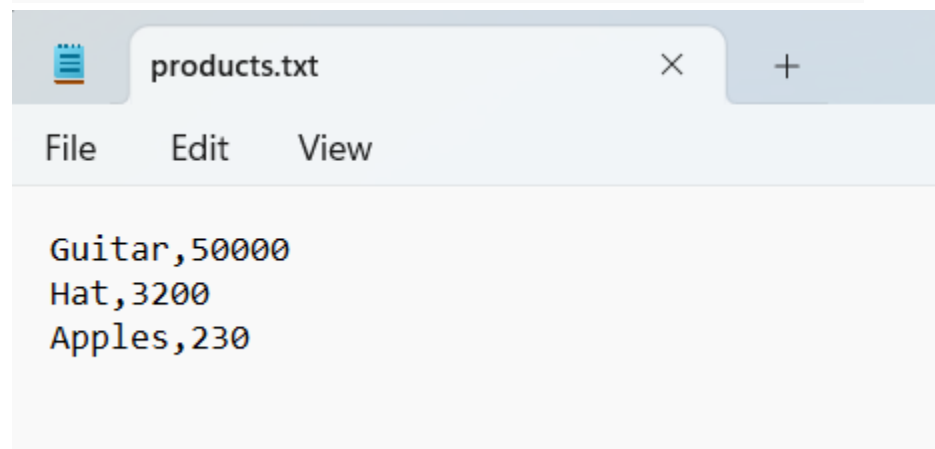
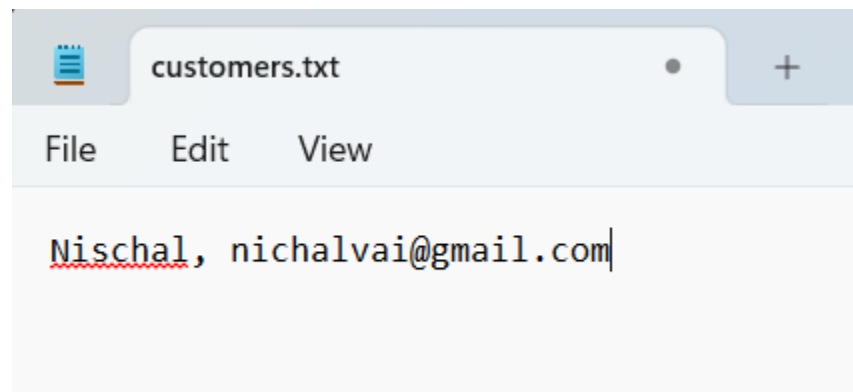
1. Add Customer
2. Add Product
3. Create Invoice
4. Save Data
5. Load Data
0. Exit
Enter your choice: 2
Enter product type (1: Electronics, 2: Clothing, 3: Groceries): 3
Enter product name: Apples
Enter product price: 230
Product Successfully added!!
```

### 4. Create Invoice

```
-----Invoice for: Nischal-----
Product           Quantity  Price
Guitar            1         $50000.00
Hat               3         $9600.00
Apples            5         $1150.00
-----
Total: $60750.00
-----
```

## 5. Save Data

```
1. Add Customer
2. Add Product
3. Create Invoice
4. Save Data
5. Load Data
0. Exit
Enter your choice: 4
Data saved successfully.
```



## 6. Load Data

```
1. Add Customer
2. Add Product
3. Create Invoice
4. Save Data
5. Load Data
0. Exit
Enter your choice: 3
Enter customer name: Shirish
Enter customer email: sh123@gmail.com

Select product to add to invoice:
1. [Electronics] Name: Guitar, Price: $50000.00
2. [Electronics] Name: Hat, Price: $3200.00
3. [Electronics] Name: Apples, Price: $230.00
0. Finish invoice
Enter your choice: _
```

## Testing & Debugging

- Testing
  1. Generating invoices with multiple products
  2. Adding valid and invalid data for products
  3. The login Credentials
- Debugging Steps
  1. Checking else cases for invalid input

## Conclusion

To conclude, the software is a simple software that can be used in small organizations for the purpose of buying and selling of goods. It includes various concepts of C++ as well as OOP, which makes the software user friendly and easy to use. During the coding of the software, I went through a lot of errors and troubles which were sorted and debugged using the provided lessons and the internet. The software includes functionality for both the admin/worker and the customers.

## References

- W3Schools C++ Tutorials: <https://www.w3schools.com/cpp/>
- Code With Harry: <https://www.youtube.com/@CodeWithHarry>
- Stack Overflow: <https://stackoverflow.com/>
- Object Oriented Programming using C++ -by E Balagurusamy(book)
- Bro Code:<https://www.youtube.com/@BroCodez>