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# **THE RESTAURANT MANAGEMENT SYSTEM**

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**Abstract:** The project, “Restaurant Management System” has been developed to maintain the entire management system of a restaurant on the software based environment. This project has been done using “Java” programming language. The program will provide a user to access the system through a common username and password. Then the user will be able to use it for various purposes such as browsing different categories of recipes based on food items including its updated price list and images. Moreover, online order in the restaurant is also offered to the user to make an order. Hence, the user must provide his/her name as well as mentioning the type of order. Therefore the system will automatically create a billing and a payment method with two different type of payment category, either cash or online card. Finally, a printed copy of receipt containing the ordered food menu with its total price will also be provided by the system after paying the bill in a proper way. However, this project facilitates the entire restaurant management system in the basis on digital advantages.

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**Keywords:** Login, Item list, Cake, Drinks, Fried, Pizza, Soup, Menu, Theme, Order, Exit

## **Acknowledgement**

The idea of this project, “Restaurant Management System” has been established having an overview of an entire management system of a restaurant. This system has been developed by using “Swing in Java”. This feature has been learnt in the books on “Java Programming Language” of different writers. We have been benefited by this sort of programming language books and are now mentioning some of them.

“Java The Complete Reference” (8<sup>th</sup> edition) by Herbert Schildt.

“Head First Java” (2<sup>nd</sup> edition) by Kathy Sierra and Bert Bates.

We have also found different websites browsing the internet and collected numerous information regarding this project. Most of them provided many useful tutorials based on GUI in Java.

[www.docs.oracle.com](http://www.docs.oracle.com)

[www.stackoverflow.com](http://www.stackoverflow.com)

[www.tutorialspoint.com](http://www.tutorialspoint.com)

[www.java2s.com](http://www.java2s.com)

Many authors in “Youtube” are also credited who provided their educative and informative tutorials as an open source. Some of them are listed below:

“Introduction to Java Programming” by Udacity.

“Netbeans Java GUI” by Programming Knowledge.

“Java Video Tutorial” by Derek Banas.

“Java Swing Tutorial Netbeans” by Asiful Haque.

Above all, we, the student of dept. “ICT” in the university “BUP” are cordially grateful to our respected and beloved “Computer Programming” course teacher, **Prof. Dr. Mohammad Abu Yusuf** sir.

## **List of Figure**

# **CHAPTER 1**

## **INTRODUCTION**

**1.1 Objective:** The project, “**Restaurant Management System**” deals with the entire management, ordering, billing & payment method of a restaurant in the light of software environment. This project will help both a restaurant owner and restaurant user to maintain the entire management system of a restaurant in a systematic way. This system can provide the entire restaurant management with proper security and privacy.

Moreover, the user can browse the food menu on the basis of different categories of food type such as cake, drinks, fried, pizza, soup etc. The food list also provides an updated price list as well as particular images of each food item. So, the user can easily check out each food’s price and uploaded image. Therefore, in the order menu the user can make an order at his/her own choice. In order to make a valid order, the system must check the valid information of a customer which will be given by the user.

Undoubtedly, it is very important to make sure whether a user has made a valid order by giving customer name and type of order such as table order or a home delivery order. After making a

valid order, the user will be able to have a printed copy of its receipt. But before getting the receipt, user must pay for the assigned bill through cash or online card. Above all, this project has been developed to perform the entire restaurant management system on a software based environment.

## **1.2 Motivation:**

The aim of this project is to create a software based field in the restaurant management system. Bangladesh, a developing country is progressing day by day with the enlightened field of ICT. With the mission of “VISION 2021” the official – unofficial tasks are performed with the light of ICT. So, in the field of Information & Communication Technology, it is now very important to promote a software based system in every aspect of our daily to daily life.

# CHAPTER 3

## METHODOLOGY

**3.1 Login:** This system starts with a login frame. In this frame, a JPanel, a JLabel and a JMenuBar have been used on the basic JFrame. Hence, the JPanel contains three different JLabel referred as (i) “RESTAURANT MANAGEMENT SYSTEM”, (ii) “User Name:”, (iii) “Password:” and two different JTextField for getting input from the user as well as three different JButton known as (i) “LOGIN”, (ii) “RESET”, (iii) “EXIT”.

Here, the system will get input of username and password from the user. This feature has been added in order to ensure the privacy and security of the system. As input, the system will check both username and password followed by the user to access the next frame referred as “Item List”. In this project, a common username and password has been set for the user.

User Name: “User”

Password: “0pass1”

In case of giving an invalid username or password, the system will provide the user with an error message showing “Invalid User or Password”. In addition to “RESET” button, the input field can

also be reset. Moreover, in the menu bar of this frame, there are two menu lists: Menu, Theme. Seven different themes have been used in the “Theme” menu list. By clicking “EXIT” button or pressing Alt+F4 or selecting “Exit” from the menu bar, it performs the system to an instant exit. Only mentioning the exact username and password, the user can access the next frame.

**3.2 Item List:** The frame “Item List” contains the basic food category of a restaurant. This frame has been modeled by using a JPanel and a JMenuBar on the basic JFrame. The JMenuBar contains two different menu list known as (i) Menu and (ii) Theme. And the JPanel consists of a JLabel and six different JButton in addition to two another JButton referred as (i) “Back” and (ii) “EXIT”. The six JButton is connected to the six different new frames, respectively (i) “CAKE”, (ii) “DRINKS”, (iii) “FRIED”, (iv) “PIZZA”, (v) “SOUP” and (vi) Order.

Through the menu bar “Menu”, the user can instantly access any of the listed frames. Key strokes have also been added to using the system with more comfortable and friendly. Another menu bar “Theme” provides seven different themes which can be set as a background of each frame.

Clicking the JButton “CAKE” or pressing Ctrl+C, the user can access a new frame, “Cake”. Similarly, clicking the JButton “DRINKS” or pressing Ctrl+D, user may access the frame, “Drinks”; clicking the JButton “FRIED” or pressing Ctrl+F, user can access the frame, “Fried”; clicking the JButton “PIZZA” or pressing Ctrl+P, user may access the frame, “Pizza” and by clicking the JButton “SOUP” or pressing Ctrl+S, the user can access the frame, “Soup”. The remaining JButton “Order” creates a field for storing necessary data given by the user. So, in order to access the “Order” frame, user may either click on the JButton “ORDER” or press Ctrl+O.

The JButton “Back” gets the user back to the main frame, “Login” and the JButton “EXIT” performs with a caution message confirming either ‘Yes’ or ‘No’. The system will immediately get exit if ‘Yes’ is pressed, otherwise it won’t.

**3.3 Cake:** If the user selects the JButton “CAKE” then a new frame, “Cake” will appear. As a part this frame’s model, a JPanel and a JMenuBar have been set on its basic JFrame. As usual, the JMenuBar contains “Menu” and “Theme” list which have already been mentioned. The JPanel consists of four different JLabel referred as (i) “CAKE”, (ii) “Item List”, (iii) “Rate” and (iv) “Image”. Further, a JLabel has been added to show the image of each particular cake item. Moreover, nine different JLabel has also been set for showing the specific unit price of each cake item in BDT currency.

In this project, nine cake items have been listed in the “Cake” frame with its unit price as well as image. User may select any of this cake items to see its particular image. To complete this task, nine different JButton was set. By clicking each JButton, different image of different cake item will appear. Images can ensure the user to the respective item that he/she has selected.

In the bottom right corner, two different JButton have been used known as (i) “MENU” and (ii) “EXIT”. The “MENU” button provides the user to get back to the “Item List” frame. By clicking “EXIT” button or pressing Alt+F4 or selecting “Exit” from the menu bar, it performs the system to an instant exit.

**3.4 Drinks:** When a user clicks on the JButton “DRINKS” at the frame “Item List” then a new frame, “Drinks” will appear. As a design of this frame, a JPanel and a JMenuBar have been included on its basic JFrame. As usual, the JMenuBar contains “Menu” and “Theme” list which have already been mentioned. The JPanel consists of four different JLabel referred as (i) “DRINKS”, (ii) “Item List”, (iii) “Rate” and (iv) “Image”. Further, a JLabel has been added to show the image of each particular drinks item. Moreover, nine different JLabel has also been set for showing the specific unit price of each drinks item in BDT currency.

In this project, nine drinks items have been listed in the “Drinks” frame with its unit price as well as image. User may select any of these items to see its particular image. To complete this task, nine different JButton was set. By clicking each JButton, different image of different drinks item will appear. Images can ensure the user to the respective item that he/she has selected.

In the bottom right corner, two different JButton have been used known as (i) “MENU” and (ii) “EXIT”. The “MENU” button provides the user to get back to the “Item List” frame. By clicking “EXIT” button or pressing Alt+F4 or selecting “Exit” from the menu bar, it performs the system to an instant exit.

**3.5 Fried:** If the user selects the JButton “FRIED” then a new frame, “Fried” will appear. As a part this frame’s model, a JPanel and a JMenuBar have been set on its basic JFrame. As usual, the JMenuBar contains “Menu” and “Theme” list which have already been mentioned. The JPanel consists of four different JLabel referred as (i) “FRIED”, (ii) “Item List”, (iii) “Rate” and (iv) “Image”. Further, a JLabel has been added to show the image of each particular fried item. Moreover, nine different JLabel has also been set for showing the specific unit price of each fried item in BDT currency.

In this project, nine fried items have been listed in the “Fried” frame with its unit price as well as image. User may select any of these fried items to see its particular image. To complete this task, nine different JButton was set. By clicking each JButton, different image of different fried item will appear. Images can ensure the user to the respective item that he/she has selected.

In the bottom right corner, two different JButton have been used known as (i) “MENU” and (ii) “EXIT”. The “MENU” button provides the user to get back to the “Item List” frame. By clicking “EXIT” button or pressing Alt+F4 or selecting “Exit” from the menu bar, it performs the system to an instant exit.

**3.6 Pizza:** In case of selecting the JButton “PIZZA” in the “Item List” frame, a new frame will appear before the screen named “Pizza”. A JPanel and a JMenuBar have been set on its basic JFrame. Similarly, the JMenuBar contains two different menu list, (i) “Menu” and (ii) “Theme”. The operation of this JMenuBar has been mentioned in the earlier. The JPanel consists of four different JLabel known as (i) “PIZZA”, (ii) “Item List”, (iii) “Rate” and (iv) “Image”. Further, a JLabel has been added to show the image of each particular pizza item.

Moreover, nine different JLabel has also been used for showing the unit price of each fried item particularly in BDT currency.

Nine different JButton containing nine different pizza lists performs to show the respective image of pizza when they are selected by the user. At the bottom, two new JButton (i) “MENU” and (ii) “EXIT” has been added to perform different operation. Clicking the “MENU” button, it returns to the “Item List” frame and the JButton “EXIT” performs with a caution message confirming either ‘Yes’ or ‘No’. The system will immediately get exit if ‘Yes’ is pressed, otherwise it won’t.

**3.6 Soup:** In order to visit the “Soup” frame, the user needs to click on the JButton “SOUP” at the “Item List” frame. The basic JFrame of “Soup” consists of a JPanel and a JMenuBar. As mentioned earlier, the JMenuBar contains two different menu list, known as (i) “Menu” and (ii) “Theme”. The JPanel contains four different JLabel referred as (i) “SOUP”, (ii) “Item List”, (iii) “Rate” and (iv) “Image”. Besides, a JLabel has also been added to show the image of each particular item.

Again, nine different JLabel has been set for showing the updated unit price of each soup item in BDT currency. Moreover, nine soup items have been listed into nine different JButton. Different image of different soup item are shown by clicking the respective JButton. The JButton “MENU” gets the user back to the frame, “Item List”. The JButton “EXIT” performs an immediate exit of the system by confirming ‘Yes’ option.

**3.7 Order:** If the user wishes to make an order to the system, then he/she should have clicked on “ORDER” at the frame “Item List” or pressing Ctrl+O. Making an order, two different frames are performed. In the following passage, this is going to be discussed elaborately.

**3.7.1 Customer Data:** Before entering the “Order” frame, the user must fill the entry form which is referred as “CUSTOMER DATA”. On the basic JFrame of

“Customer Data” consists of seven JLabel, five JTextField, two JRadioButton and three JButton. The JLabels are (i) “CUSTOMER DETAILS”, (ii) “Name”, (iii) “Address”, (iv) “Mobile NO” and rest of the three contains three red stars which means the field requires to be filled by the user.

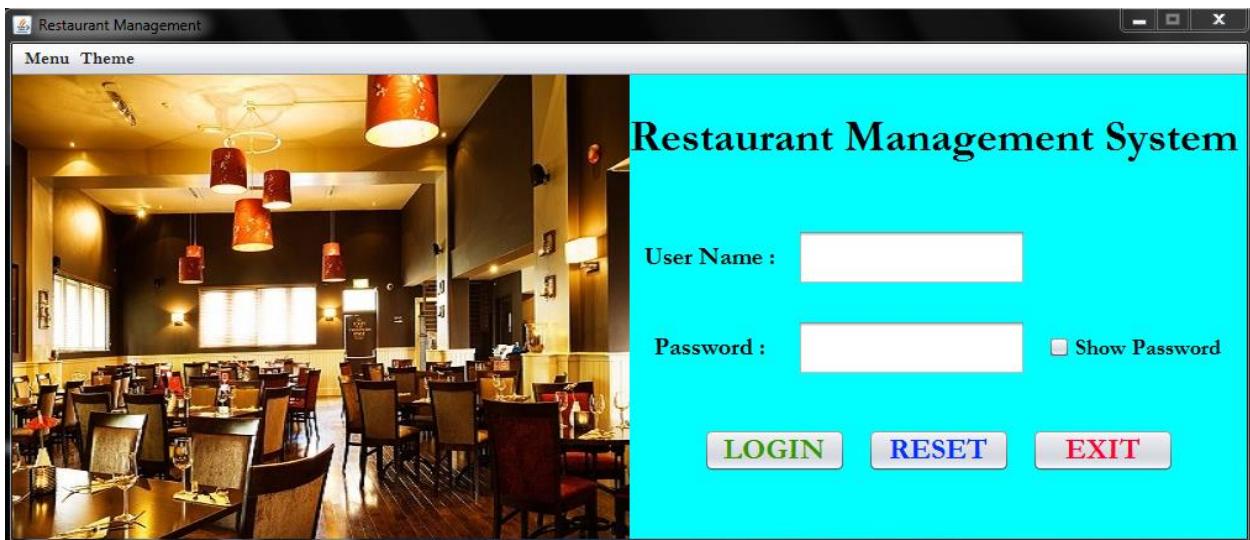
The two JRadioButton are (i) “Table Order” and (ii) “Home Delivery”. This two option can’t be selected at a time. The user may select either “Table Order” or “Home Delivery”.

The five JTextField have been used for inserting data by the user. The JLabel which contains red star, must be filled by the user. Otherwise the system will provide an error message due to empty field of information.

# CHAPTER 4

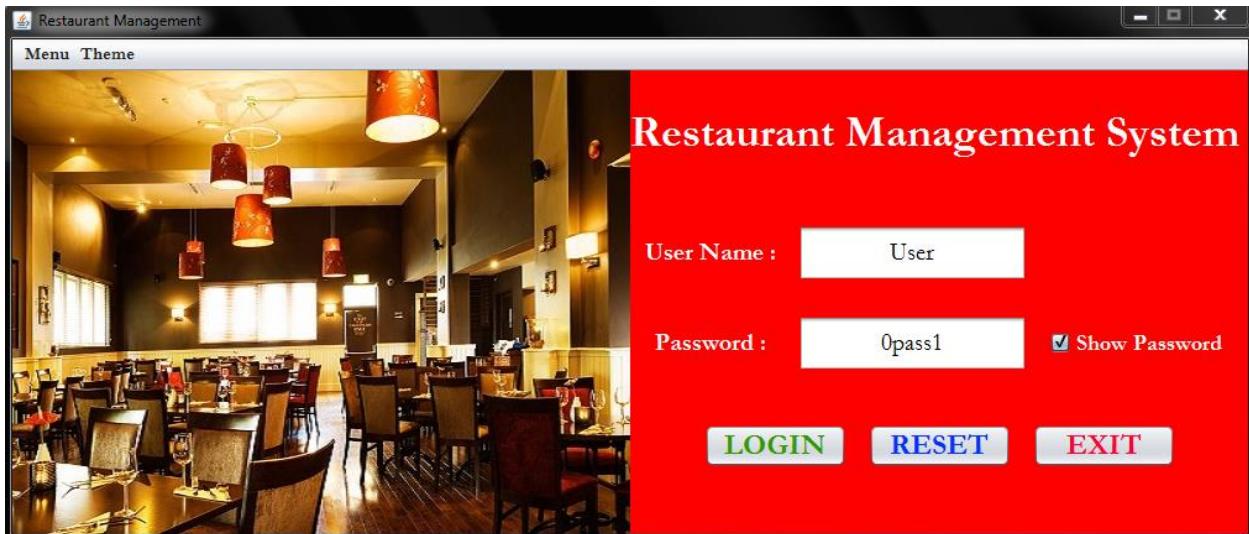
## OUTPUT OF THE PROJECT

**4.1 Login:** The system starts with a login window. It verifies the Username and password given by the user. Different theme is also used in this frame to make it more delightful and user friendly.



**Fig. 4.1.1 Login window at default theme**

The username is always seen as usual. But the password is hidden as default. By clicking “Show Password”, the password which is provided by a user could be seen. The default username and password have been shown in the following picture.



**Fig. 4.1.2 Showing password and username**

If the user wants to hide the given password, it is possible to hide the password by making the “Show Password” option unmarked.



**Fig. 4.1.3 Hiding password and displaying username**

The field of username and password could be reset, if the user wants it to do so. Hence, the given data provided by the user will be reset.



**Fig 4.1.4 Reset the Login Window**

The system will automatically provide an Error message while the user gives an invalid input. This Error message will be displayed when the username or password or both are incorrect or having an empty field.



**Fig. 4.1.5 Invalid username or password**

The button “EXIT” provides the user to exit the frame instantly. If “Yes” option is clicked by the user, the system will be exit otherwise not.



**Fig 4.1.6 Exit option in Login Window**

**4.2 Item List:** When the username and password will be filled with correct format, then the user can login into the next frame referred as “Item List”.



**Fig. 4.2.1 Item List frame as default theme**

The “Item List” frame provides a user to browse the basic category of various food item that has been shown in the following figure.



Fig. 4.2.2 Item List with different theme

Different theme can be applied from the menu bar “Theme”.



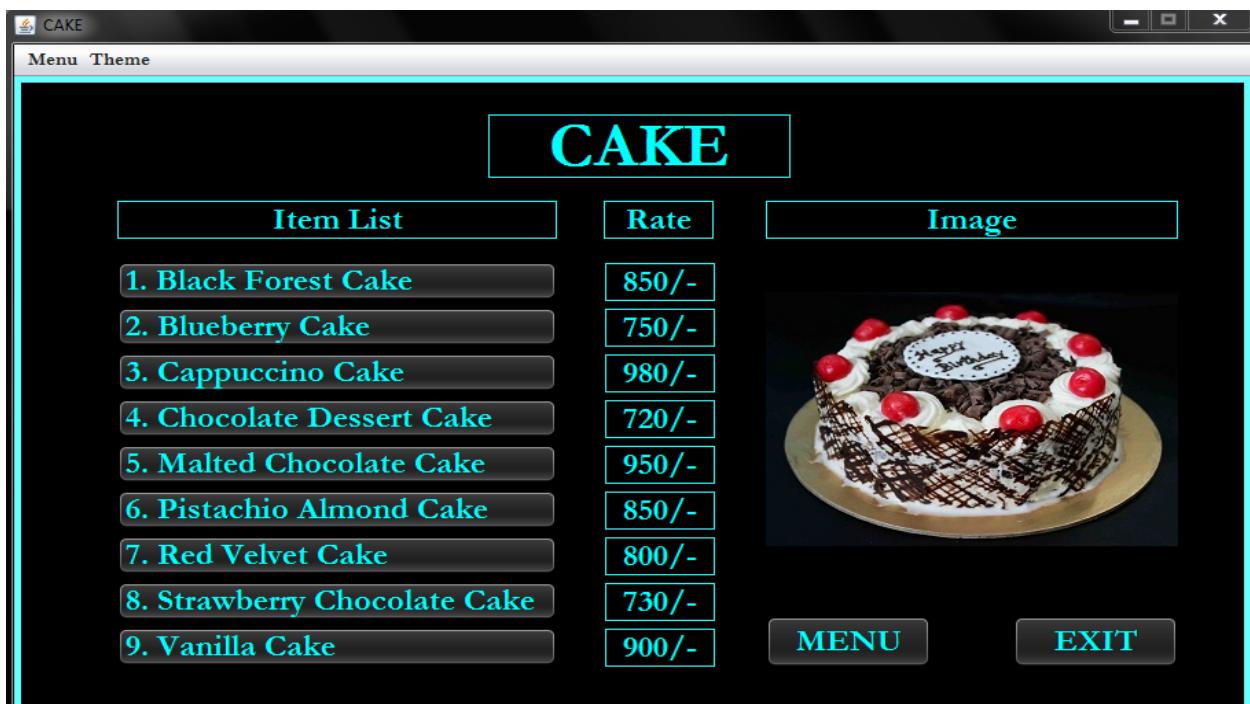
Fig. 4.2.3 Item List with different food category

#### 4.3 Cake:

After clicking “Cake” button, the following frame will appear.



**Fig. 4.3.1 Cake with default theme**



**Fig. 4.3.2 Different cake list with image1**

“Theme” has been set for changing the background color.



**Fig. 4.3.3 Different cake list with image2**

While clicking any of these buttons, image will be appeared instantly.



**Fig. 4.3.4 Different Cake list with image3**

Clicking the “EXIT” button, the user can choose to exit the frame.



**Fig. 4.3.5 Exit in Cake frame**

**4.4 Drinks:** By clicking the “Drinks” button in “Item List”, this frame will be appeared.



**Fig. 4.4.1 Drinks frame with default theme**



**Fig. 4.4.2 Different drinks with image1**



**Fig. 4.4.3 Different drinks with image2**



**Fig. 4.4.4 Different drinks with image3**

Clicking the “EXIT” button, the user can choose to exit the frame.



**Fig. 4.3.5 Exit in drinks frame**

#### 4.5 Fried:

After clicking “Cake” button, the following frame will appear.



Fig. 4.5.1 Fried with default theme



Fig. 4.5.2 Different fried with image1



**Fig. 4.5.3 Different fried with image2**



**Fig. 4.5.4 Different fried with image3**

Clicking the “EXIT” button, the user can choose to exit the frame.



**Fig. 4.5.5 Exit in fried frame**

#### 4.6 Pizza:

When “PIZZA” button is clicked, the following frame is appeared.



**Fig. 4.6.1 Pizza with default theme**



Fig. 4.6.2 Different pizza with image1

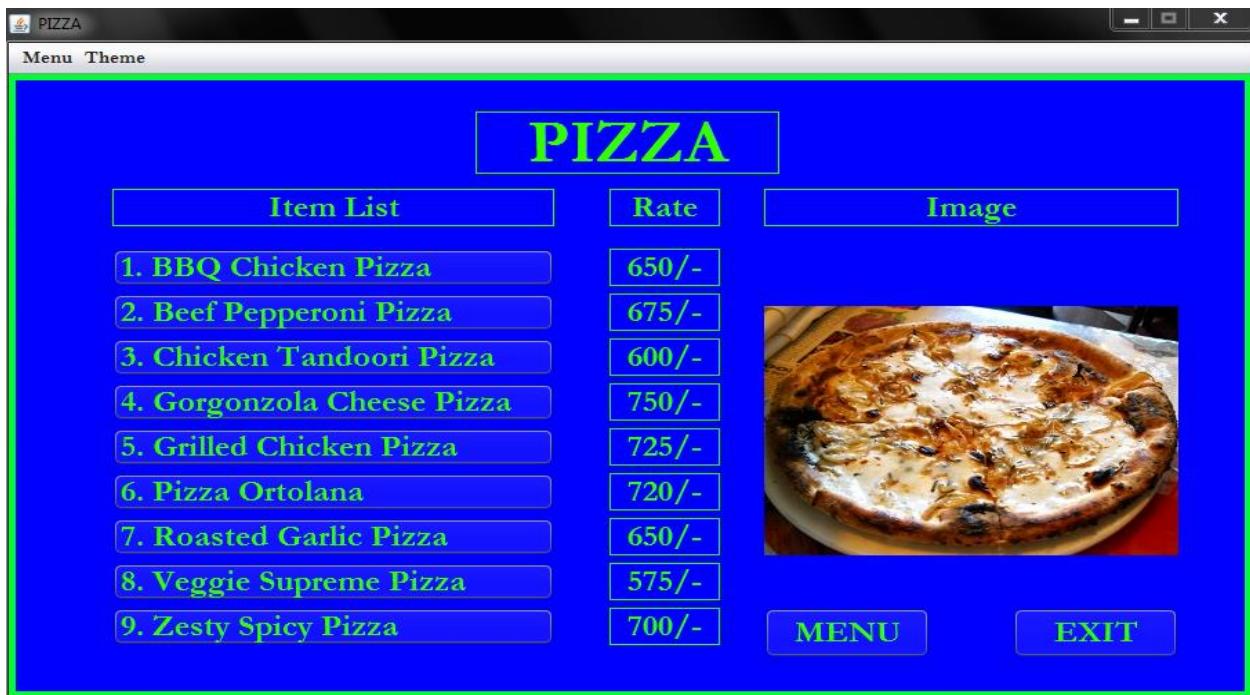


Fig. 4.6.3 Different pizza with image2



**Fig. 4.6.4 Different pizza with image3**

Clicking the “EXIT” button, the user can choose to exit the frame.



**Fig. 4.6.5 Exit in pizza frame**

**4.7 Soup:** By clicking the “Drinks” button in “Item List”, this frame will be appeared.



Fig. 4.7.1 Soup with default theme

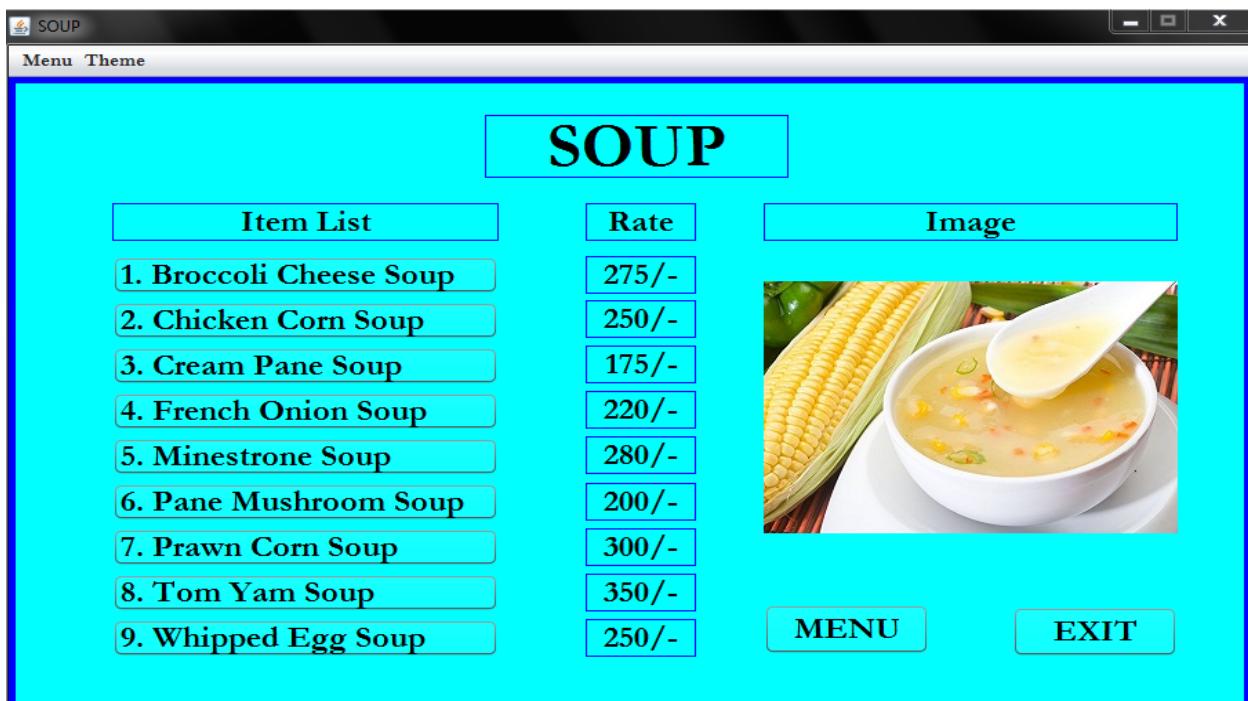


Fig. 4.7.2 Different soup with image1



**Fig. 4.7.3 Different soup with image2**



**Fig. 4.7.4 Different soup with image3**

Clicking the “EXIT” button, the user can choose to exit the frame.

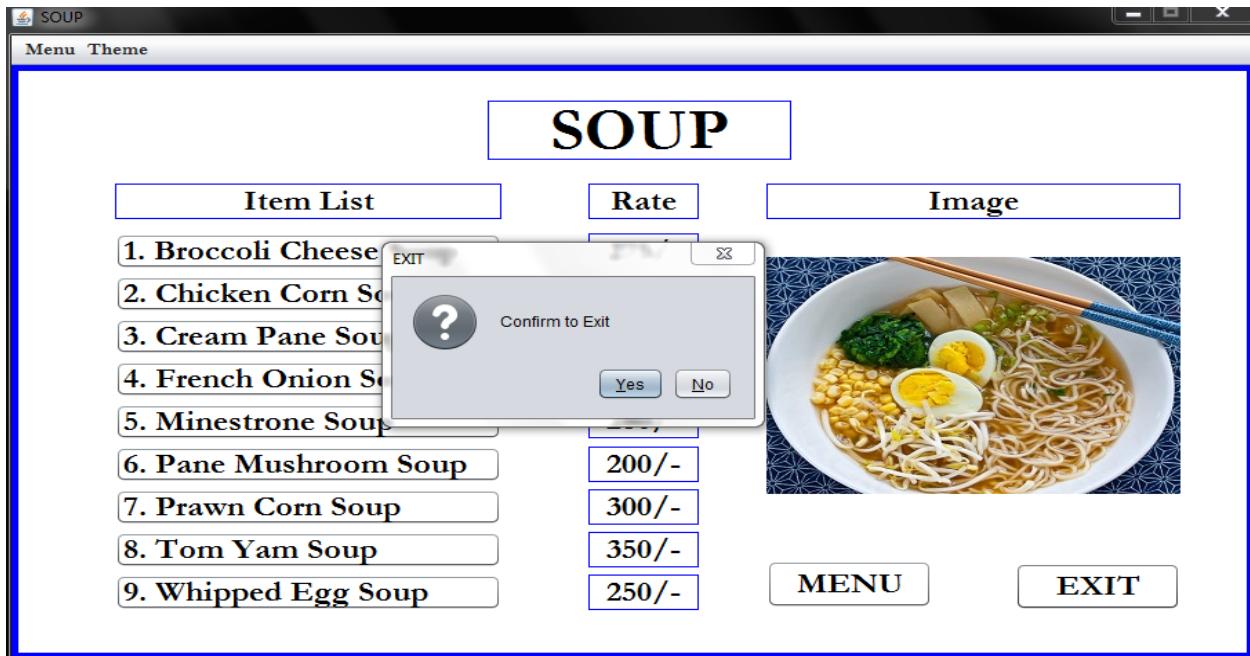


Fig. 4.7.5 Exit in soup frame

**4.8 Customer Data:** At “Item List” if “ORDER” button is selected, the following data entry comes.

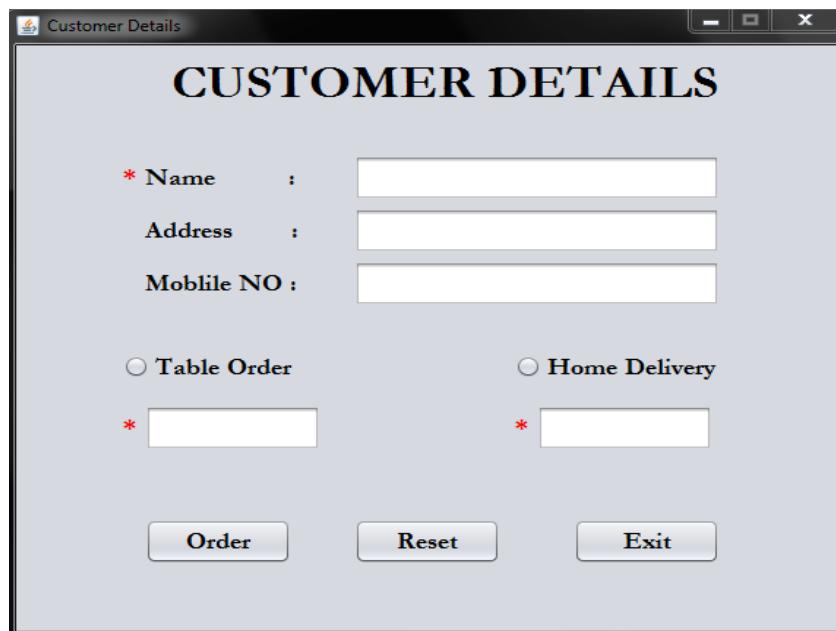


Fig. 4.8.1 Customer Data with default theme

This frame will show an Error message, if any of required field remains empty.

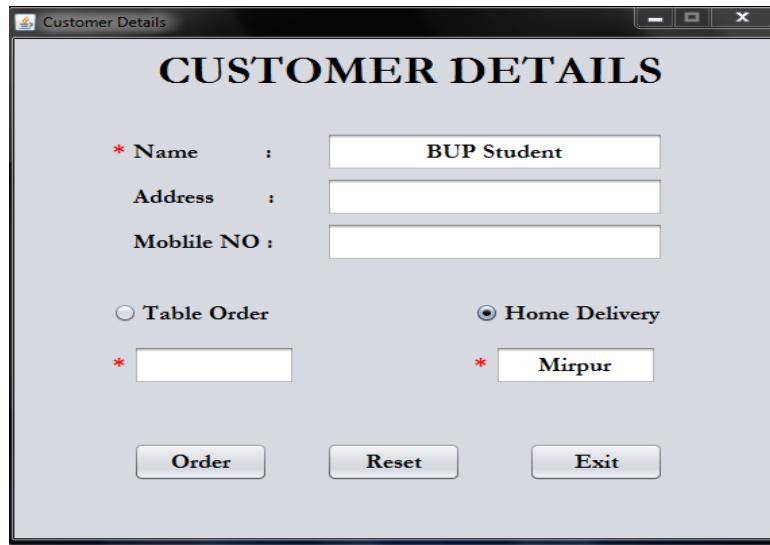


**Fig. 4.8.2 Customer Data with invalid input**

At least, by filling the textfield “Name” and “Table Order” or “Home Delivery”, it is considered as a valid data entry.

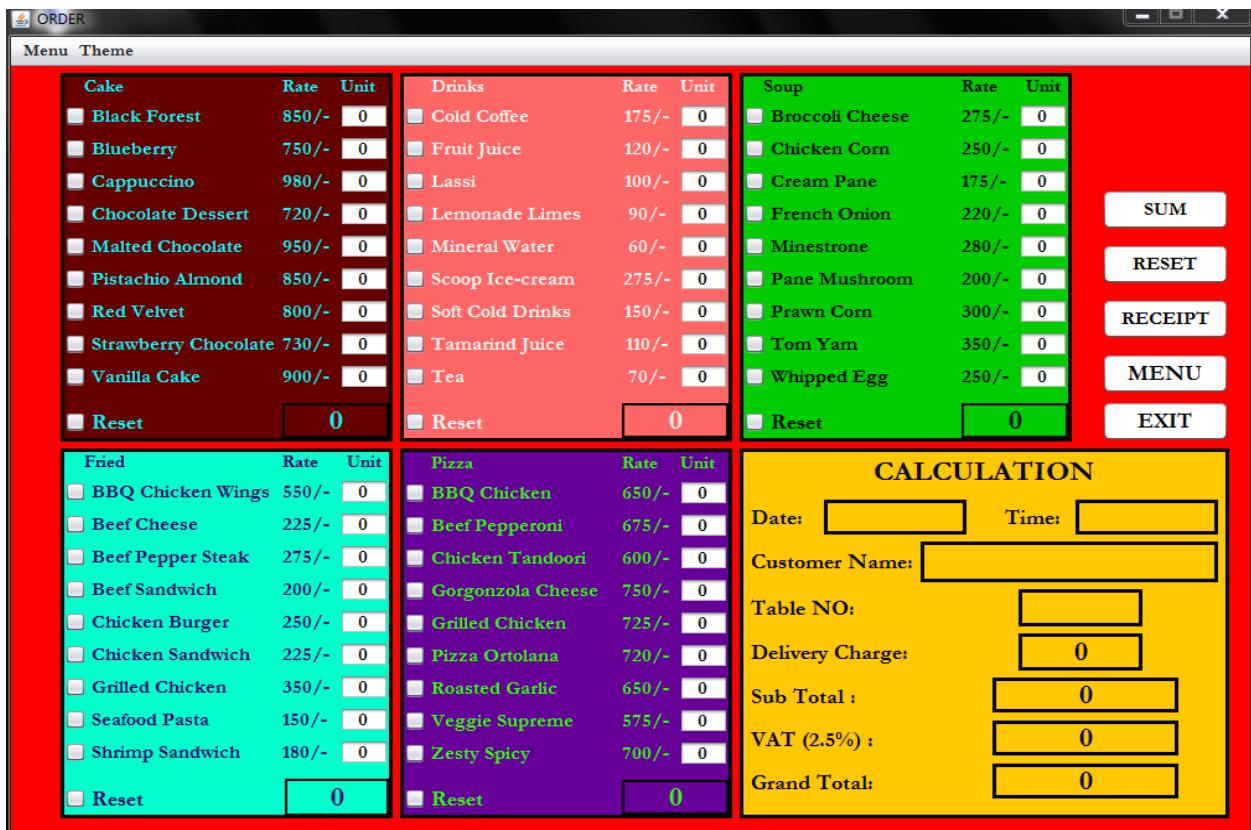


**Fig. 4.8.3 Customer Data with valid input**



**Fig. 4.8.4 Customer Data with another valid input**

**4.9 Order:** This order frame will come only after filling the required field in the previous frame. Then the user can make an order to thy system.



**Fig. 4.9.1 Order with default theme**

A user can choose any of this items to make an order by giving its quantity.



Fig. 4.9.2 Proper selection of food item



Fig. 4.9.2 Particular order can be reset

The entire data can be reset by clicking the button “RESET”. When a user in confirm to see the calculation, make a press to the button “SUM”. Therefore, the user will be able to see the total cost with estimated date and time.



Fig. 4.9.3 Performing the order calculation

#### 4.10 Payment:

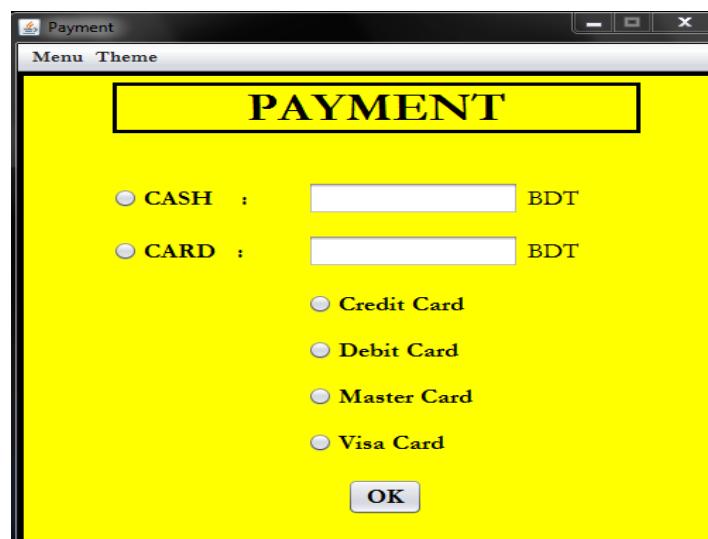
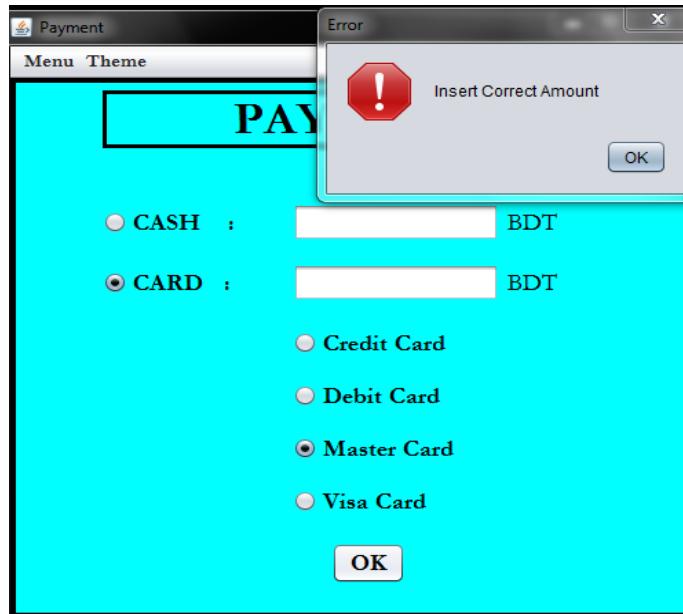


Fig. 4.10.1 Payment with default theme

The Payment frame will be appeared while the “RECEIPT” button is clicked.



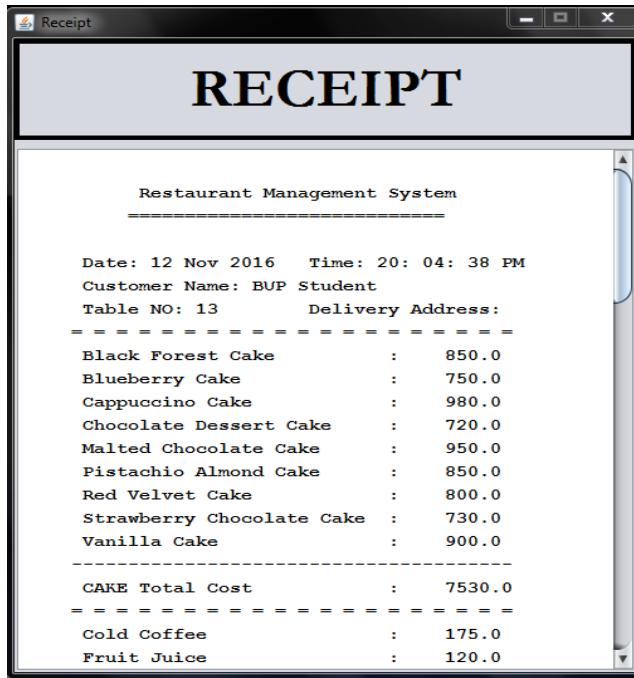
**Fig. 4.10.2 Invalid amount**

If the bill is not paid in a correct method, the above Error message will be shown to the user. Only after paying a valid amount of bill, the user will be able to have receipt.



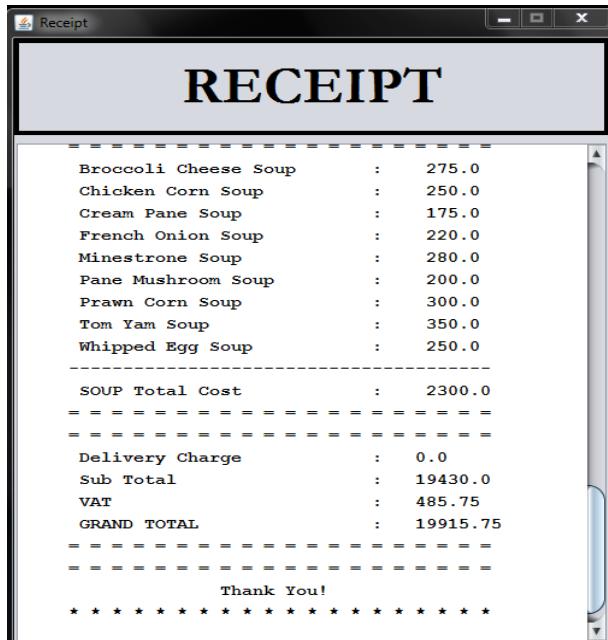
**Fig. 4.10.3 A valid payment method**

## **4.11 Receipt:**



**Fig. 4.11.1 Copy of receipt**

Then, pressing “OK” button in the previous frame, the user will get the receipt.



**Fig. 4.11.2 Receipt with order and bill**

