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| Module Code: SOFT255SL | Module Name: Software Engineering for the Internet using Java | |
| Coursework Title:  University Canteen Billing System | | |
| Deadline Date:  12/01/2020 | | Member of staff responsible for coursework:  Ms. Sulari Fernando |
| Program: BSc (hons) Software Engineering | | |
| Please note that University Academic Regulations are available under Rules and Regulations on the University website [www.plymouth.ac.uk/studenthandbook](http://www.plymouth.ac.uk/studenthandbook). | | |
| Group work: please list all names of all participants formally associated with this work and state whether the work was undertaken alone or as part of a team. Please note you may be required to identify individual responsibility for component parts.   1. 10707212 CGK Haputhanthri 2. 10707425 AN Withanage 3. 10707176 RMN Dhananjani 4. 10707299 SRJ Pathiranage 5. 10707239 RBW Karunarathne   ***We confirm that we have read and understood the Plymouth University regulations relating to Assessment Offences and that we are aware of the possible penalties for any breach of these regulations. We confirm that this is the independent work of the group.***  Signed on behalf of the group: | | |
| Individual assignment: ***I confirm that I have read and understood the Plymouth University regulations relating to Assessment Offences and that I am aware of the possible penalties for any breach of these regulations. I confirm that this is my own independent work.***  Signed : | | |
| Use of translation software: failure to declare that translation software or a similar writing aid has been used will be treated as an assessment offence.  I \*have used/not used translation software.  If used, please state name of software………………………………………………………………… | | |
| **Overall mark \_\_\_\_\_% Assessors Initials \_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_** | | |

**GROUP 28**

Canteen Management System

Software Engineering for The Internet Using Java

SOFT255SL

Coursework 2020-2021

PROJECT REPORT

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# 

# Introduction

The canteen management system can be defined as a standalone application which is developed in order to ease the management and staff of the canteen through a computerized system by automating most of the tasks happening in the premises. The scenario was selected by analyzing the current process of NSBM canteen and then it is developed further to carry out more operations in a reliable and comfortable manner effectively.

This canteen management system is developed with the intention of providing the managers and the cashiers of the canteen to handle all the related procedures. The system is developed using NetBeans IDE by using my SQL database management system. This will deal with all the fundamental and minute details effectively and appropriately according to the user requirements and expectations.

The software will store information about suppliers, foods, orders and also manipulation (create, update, view, delete) of those records can be also carried out by authorized people. Moreover, billing system and generation of receipts are also included within this system and the developers of the system have used a secure database methodology as well.

# System scope an overview

Talking about the application, the users have to pass through a login system in order to use other functionalities which are assigned and specified for each user group (managers and cashiers).

The management staff are given the privilege to keep records of suppliers who supply various types of food products on a daily or weekly basis to the canteen. Furthermore, managers are given the authorization to create accounts for cashier's and view full details of suppliers and food items

The cashiers are given the opportunity to add, update, view or delete any suppliers/food items or orders. However, the canteen will include foods on categories such as burgers, pastries, fried rice, milk packets, soft drinks, noodles, cakes, buns etc. In addition, the billing system is also accessible to the cashiers at the point of sales.

The overall development and the implementation of this Java project was performed by the group members according to a proper plan and with a high quality and accuracy.

# System Requirements

## Functional requirements

Functional requirements specify the details about the behavior and services offered by the application. These are the tasks expected to be performed by using the system.

Functional requirements basically explain the software system and its components. All the processes/ inputs and outputs are categorized under the functional requirements.

* Managing food items available in the canteen
* Managing the details of the suppliers who supply food to the canteen
* Handle any orders received by the staff or students for any special events and circumstances
* Billing management of the point of sales
* Generate and save the receipts both sales
* Manage employee details
* Create user accounts for managers and cashier's

## Non-functional Requirements

Nonfunctional requirements focus on the criteria which the application is conform to. These non-functional requirements describe the qualities and the characteristics of the developed system. Nonfunctional requirements define the attributes of the designed system and ensure the effectiveness and the quality of the system:

* Accuracy
* Ability to perform extensions and developments
* Accessibility
* Compatibility
* Efficiency
* Usability
* Security
* Maintainability
* Minimum response and loading time
* Performance

# Diagrammatic Explanations

## ER diagram

Diagram

Description automatically generated

## Class diagram

Diagram

Description automatically generated

## Use case diagram

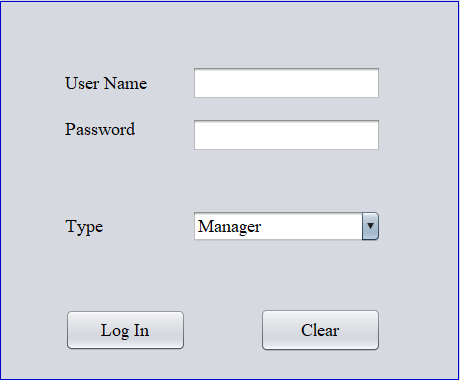
Diagram

Description automatically generated

# Interface Requirements

## Login

In the login page, users can login to the system using their username and password which were given at the point of creation of their account. In addition to that they can use their role as well before login.



Sample Login Credentials

Role: Manager

Username: Thomas

Password: thomas123

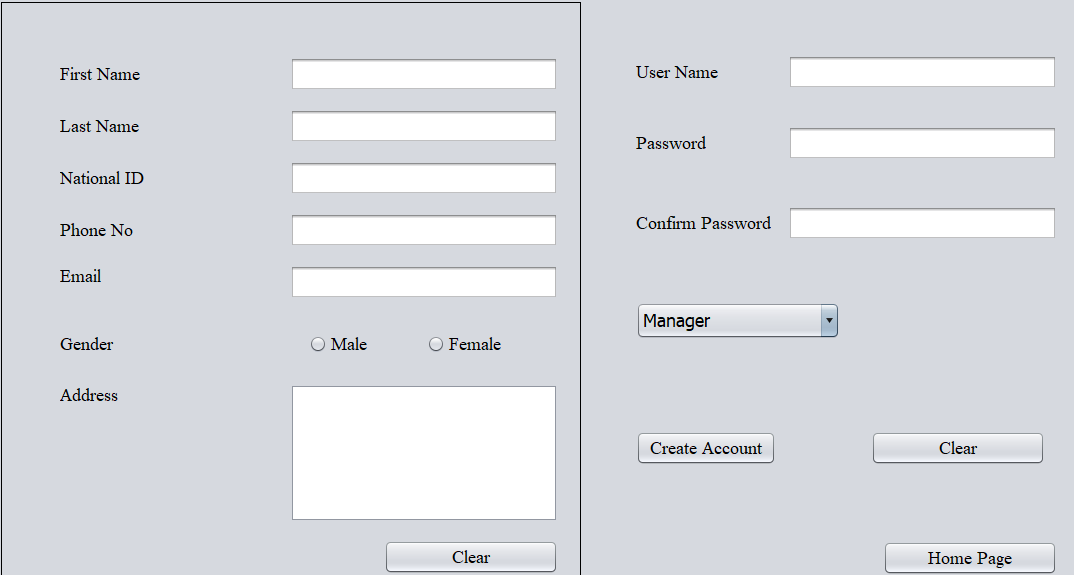
Role: Cashier

Username: sara

Password: sara123

## Registration

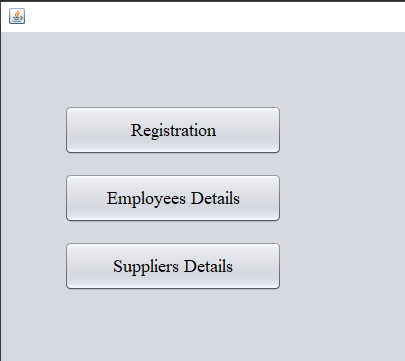
The managers of the canteen have the ability to create user accounts for themselves and they only have the authorization to create accounts for cashiers of the canteen. At the point of registration, information such as name, NIC, mobile number, email, gender, personal address is required. Additionally, a username and a password should also be provided as the login credentials to access the system in future.



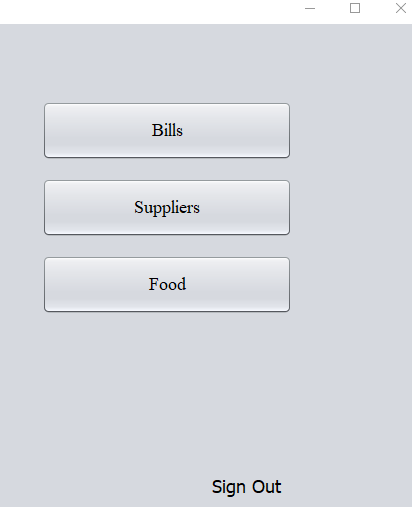
## Home page

Manager home page allows to navigate through Registration, employee details and supplier details whereas cashier home page allows to navigate through food items, bills and suppliers as well.

Manager home page:



Cashier home page:



## 

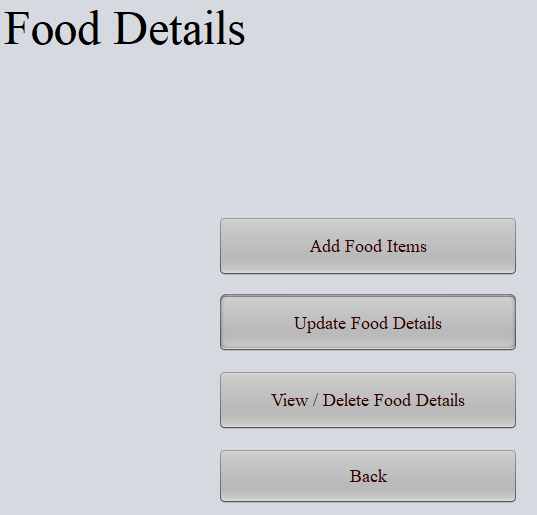
## Employee Details page

Here, all the details of the current employees who are working in the canteen are displayed and also removing of those employee details is allowed in any situation.



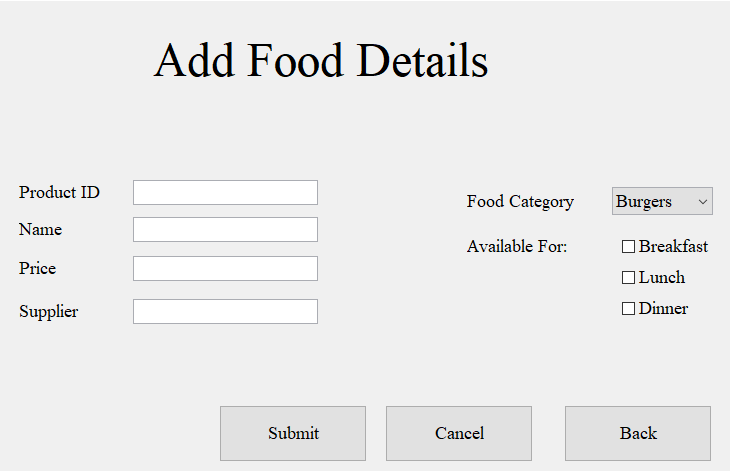
## Food details

From the food item home page, cashier can move on to various other interfaces such as adding new foods, updating existing food details and view or delete them.



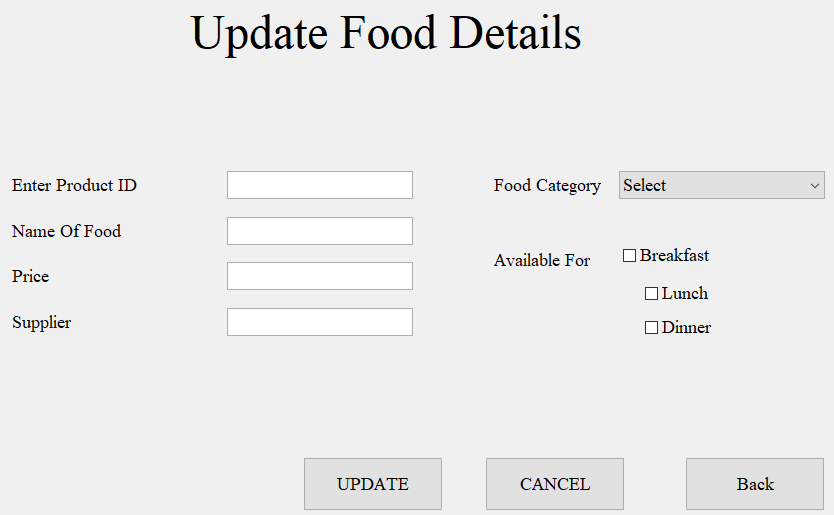
### **Add food**

When a new food item needs to be added to the system database, the cashiers can use this option. Here a product ID should be entered to uniquely identify each food item. The other details of the product such as name, price, available time of the particular food item and the category in which it belongs to are specified.



### **Update food**

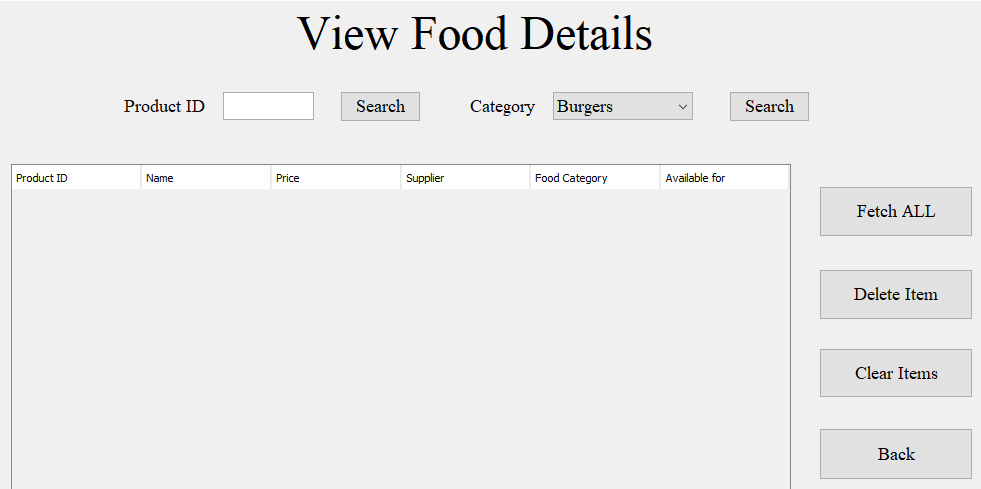
In a case in which we want to edit the price or the available time of a food item which is already existing in the canteen, we can use this update option. Here when the product ID is entered other field will be automatically filled according to details in the database. Then we can edit anything and save the changes.



### 

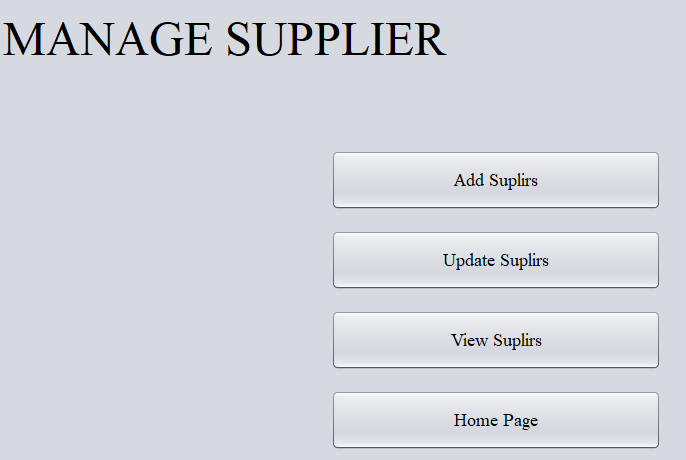
### **View/Delete food**

From this interface, several options are provided in order to get the details of foods displayed. We can either search using the product ID or using the category name. Otherwise we can also fetch the full list of items as well. When item details re loaded into the table, the users can delete any record by clicking on the required row of the table. Then it will be deleted from the canteen database.



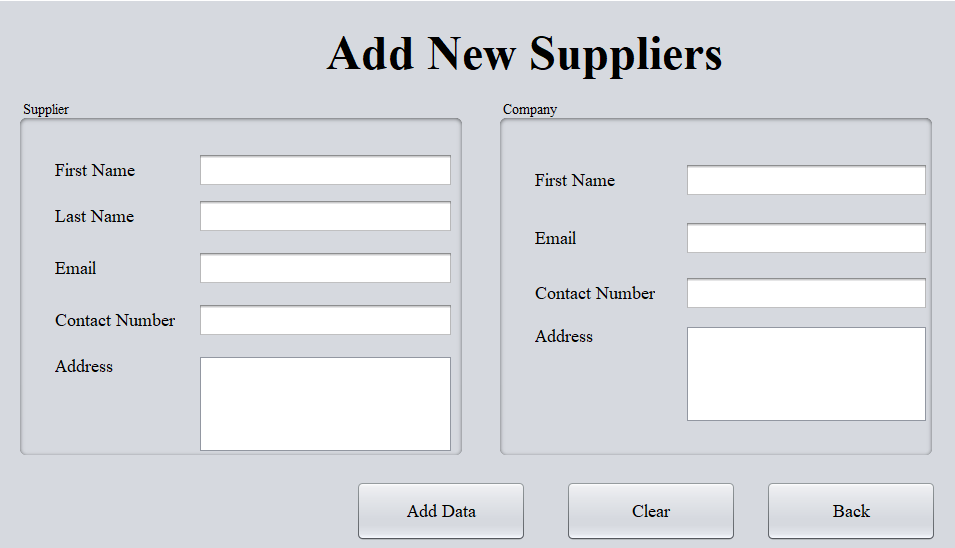
## Manage suppliers

In suppliers home page, there are some buttons to perform other activities related to supplier management by clicking on the relevant button, the users can directly move on to those tasks.



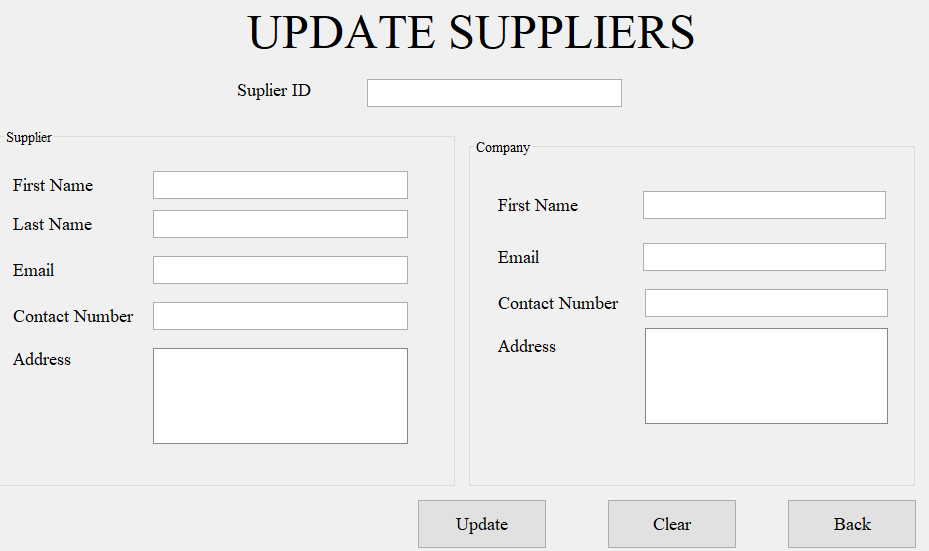
### **Adding suppliers**

Here, when a new individual or a company is willing to supply food as a official supplier, those supplier details can be added to the system by giving some necessary details like name, email, contact number and address.



### **Updating supplier**

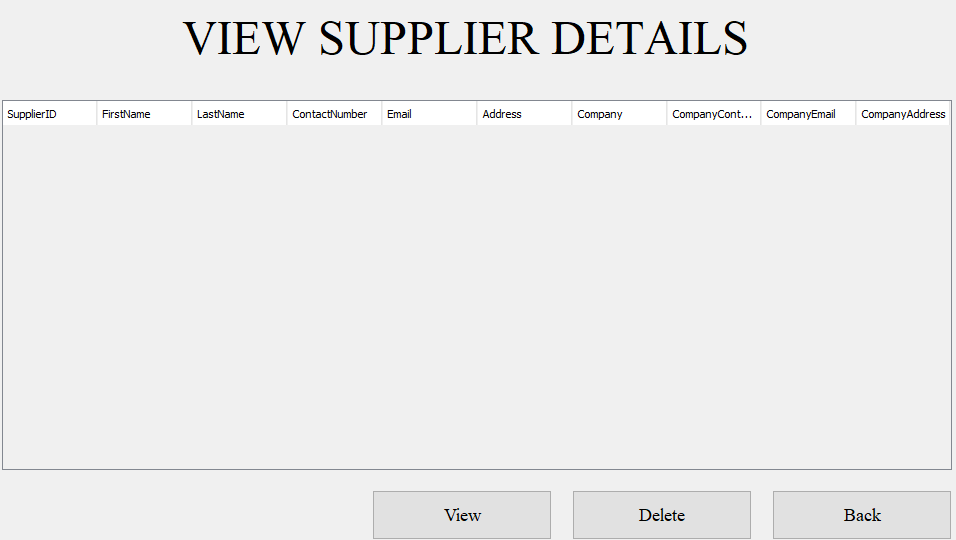
From this page, any details which was saved in the database at the point of adding the supplier can be changed easily by providing the supplier ID. After, this the previous details will be changed to the new details which are updated.



### **View/Remove supplier details**

### 

From this interface we can view all the details of all suppliers and also have the ability to remove them from the system if they stopped supplying food to the canteen due to any reason. The operation happening here is loading data from the database and removing from the database.



## Handling Orders

From this interface, the cashiers can handle the customer orders. This displays the details of the received orders. If the customers who put the order wants to cancel it due to any reason, they have to inform it to the cashiers. So the cashiers can remove the order from the system.

Graphical user interface

Description automatically generated

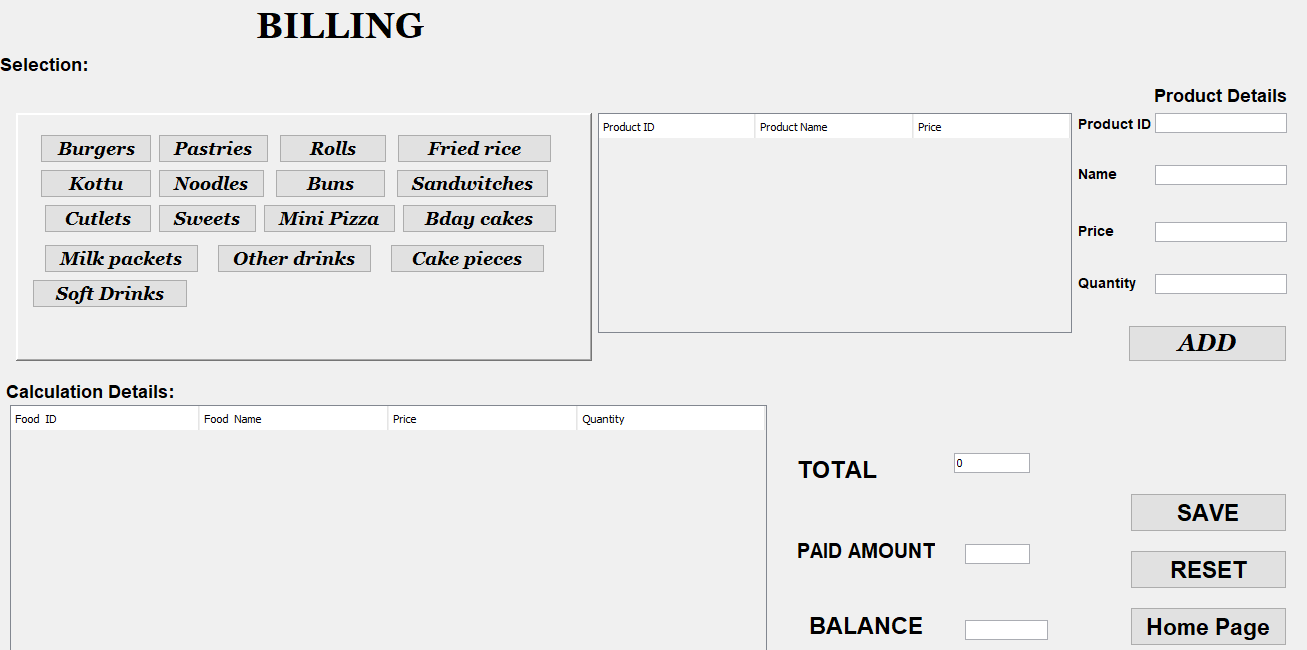
## 

## Billing

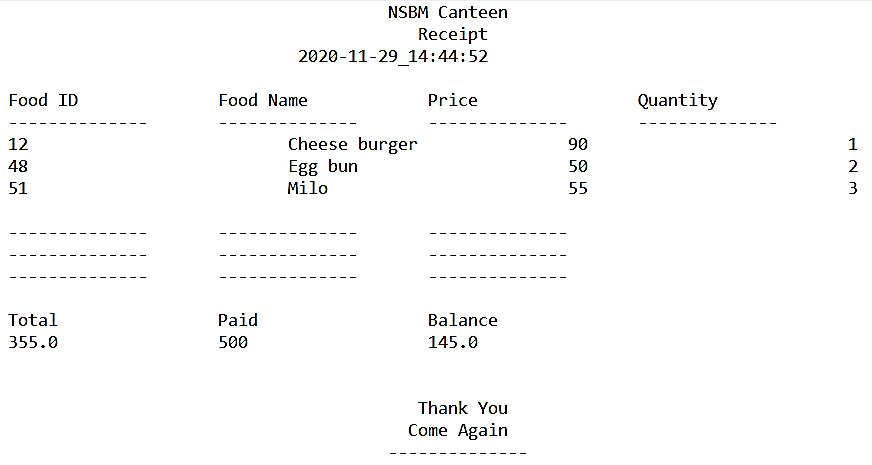
This is the interface for generating a bill when a customer purchase foo items from the canteen. Here, the cashier has to select the food category first. Then all the food items available under that category will be loaded into a table. Then from there, he can select the particular food item which customer has purchased and enter the quantity of each.

This process can be done repeatedly for all the purchased products and accordingly the total amount will be calculated automatically. Then the cashier has to enter the amount paid by the customer in order to know the balance mount that should be returned.

Finally, a complete receipt will be generated from the stem toa given location withal those details long with the system date and time t the point of sales.



**Sample receipt:**



# Summary

The users do not require high educational levels, technical skills or advanced computer expertise to deal with this system. This platform is designed in a way that we can expand rapidly and add more functionalities and extensions efficiently.

The specification of the developed system is summarized below:

̵ An accurate system without any data redundancy

̵ Secured data storage

̵ Better graphical user interfaces

̵ Saving time and money via the computerization

# Evaluation: Work Breakdown Structure

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | CGK Haputhanthri  10707212 | AN Withanage  10707425 | RMN Dhananjani  10707176 | SRJ Pathiranage  10707299 | RBW Karunarathne  10707239 |
| Use case diagram | S | S | R | S | S |
| Class diagram | R | S | S | S | R |
| ER diagram | R | S | S | S | R |
| Login system | S | S | S | R | S |
| Registration system | S | S | S | R | S |
| Suppliers  (Add, update, view, delete supplies) | S | R | S | S | S |
| Food items  (Add, update, view, delete foods) | S | S | R | S | S |
| Orders  (Add, update, view, cancel orders) | R | S | S | S | S |
| Billing system | S | S | R | S | S |
| Database | S | S | S | R | R |
| Final Report | S | R | R | S | S |
|  |  |  |  |  |  |
| Total contribution  (100%) | **20%** | **20%** | **25%** | **20%** | **15%** |