Pimpri Chinchwad Education Trust's

Pimpri Chinchwad College of Engineering

Department of Computer Engineering

Project Report

on

" Grab N Go Shop System"

Under
by

Project Based Learning – I

Academic year 2021-22

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Introduction :

SuperMarket management system is the system to automate the process of ordering and billing of a shop store. SuperMareket is the place where customers come to purchase their daily using products and pay for that. So there is a need to calculate how many products are sold and to generate the bill for the customer .This system is built for fast data processing and bill generation for supermarket customers. It also allows the customer to purchase and pay for the items purchased. The users will consume less time in calculation and the sales activity will be completed within a fraction of seconds whereas in a manual system will make the user to write it down which is a long procedure and it also consumes a lot of time. Because of this program, paper work will be reduced and the user can spend more time on monitoring the shop. The project will be user friendly and easy to use. This project is helpful to computerize the bill report and generating the items details. The billing data is a vast collection of product name, price and other product specific data. A product when billed is searched and its price is added to the bill based upon the product quantity. The system also contains discounts on various products so that the product is offered at discounted price while billing . .All the taxes of particular produce are also added while billing The SuperMarket billing system is built to help supermarkets calculate and display bills and serve the customer in a faster and efficient manner

The Project Shop Management System deals with the automation of shop. It includes both employees and customers of items. The project SuperMarket Management System is developed with the objective of making the system reliable, easier, fast, and more informative. There is a lot of reason for the introduction of this project. In the manual System, there are number of inefficiencies that emplyees faces. Large records-books have to be maintained where relevant and irrelevant information has to be stored which is very untidy and clumsy process , Calculating the bills of multiple customers makes difficult to handle , Maintaining the storage of SuperMarket like adding product ,throw products which are deffective. And our System reduces paper works. On the other hand, there are many inherent problems that exist in any manual system. Usually, they lack efficiency. Less efficiency has a great impact on the productivity of any human being keeping the data up-to-date.

This is a SuperMarket Management program which can be used by Emplyees to manage product details available in their store and for Billing Purpose. In this application, we allow store keepers to enter the details of the products available in their store, to view them, to delete them, prepare bills.and etc

Some of the features provided by this project are as follows:

1. Storing details of products: All the details of the products like product no., product name, price , expiry date, etc can be stored in the database. Employees can view all the details of the product available in the store , and expire products at any time
2. Storing details of Customer details : All the details of the customer like name, phone number,which product he/she buy can be store in database . Emplyee can view all the details of customer at any time .

3. Addition and Deletetion of Product: This feature is also supported by this project. The list of the products can be deleted any time and can be re created as the customers needs
4. Taxes and Comission of Products: According to product tax is decided and the commission on that product is decided by manager
5. Discount on particular product: Discount can be added on the basis of Customers reviews on that particular product .Employee can add discount to product any time.
6. Billing of the Products : With the help of this feature user can get the whole list of the products on the billing menu, so the user just need to login to his account.. and all the details of that product will automatically be displayed on the bill, with the total amount that the customer needs to pay.

Problem statement:

" SuperMarket management system" aims at developing into program that can be used at places like SuperMarket to easily manever the daily tasks of taking the order, calculating the bill etc. The main advantage of this project is that it converts all the manual work which is time consuming and error prone to fully automated system which helps in eliminating all the paper work, saves time, improves customer services. It also speeds up various processes such as addition of new items to the menu, deletion of items from the menu, modification of details of items and calculation of bills thus providing convenience to the workers as well as customers.

In today's fast paced society, it's very hard to be competitive without using cutting-edge technology available in market. After years of business, the data has grown much. It is becoming a challenge for person to manage that data in an effective way. To be more productive in order processing, he needs a solution which can facilitate their current processes with use of technology and software. With increased amount of orders, it is becoming difficult for salesperson to manage orders in effective and efficient manner. It is very hard to go through all paper work and backtracking orders. If there is any complain or review of any order, it takes large amount of effort and time to backtrack and fix the problem. This results in loss of resources, increased time, and low output. Drawbacks of Manual System (Current System):

- Time consuming: Getting the required information from the available data takes a lot of time. Changing, editing and updating the information contained in several files are a slow and time consuming process.
- Poor communication: A manual system requires employees and managers to write down each time an item is removed from the inventory. If one employee forgets to mention that the last coffee product has been removed from the inventory the admin or manager expects the item to still available for a customers during sale.
- Need of Effort: In manual system, an Item's record is maintained in separate files so it takes much effort to collect data from several Stores for and if we want to change or delete the data of any transaction then it has to be changed or deleted from all the files and places it stored.
- Needs Large Space: In manual work done data item has to be stored at several places, similarly student's record is maintained in separate registers. It requires more storage space

Features of Object Oriented Programming :

It is necessary to understand some of the concepts used extensively in objectoriented programming. These include:

- **Objects**
- **Classes**
- **Data abstraction and encapsulation**
- **Inheritance**
- **Polymorphism**
- **File Handling**

Objects:

Objects are the basic run time entities in an object-oriented system. They may represent a person, a place, a bank account, a table of data or any item that the program has to handle. They may also represent user-defined data such as vectors, time and lists. Programming problem is analyzed in term of objects and the nature of communication between them. Program objects should be chosen such that they match closely with the real-world objects. Objects take up space in the memory and have an associated address like a record in Pascal, or a structure in c.

Classes :

We just mentioned that objects contain data, and code to manipulate that data. The entire set of data and code of an object can be made a user-defined data type with the help of class. In fact, objects are variables of the type class. Once a class has been defined, we can create any number of objects belonging to that class. Each object is associated with the data of type class with which they are created. A class is thus a collection of objects similar types.

Data Abstraction and Encapsulation :

The wrapping up of data and function into a single unit (called class) is known as encapsulation. Data and encapsulation is the most striking feature of a class. The data is not accessible to the outside world, and only those functions which are wrapped in the class can access it. These functions provide the interface between the object's data and the program. This insulation of the data from direct access by the program is called data hiding or information hiding. Abstraction refers to the act of representing essential features without including the background details or explanation. Classes use the concept of abstraction 13 and are defined as a list of abstract attributes such as size, wait, and cost, and function operate on these attributes. They encapsulate all the essential properties of the object that are to be created. The attributes are some time called data members because they hold information. The functions that operate on these data are sometimes called methods or member function.

Inheritance:

In object-oriented programming, inheritance is the mechanism of basing an object or class upon another object or class , retaining similar implementation. In most class-based object-oriented languages, an object created through inheritance (a "child object") acquires all the properties and behaviours of the parent object(Except: constructors, destructor, overloaded operators and friend

functions of the base class). Inheritance allows programmers to create classes that are built upon existing classes,[1] to specify a new implementation while maintaining the same to reuse code and to independently extend original software via public classes and interfaces. The relationships of objects or classes through inheritance give rise to a directed graph. An inherited class is called a subclass of its parent class or super class. The term "inheritance" is loosely used for both class-based and prototype-based programming, but in narrow use the term is reserved for class-based programming (one class inherits from another), with the corresponding technique in prototype-based programming being instead called delegation (one object delegates to another). Inheritance should not be confused with sub typing. In some languages inheritance and sub typing agree, whereas in others they differ in general, sub typing establishes an is a relationship, whereas inheritance only reuses implementation and establishes a syntactic relationship, not necessarily a 14 semantic relationship (inheritance does not ensure behavioural). To distinguish these concepts, sub typing is also known as interface inheritance, whereas inheritance as defined here is known as implementation inheritance or code inheritance. Still, inheritance is a commonly used mechanism for establishing subtype relationships.

Polymorphism :

Polymorphism is another important OOP concept. Polymorphism, a Greek term, means the ability to take more than on form. An operation may exhibit different behaviour is different instances. The behaviour depends upon the types of data used in the operation. For example, consider the operation of addition. For two numbers, the operation will generate a sum. If the operands are strings, then the operation would produce a third string by concatenation. The process of making an operator to exhibit different behaviours in different instances is known as operator overloading.

File Handling:

The I/O system of C++ handles file operations which are very much similar to the console input and output operations .It uses file streams as an interface between the programs and files. The stream that supplies data to the program is called input stream and the one that receives data from the program is called output stream. In other words input stream extracts data from the file and output stream inserts data to the file. The input operation involves the creation of an input stream and linking it with the program and input file. Similarly, the output operation involves establishing an output stream with the necessary links with the program and output file. Detail of file stream classes:

- filebuf :Its purpose is to set the file buffers to read and write. Contains Open prompt constant used in the open() of file stream classes. Also contain close() and open() as members.
- fstreambase: Provides operations common to file streams. Serves as a base for fstream, ifstream and ofstream class. Contains open() and close() functions. 16
- ifstream: Provides input operations. Contains open() with default input mode. Inherits the functions get(),getline(),read(),seekg(),tellg() functions from istream.
- ofstream: Provides output operations. Contains open() with default output mode. Inherits put(),seekp(),tellp() and write() functions from ostream.
- fstream: Provides support for simultaneous input and output operations. Contains open with default input mode.Inherits all the functions from istream and ostream classes through iostream.

File Mode Operation:

Parameter	*Meaning*
ios::app	Append to end-of-file
ios::ate	Go to end-of-file on opening
ios::binary	Binary file
ios::in	Open file for reading only
ios::out	Open file for writing only
ios::trunc	Delete the contents of the file if it exist

SCOPE :

Scope of this project is to investigate and design a program solution which can facilitate both Customer and Employee in performing their daily tasks, improving efficiency, and helping them to be more productive. This project will provide a solution through which Employees can easily manage, handle and generate all required information in their respective format when needed. It provides quick way of operation by capturing the manual process and automating them. It will help them to manage the bill details, financial data, and historical data and also in producing documents of different formats for different customers.

This solution will help Employees in reducing effort spend on managing many bills. It will also provide them opportunity to explore possibility of generating documents, managing financial details. This system will help the Employees to manage in fast billing. It will help to maintain the data of the purchased items. It also gives bill to the customers. It will set the rates of taxes and commission on products. It will also set the discount on the particular products The project will enable to see the report regarding product and category in a fixed period of time.

What is the Grab-n-go Trend?

No matter which catering channel you work in education, elderly care, healthcare or workplace canteens, the **pandemic has changed your customers' needs.**

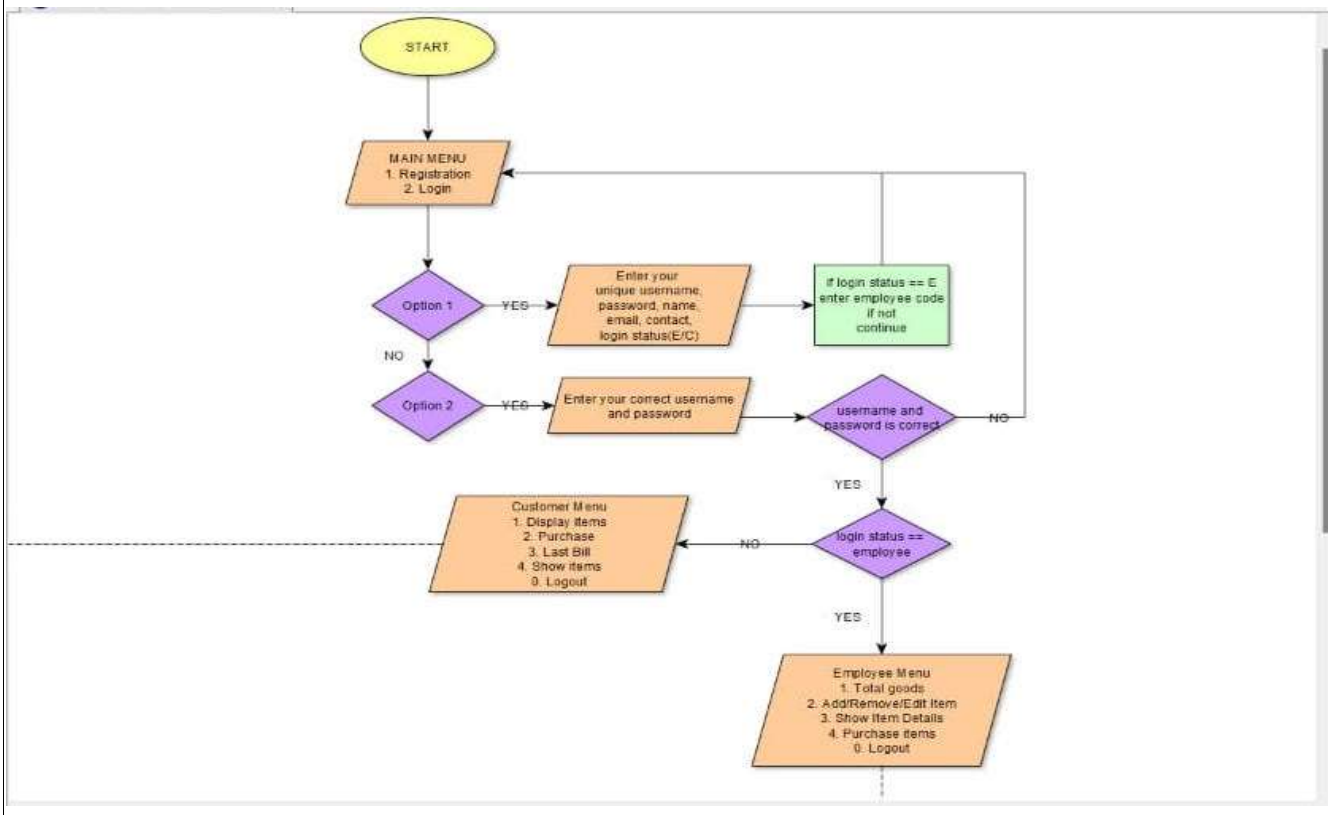
Customers want more **convenient snacking**, healthier menu options and most importantly, **safe, delicious food!** The grab-and-go trend is convenient and it puts your customer safety first

Grab-and-go is also perfect for your customers who want meals that are sealed when they purchase them and can be eaten at work or while they are on the move.

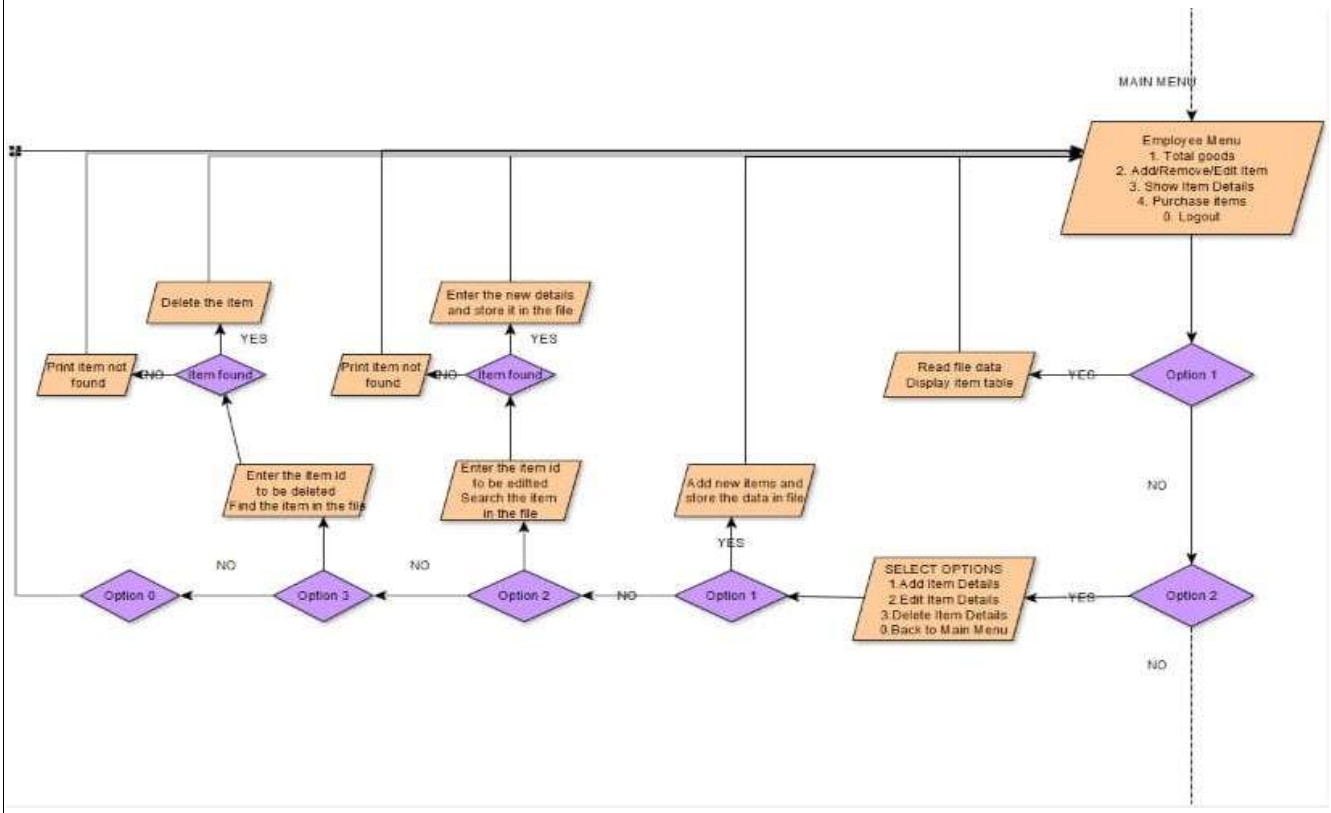
We'll show you how to create delicious meals like chicken salads, sandwiches, bakes and burgers that your customers can eat on the go. Plus, this takeaway type style of eating will also keep **queues shorter** over your busy times, meaning you can **serve more people, quicker!**

Flowchart :

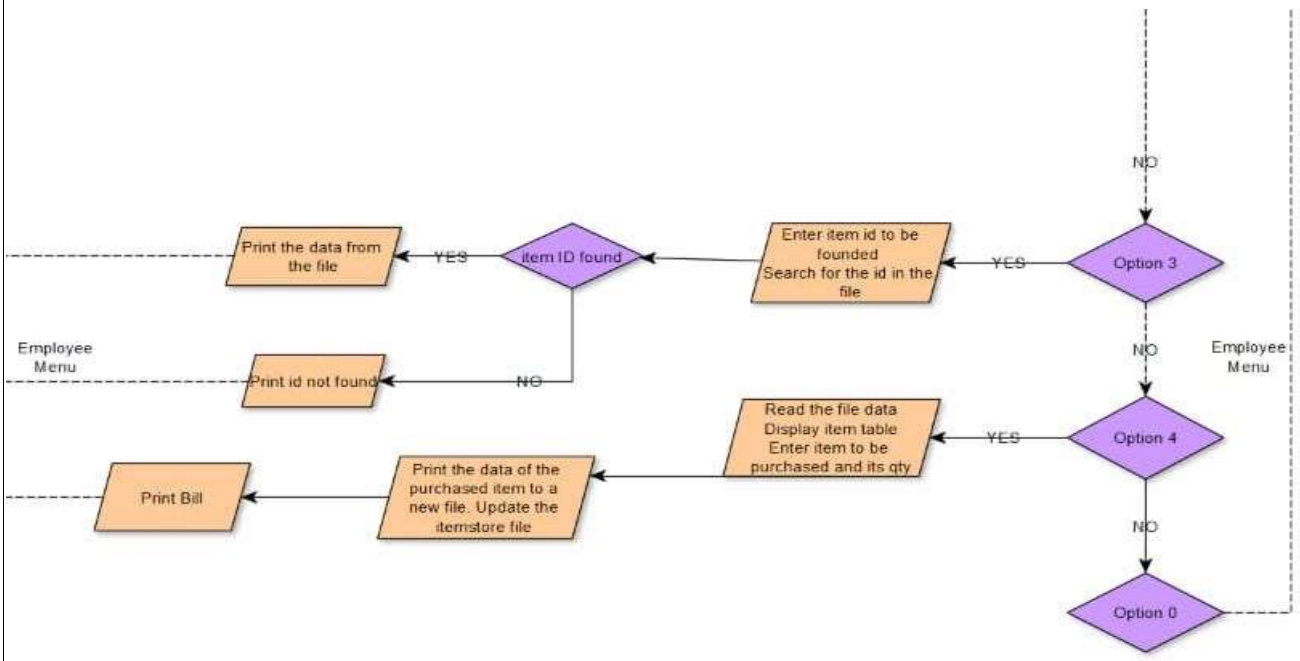
1. Login and Registration part



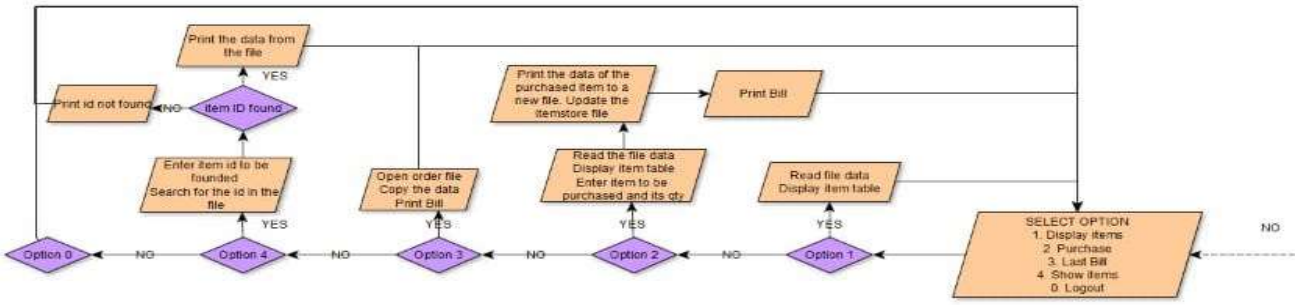
2. Employee Menu (part1)



3. Employee Menu (part2)



4. Customer Menu



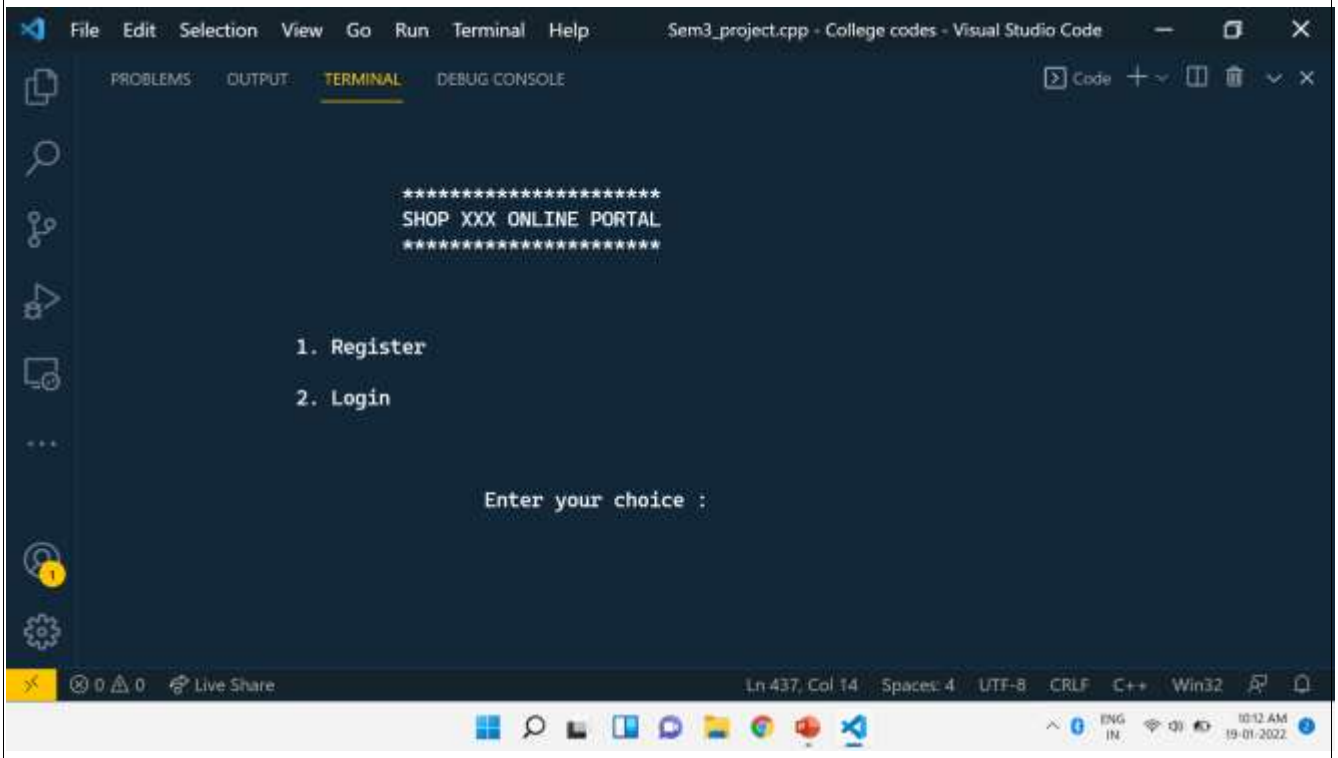
PseudoCode:

```
RegistrationLoginTab:
1. Register
2. Login
if(choice1 == 1)
        Enter unique username, password, name, contact, email, LoginStatus
        if(LoginStatus=='E')
                Enter shop code
        // Credentials will be saved in a file username.txt
else if(choice1 == 2)
        Enter username, password
        if(!username.txt)
                goto RegistrationLoginTab
        else
                if username==true && password==true
                        if(LoginStatus=='E')
                        {
                                EmployeeMenu:
                                1. Total goods
                                2. Add/Remove/Edit items
                                3. Show items
                                4. Purchase items
                                0. Logout
                                switch(choice2)
                                case 1 :
                                        amt.totalp(1) // To show items table for employee
                                        goto EmployeeMenu
                                case 2:
                                        SMenu:
                                        1. Add items
                                        2. Edit items
                                        3. Delete items
                                        4. Goto Main Menu
                                        if(choice3 == 1)
                                                amt.add(); // To add new items
                                                goto Smenu
                                        else if(choice3 == 2)
                                                amt.search(2) // To search the item to be editted then call
                                                              // edit function to edit
                                                goto Smenu
```

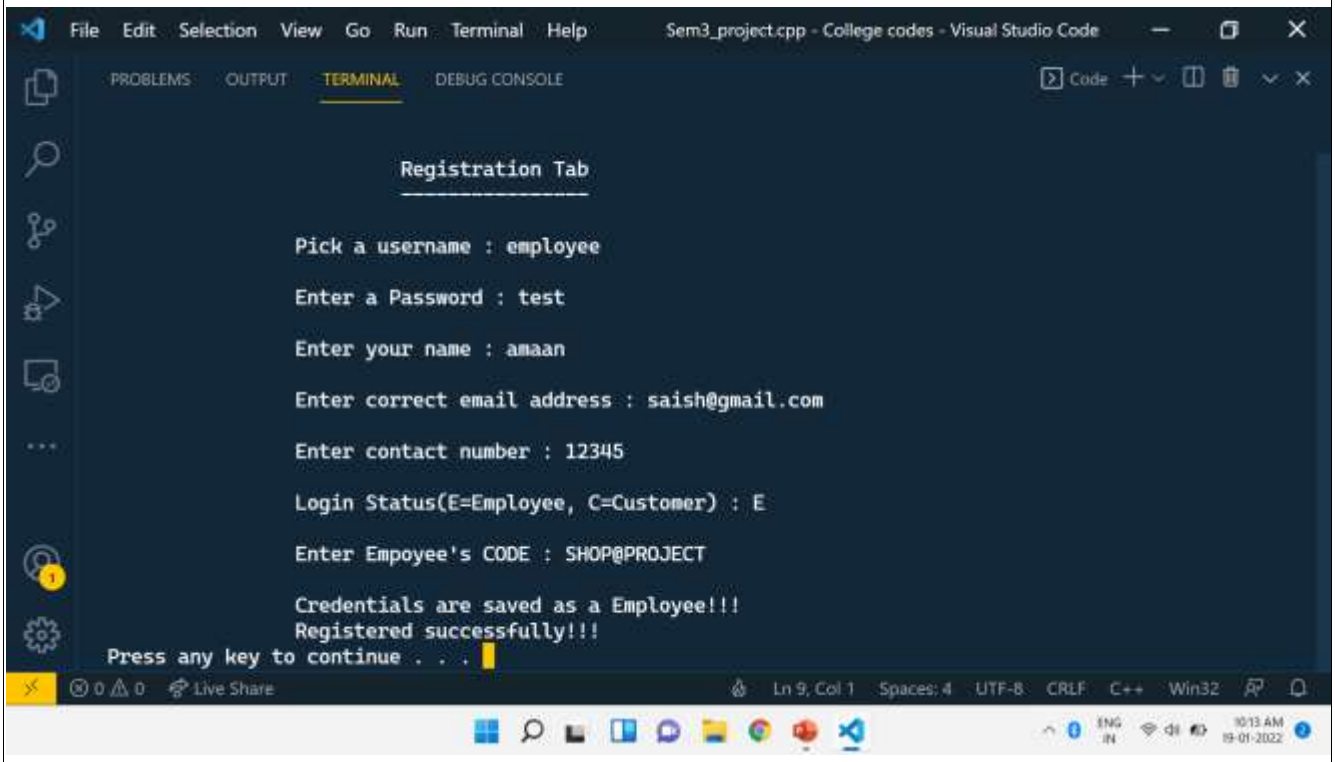
```
                        else if(choice3 == 3)
                                delete() // To delete the desired item
                                goto Smenu
                        else
                                goto EmployeeMenu
                case 3:
                        amt.search(1) // To search item and print its details
                        goto EmployeeMenu
                case 4:
                        amt.search(3) // To search the item to be purchased then calling
                                        // purchase function
                        goto EmployeeMenu
                case 0:
                        goto RegistrationLoginTab
        }
        else if(LoginStatus=='C')
        {
                CustomerMenu:
                1. Display items
                2. Purchase items
                3. Last Bill
                4. Show items
                0. Logout
                switch(choice4)
                case 1 :
                        amt.totalp(2) // To show items table for customer
                        goto CustomerMenu
                case 2:
                        amt.search(3) // To search the item to be purchased then calling
                                        // purchase function
                        goto CustomerMenu
                case 3:
                        amt.pay // To display bill of the lastest purchase
                        goto CustomerMenu
                case 4:
                        amt.search(1) // To search item and print its details
                        goto CustomerMenu
                case 0:
                        goto RegistrationLoginTab
        }
else
        goto RegistrationLoginTab
```

Output :

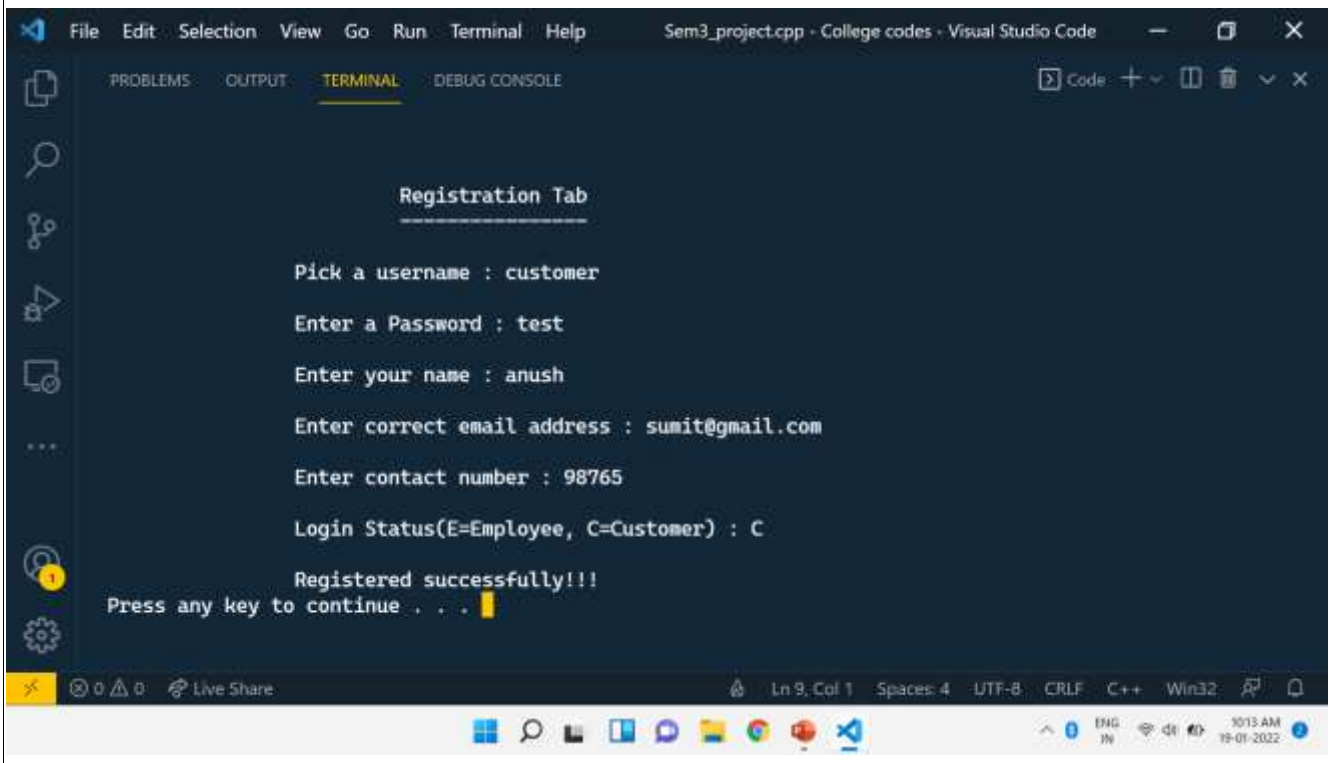
1. Login and Registration Tab



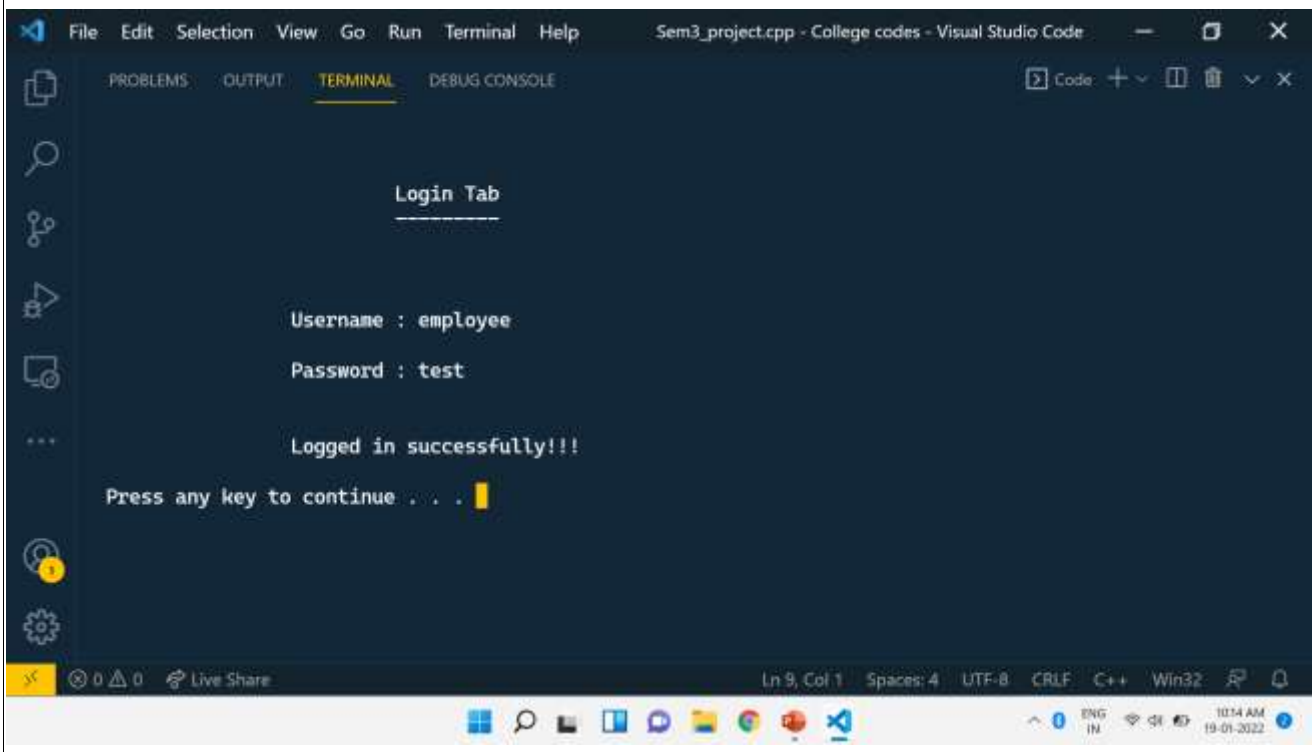
2. Employee registration



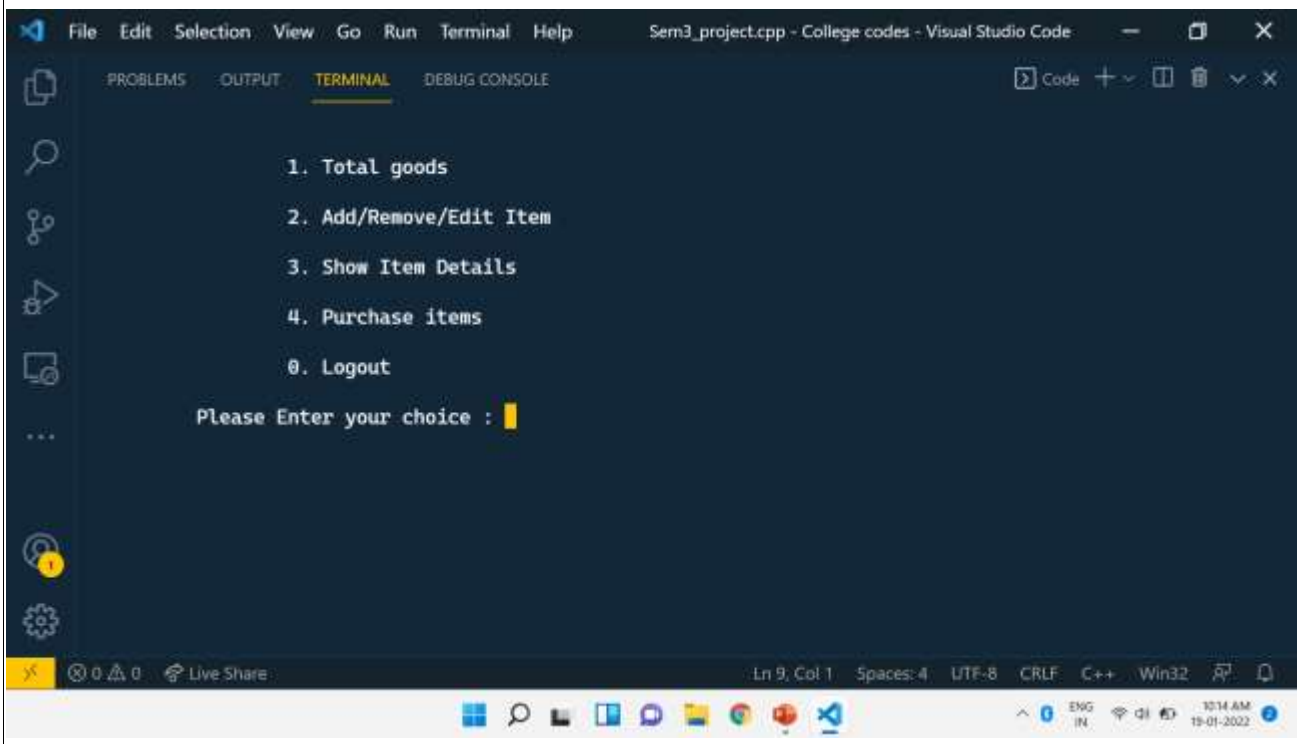
3. Customer registration



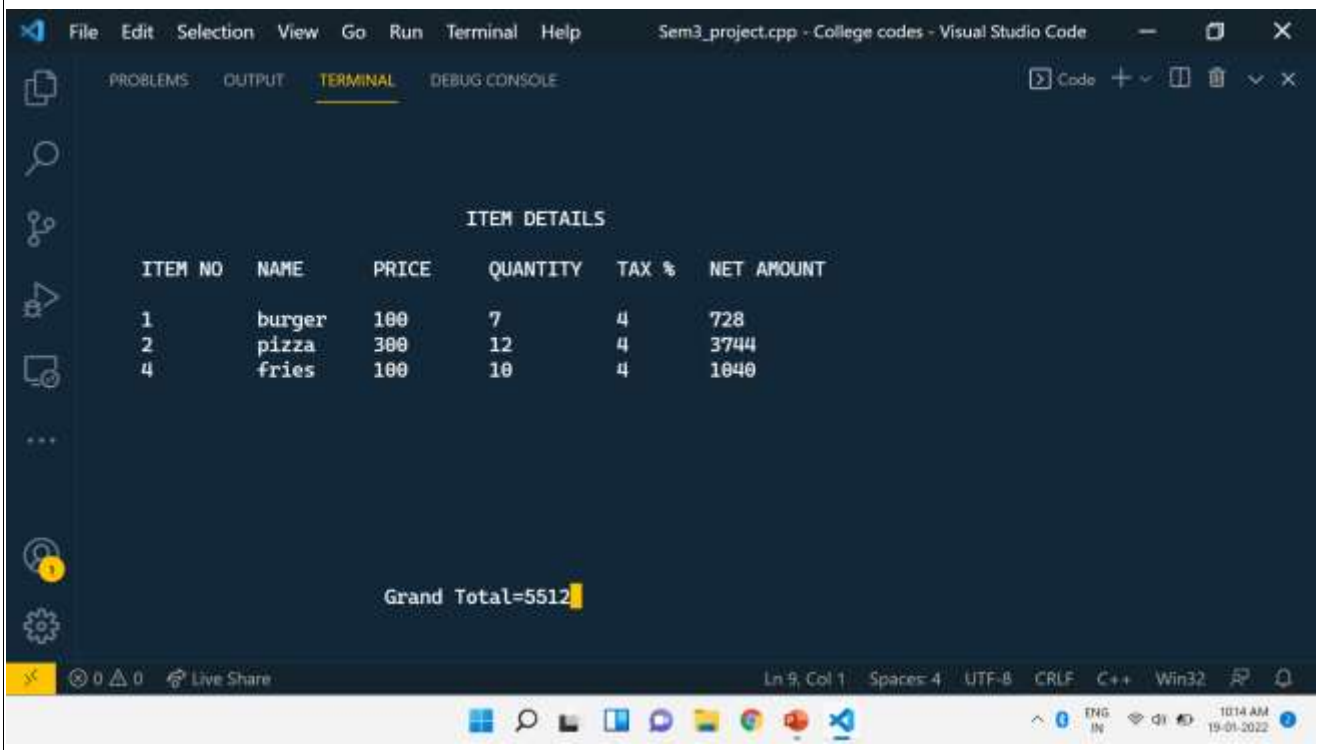
4. Employee Login



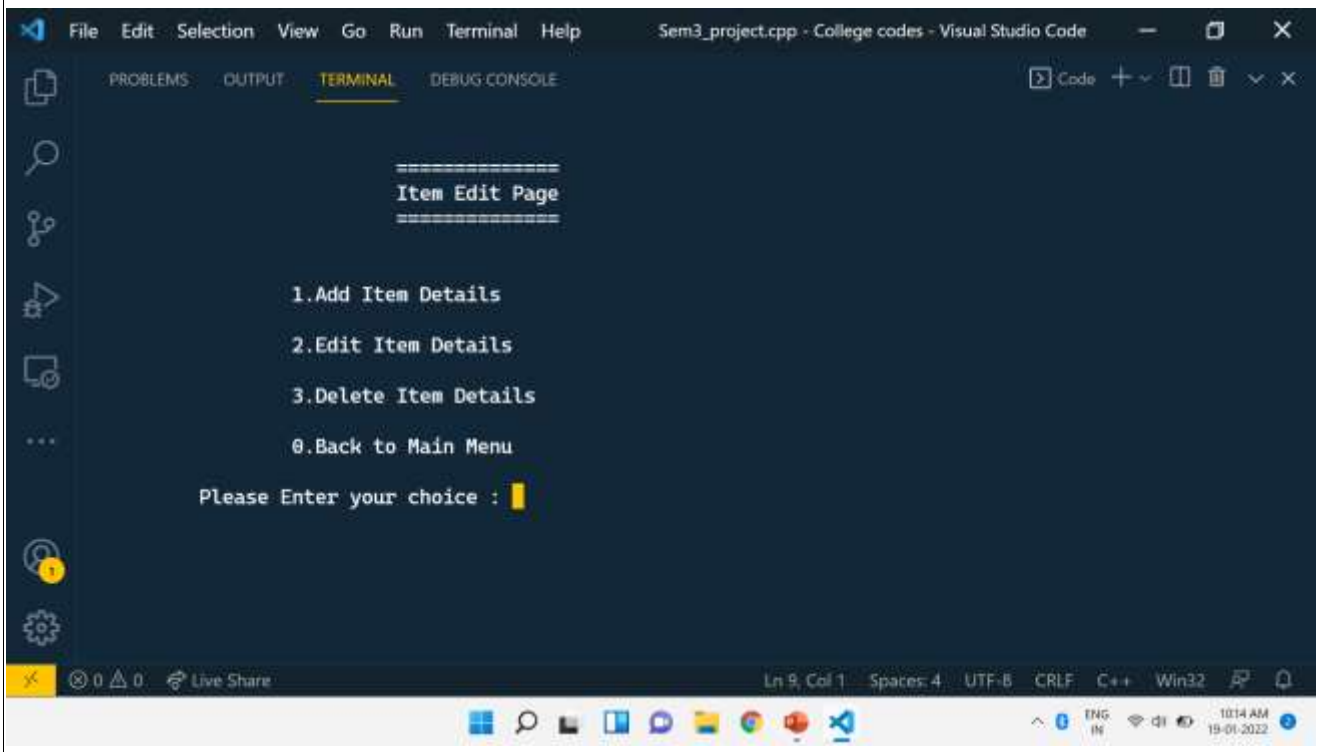
5. Employee Menu



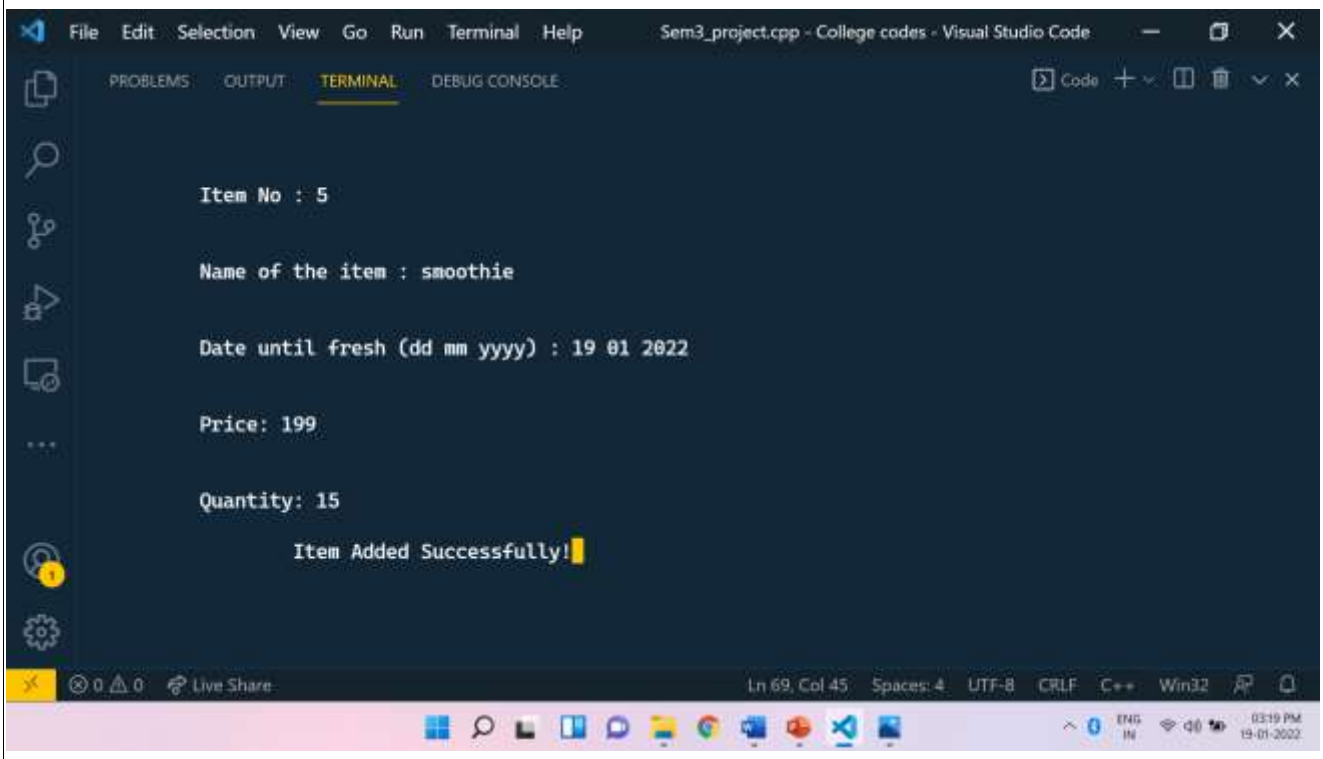
6. Item details



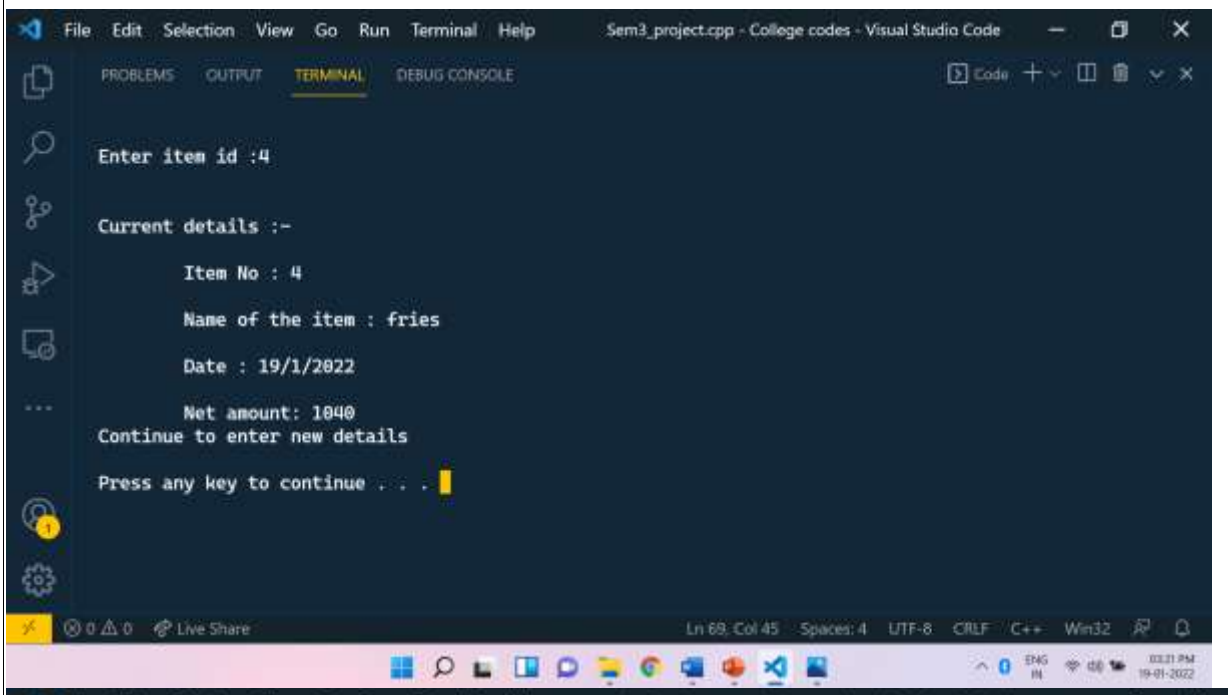
7. Add/Edit/Remove item page

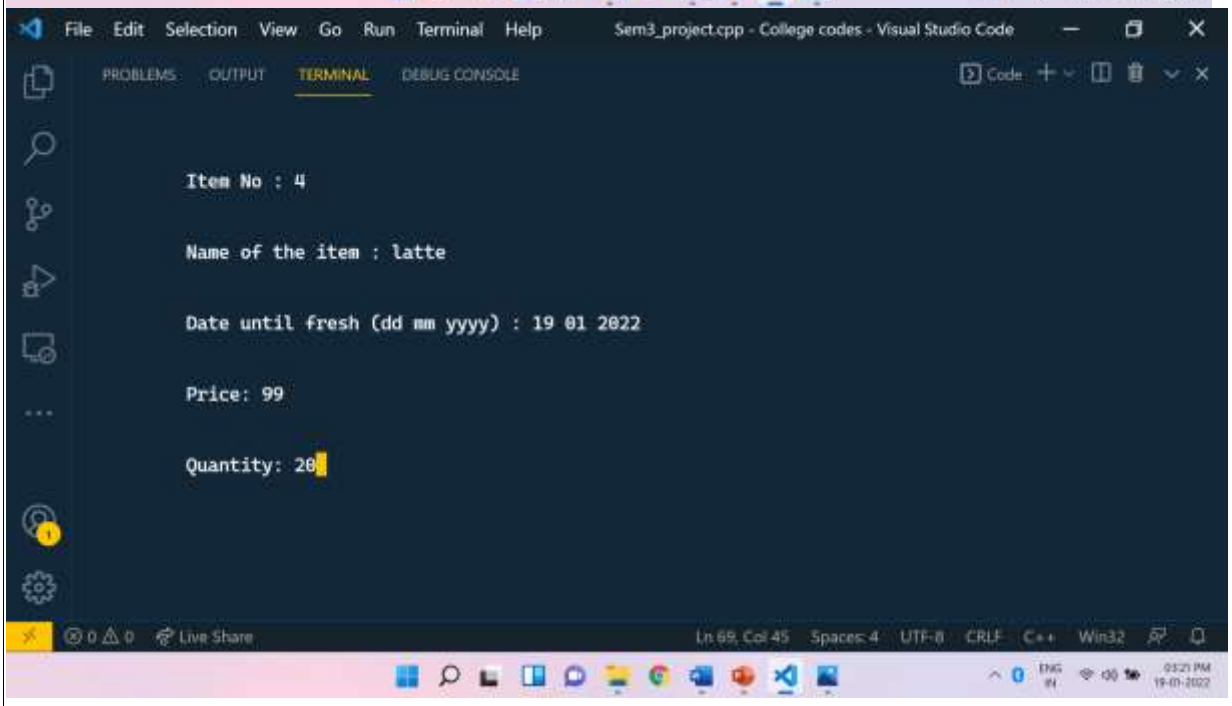


8. Add items

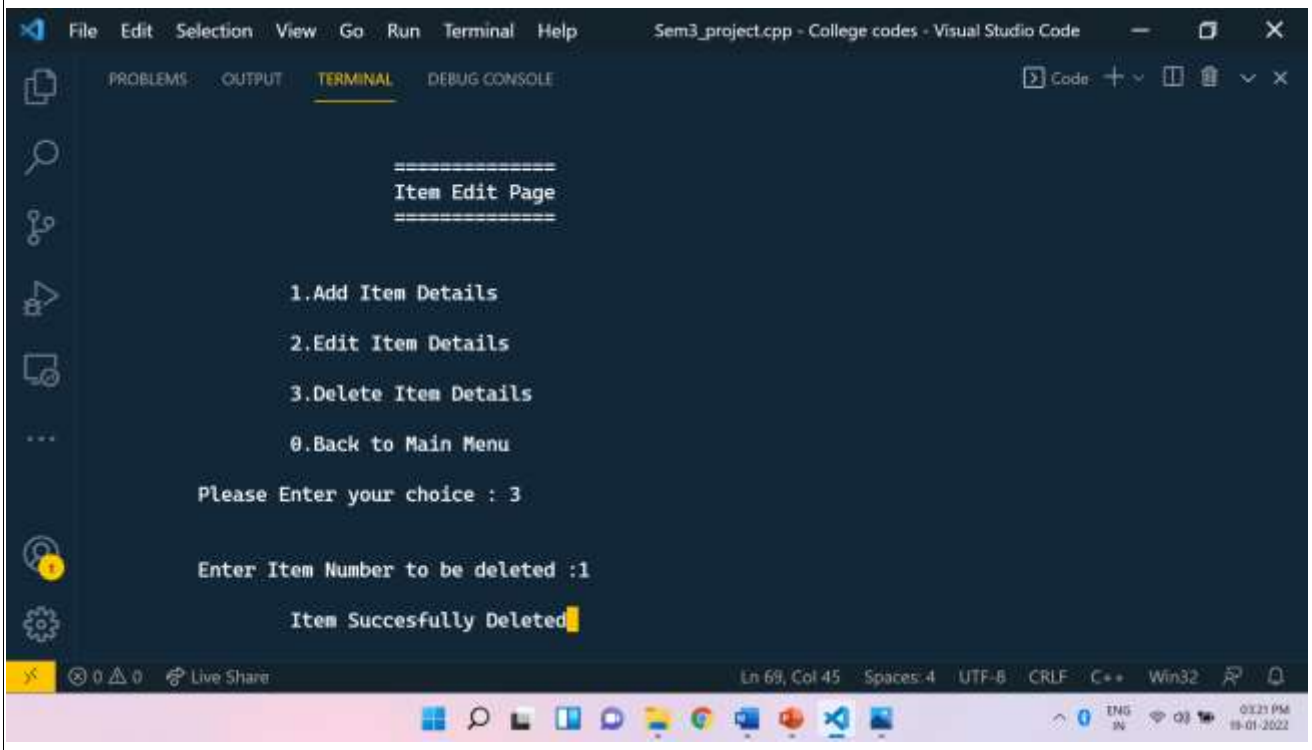

File Edit Selection View Go Run Terminal Help
Sem3_project.cpp - College codes - Visual Studio Code
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
Code
Item No : 5
Name of the item : smoothie
Date until fresh (dd mm yyyy) : 19 01 2022
Price: 199
Quantity: 15
Item Added Successfully!
Live Share
Ln 69, Col 45 Spaces: 4 UTF-8 CRLF C++ Win32

9. Edit items

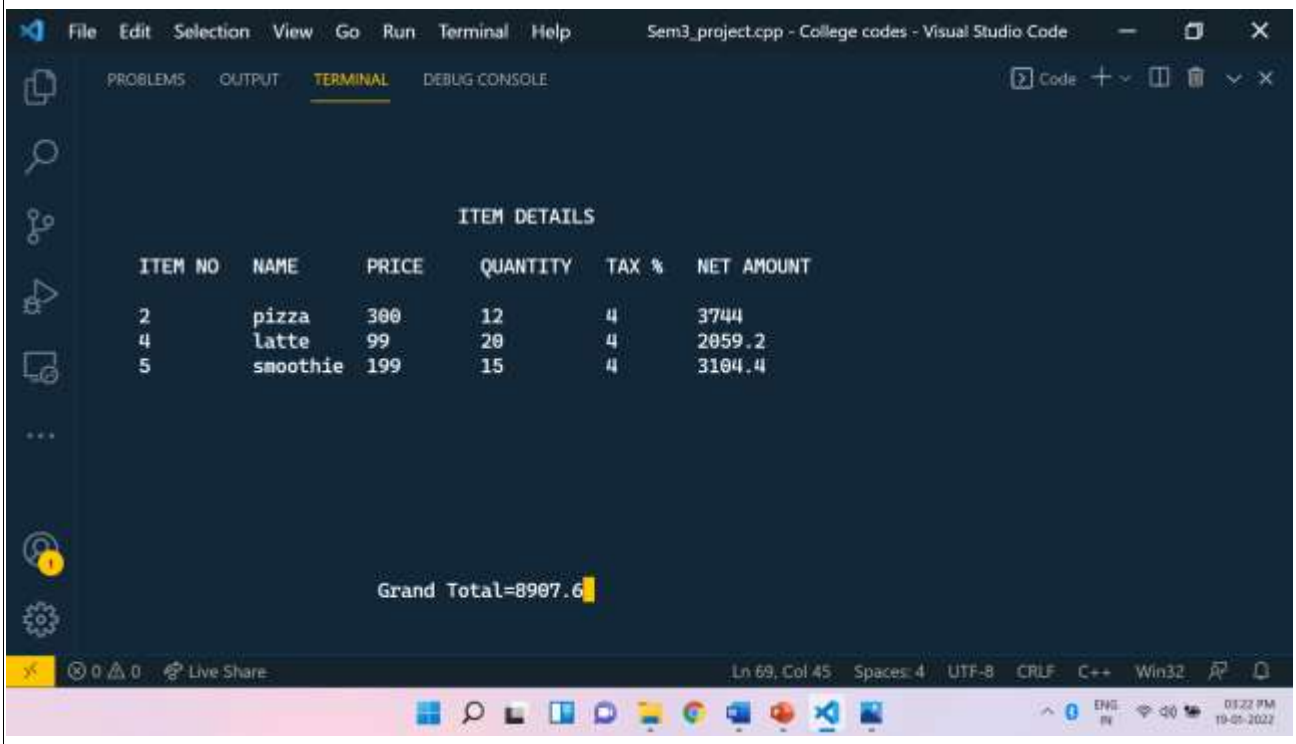

File Edit Selection View Go Run Terminal Help
Sem3_project.cpp - College codes - Visual Studio Code
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
Code
Enter item id :4
Current details :-
Item No : 4
Name of the item : fries
Date : 19/1/2022
Net amount: 1040
Continue to enter new details
Press any key to continue . . .
Live Share
Ln 69, Col 45 Spaces: 4 UTF-8 CRLF C++ Win32


File Edit Selection View Go Run Terminal Help
Sem3_project.cpp - College codes - Visual Studio Code
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
Code
Item No : 4
Name of the item : latte
Date until fresh (dd mm yyyy) : 19 01 2022
Price: 99
Quantity: 20
Live Share
Ln 69, Col 45 Spaces: 4 UTF-8 CRLF C++ Win32

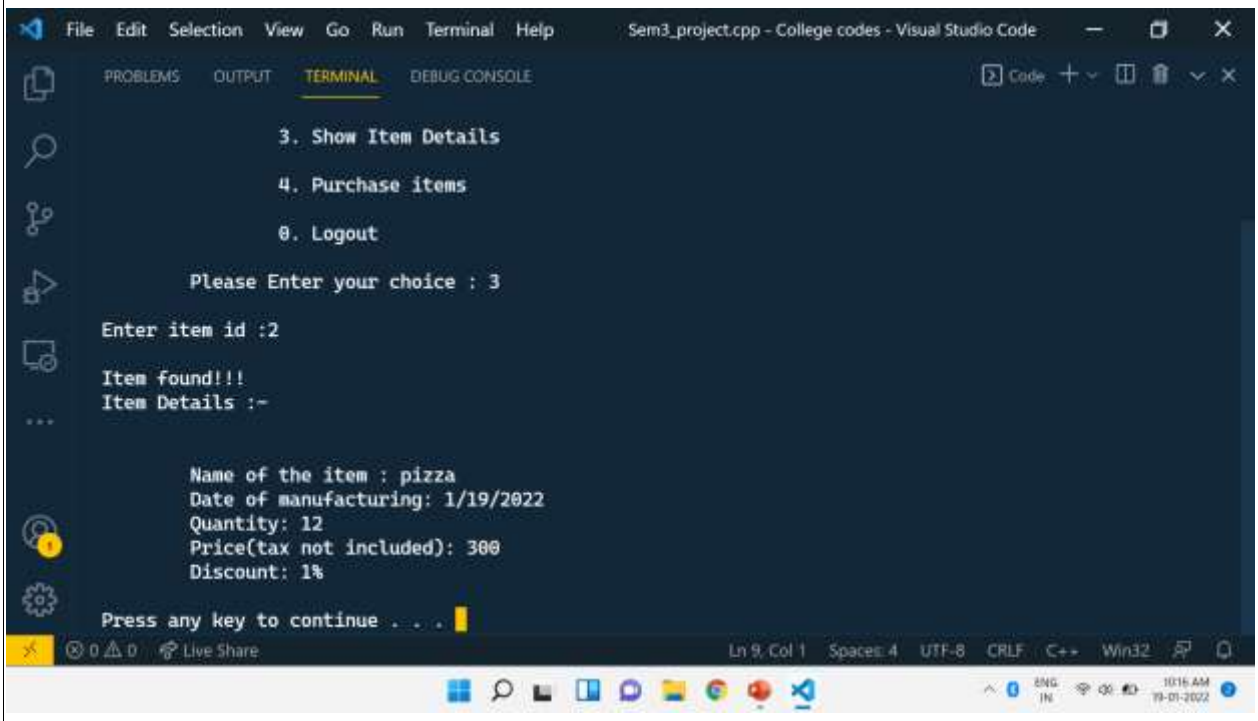
10. Delete items



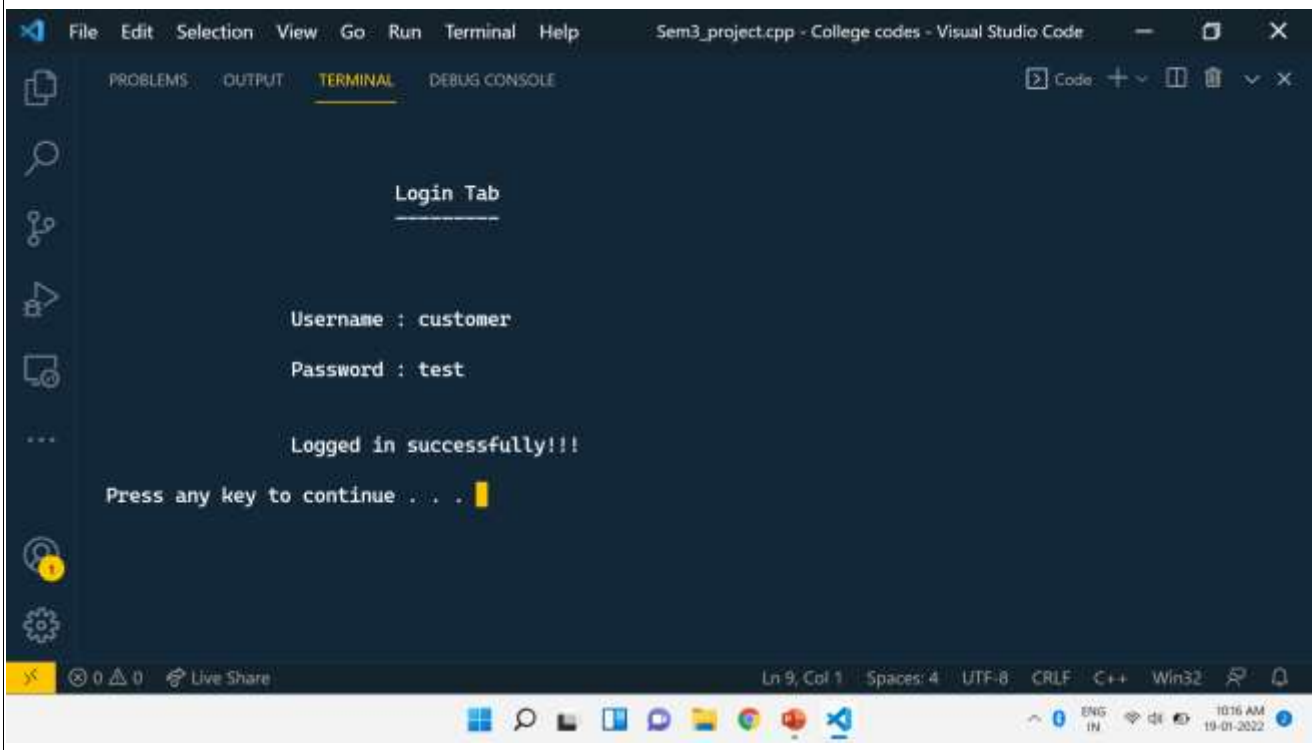
11. Display to see the change



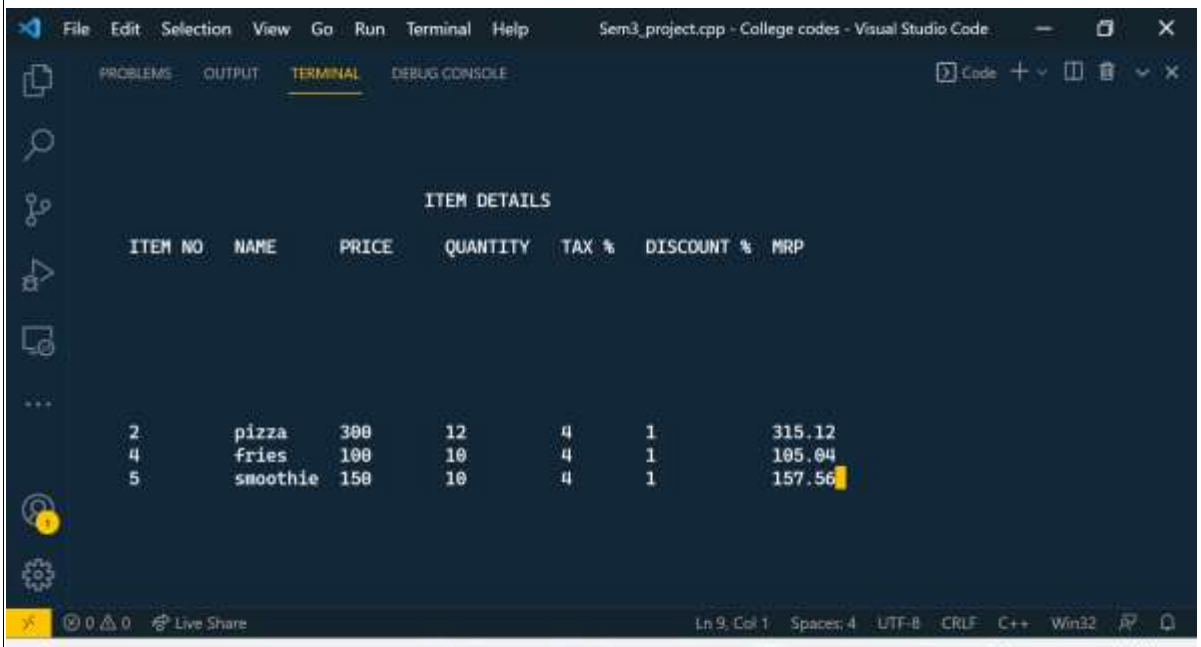
12. Search item

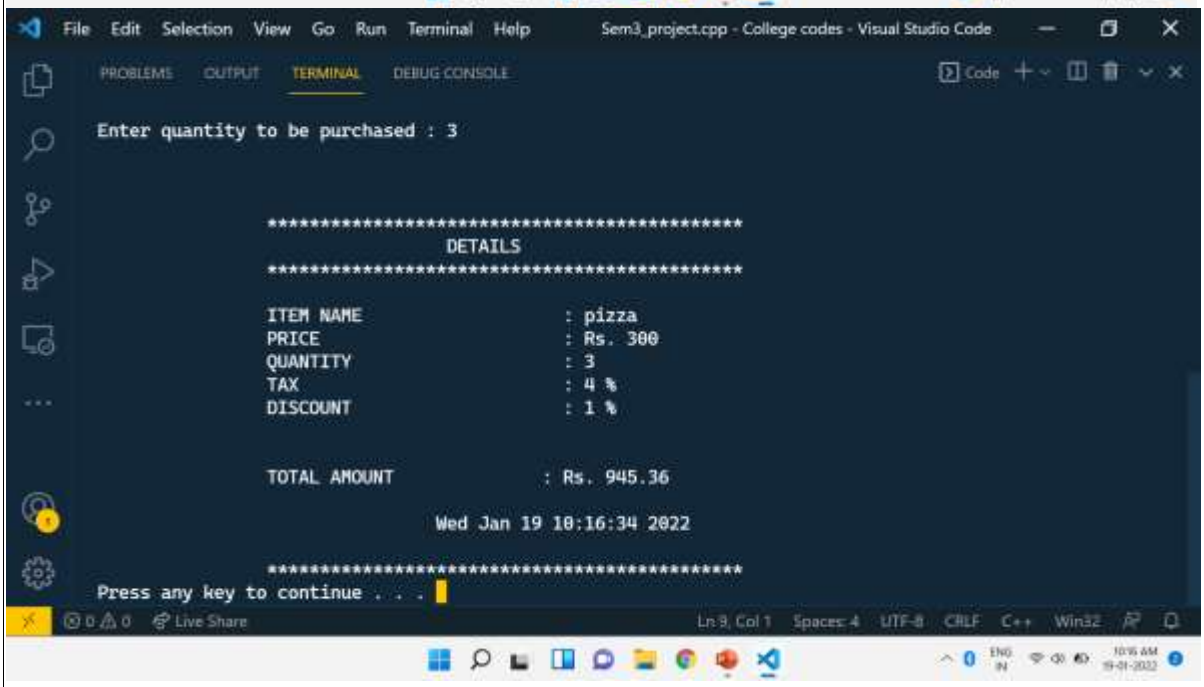


13. Customer Login

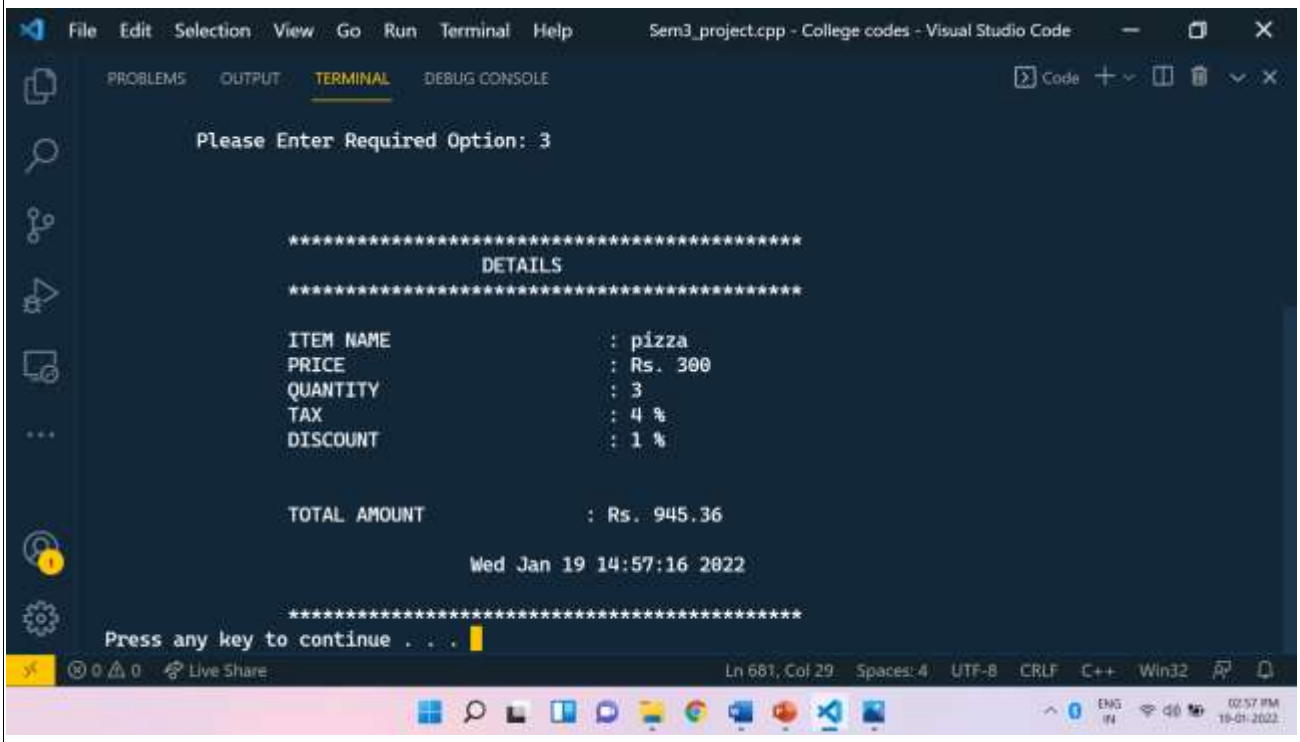


14. Purchase items

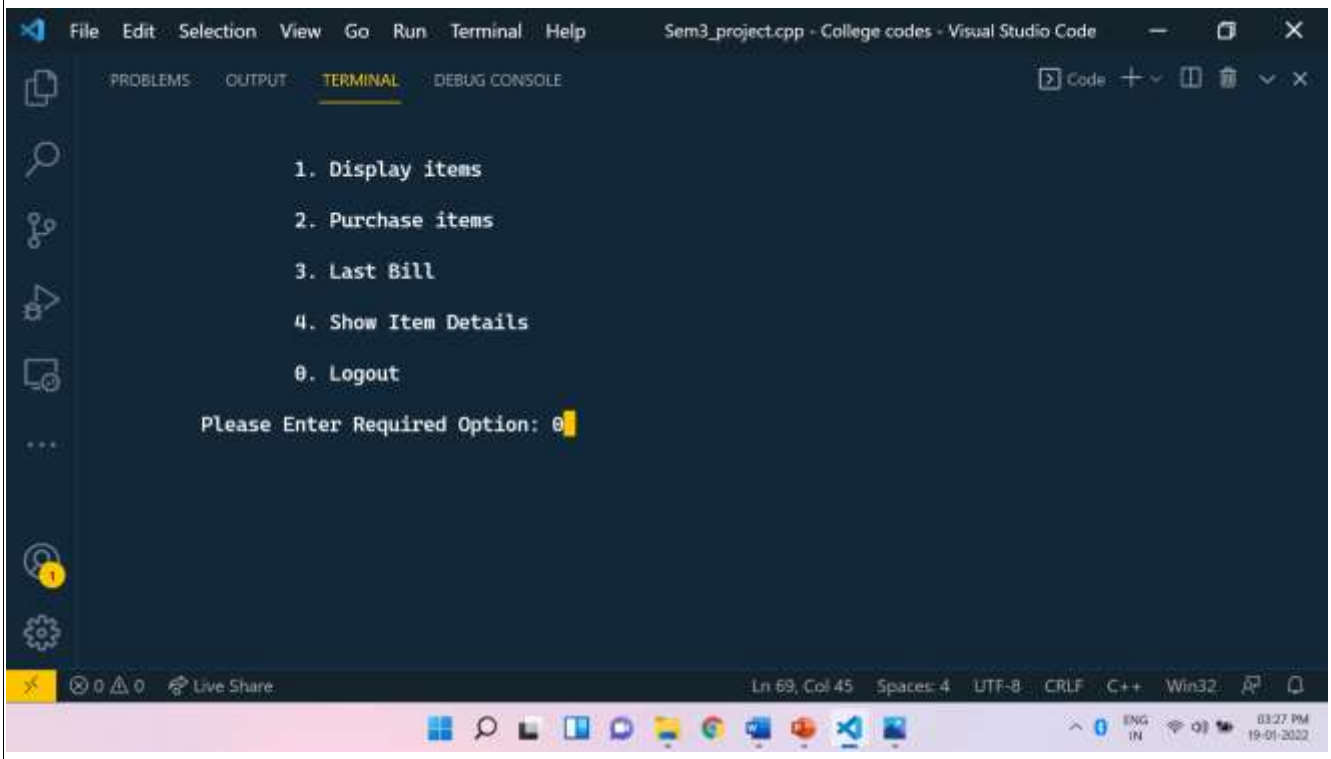




15. Last Bill


File Edit Selection View Go Run Terminal Help
Sem3_project.cpp - College codes - Visual Studio Code
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
Code
Please Enter Required Option: 3
DETAILS
ITEM NAME : pizza
PRICE : Rs. 300
QUANTITY : 3
TAX : 4 %
DISCOUNT : 1 %
TOTAL AMOUNT : Rs. 945.36
Wed Jan 19 14:57:16 2022
Press any key to continue . . .
Live Share
Ln 681, Col 29 Spaces: 4 UTF-8 CRLF C++ Win32

16. Logout


File Edit Selection View Go Run Terminal Help
Sem3_project.cpp - College codes - Visual Studio Code
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
Code
1. Display items
2. Purchase items
3. Last Bill
4. Show Item Details
0. Logout
Please Enter Required Option: 0
Live Share
Ln 69, Col 45 Spaces: 4 UTF-8 CRLF C++ Win32

References:

- https://www.geeksforgeeks.org/
- https://www.javatpoint.com/
- https://www.tutorialspoint.com/index.htm
- https://www.programiz.com/
- https://stackoverflow.com/
- https://www.youtube.com/
- https://github.com/