

## **Restaurant Management System: E-Menu Card and Billing**

### **Web Application**

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**Abstract** - An exponential increase in Global Gross Domestic Product(GDP) has become a huge challenge to the restaurant management system and hence in sustaining a paperless Environment. Many Cities around the World are facing Global Warming due to the cutting of trees for wood and paper. Our project aims to find a solution by using an E-menu card and Billing application which is using Java Swing and MySQL. In 'Java Swing' layout for the web application and code for MySQL connection is written, it validates certain required conditions and then stores it in the MySQL database. Thus, our project aims at the prevention of wasting paper by creating an e-menu card and generating an e-bill. The data of the customer and their total bill is then stored in the database. Thus, our project aims to have an effective and efficient restaurant management system and to make the cities green.

### **I. INTRODUCTION**

Over the past 20 years, we have observed a tremendous increase in urbanization. But, At the same time, we can see that there is an increase in the restaurant business too. We should consider restaurant management as a major part of maintaining the restaurant businesses. This paper is a way to achieve this good cause. We have proposed that the e-menu card is built in Java Swing UI which is used to make web applications with a decent number of UI components. In Swing login, register, menu-card, and payment pages are formed and if the data entered is correct according to the conditions mentioned then it is stored in the table. The customer is also being assigned a table according to their timings and social distancing. At most 3 tables will be booked for a particular time. If the customer wants to cancel their order it can be canceled. Even the delivery option is there with minimal charges. There is also a payment option by card, which makes ease for the customer who is from other countries as well. Customers needn't have to wait for the order as their order will be ready on time because of the time selection option in the menu. It also prevents food wastage. It is an initiative to save the environment from Global Warming issues and also saves food. It also benefits the government as the data entered in the system cannot be deleted, so the tax evasion is eradicated. It will benefit the government and society.

## II. AIM

Our main objective is to build a web app that has an e-menu and bill so that there is less paper used and in this epidemic, social distancing is also maintained in the restaurants. It is a time-saving technology as well as make Restaurant Business Hassle-Free. It will also bring a revolution in technology for small-scale restaurants. It will also result in the well-being of society by saving trees.

## III. LITERATURE SURVEY

In the existing system prepared by the other organization, they had made an application which helps customer as well as users and had automatically updated the record in the admin. One of the organizations had developed a whole restaurant management software which is used by certain 5-star Hotels.

LITERATURE SURVEY			
NO.	INSTITUTE	MODULE AND FEATURES	DEFINITION
1.	Dezyne Ecole College, Ajmer	Insertion, deletion, updating of the database module	Developed on visual basic language which focuses on basic operation in a restaurant like-book table, view menu, select order, view order, adding a new member and updating new information, generate a bill, calculate discount and tax, select payment mode, generate a report
		Extracting from the database module	
		Generate membership card module	
		Search facility system module	
2.	Sant gadge baba Amravati University, Mumbai	Login module	To develop an android application for the restaurant ordering system and provides the facility to update the menu. To develop software at the kitchen and cashier to receive an order from the server. To establish a network for kitchen, cashier, and android device and print the bill at the customer side. Customers should be able to enter the feedback about the service and the food served by the e-restaurant android application.
		Registration module	
		Add/update/remove menu	
		Account management module	
		Station tracking module	
		Place order module	
		Carting module	
		Order manage module	
		Messaging module	
		Logout module	

3.	Department of computer engineering, Thakur Polytechnic, Mumbai	<p>Customer module</p> <hr/> <p>CHIEF MODULE</p> <hr/> <p>ADMIN MODULE</p>	<p>It is an application similar to pos software.</p> <p>It consists of three main components, namely, a touch screen embedded on the consumer's table, the main server, and another touch screen in the cook room. When the customer place orders, the data is sent to the server, which will compile the data to prioritize the customers &amp; to group the orders before sending the order to the cook room. The status shown at the client table is preparing for food. When the order reaches the room, the chef will press the accept button to begin preparing the order Which will show the cooking stage at the client's table.</p> <p>The food is cooked, the chef presses the "waiting for serving" stage to the client's table and the server will take The dish to the client</p>
4	Iubat- international university of business agriculture & technology 4embankment drive road, sector-10, Uttara model town, Dhaka-1230, Bangladesh.	<p>Handle all the clients' information and create invoice properly.</p> <hr/> <p>Security of data. Reduce manual data entry.to get the records of the bill</p> <hr/> <p>Available functionality for performing various tasks</p> <hr/> <p>Reports can be easily generated in a proposed system.</p> <hr/> <p>Easy to provide clients bill information.</p> <p>Minimum time consumption</p>	<p>This project is mainly for an isp company who manage their work with pen and paper base, and we computerize them all working system by our software. This project supports them in their day to day work. They can able to keep a record of their client where will be all detailed information about their client, details about internet packages and it creates in-voice. In-voice calculations are done automatically. They can update, delete all the information about their client. Once an admin login the system and register the client from that time he will be able to conduct this software. This project helps the admin a better interface that makes his work easy and comfortable. And this project will</p>

			save time. The administrative part will control the login part. After that admin can control or monitor the rest of the system.
5	Peachworks	Tracking sales and taxes	<b>Peachworks</b> is a cloud-based restaurant and catering management solution designed for restaurants and foodservice businesses of any size. It offers inventory management, recipe management, scheduling, forecasting, and analytics functionalities within a suite.
		Menu setup and adding/removing items from it	
		Credit card processing integration	
		Accepting gift cards Inventory management and control	
		Employ management with pos	

#### IV. PROPOSED SYSTEM

Our system is divided into two phases:

- The project is developed in Java Programming Language by using NetBeans of Oracle. A user-friendly environment is created using Java Swing.
- The data entered by the user is stored in the table linked with the MySQL database.
- The JDBC will store, update, and retrieve the data from the database.

#### V. FEATURES OF RESTAURANT MANAGEMENT SYSTEM

##### a. FRONT-END:

- With the help of **Java Swing GUI**, a folder is developed in which we can prepare several files using create a new JFrame file available in a dropdown menu containing layout and code is present.
- **REGISTER**: It is a JFrame file in which username, mobile number, password, and confirm password will be registered.
- **LOGIN**: If the user has already registered then by writing username and password can log in into the application. If the user has forgotten a password, then with the help of a mobile number he can set a new password.
- **MENU CARD**: It contains the menu of the restaurant, bill, payment option as well as data of the customer. Users can either pay by cash or card. It also contains a time-slot booking for a customer who wants to dine-in and also contains a food delivery option.
- **PAYMENT**: by cash or card If the customer pays by card then the credit card holder's name, credit card number, CVV, and also the generated captcha.

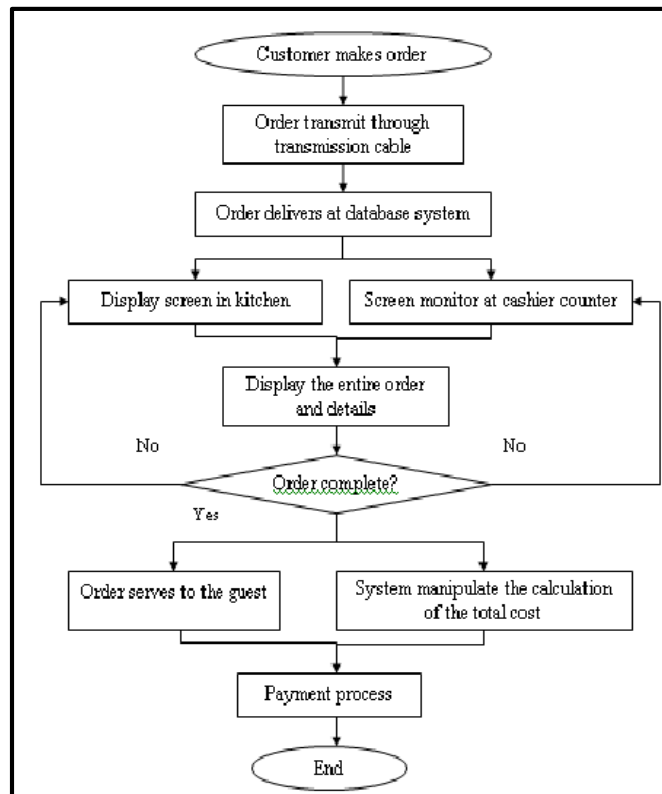
**b. BACK-END:**

- Certain conditions for a password like it shouldn't be the same as the name, must contain a special character, etc. is validated. If all the condition is true, then and only then data is stored in MySQL database.
- Then on the login page, the data is verified with the MySQL database. If true, then the file named 'menu card' is opened.
- On the menu page, the customer's name, mobile number, and the total is stored in the database at the time of payment.
- If the user cancels the payment, then the data from the table 'menu' is deleted.

### VI. METHODOLOGY AND WORKING

This project was proposed to make Restaurant Business Hassle-free and to save trees. The register will send data to the database and then it will be used by login to verify username and password. Then by selecting items from the menu, its total bill will be printed and the total will be stored in the table.

### VII. BLOCK DIAGRAM



## VIII. IMPLEMENTATION AND EXECUTION

### • FRONT-END:

**Step 1:** Design the desired layout for each register, login, menu, and payment.

**Step 2:** (a) For Registration, it contains 4 fields.

1. Username
2. Mobile Number
3. Password
4. Confirm Password
5. Already an account? Login

(b) For Login, it contains 3 fields.

1. Username
2. Mobile Number
3. Password

(c) For Menu, it contains 3 panels.

1. The menu panel contains 3 fields:
  - i. Item name
  - ii. Item cost
  - iii. Quantity
2. The data panel contains 6 fields:
  - i. Name
  - ii. Number
  - iii. Bill Number
  - iv. Total
  - v. Tax
  - vi. Delivery Charge
3. Bill: Here the bill is printed with all the data in it. It can also be printed or mailed

**Step 3:** Development of web app with basic Java Swing framework for better User Interface & User Experience.

**Step 4:** Database connection is set up by importing:

- Java SQL Drive Manger, Connection to link to the database.
- Java SQL Exception to catch if there is an exception in the program
- Java Statement and query to enter the data of the file in the database and execute the program.

- **BACK-END:**

**Step 1:** Create a database by writing the command **'create database database\_name'** in **MySQL Command Client Prompt**, database\_name should be of the name same as the project name for ease of access.

**Step 2:** Now, open the database by **'use database\_name'**. It will give the **database changed** in the prompt

**Step 3:** Thereafter, create table using the command **'create table table\_name(parameters);** In parameters mention column name and their datatype (int, float) and length.

**Step 4:** In the source import classes to link with the database.

- import java.sql. Connection;
- import java.sql. DriverManager;
- import java.sql. SQLException;
- import java.sql. Statement;

## VI. REFERENCES

- [1] <https://www.slideshare.net/samaram20/restaurant-billing-application/16>
- [2] <https://alvinalexander.com/java/java-mysql-update-query-example/>
- [3] <https://youtu.be/xpkiGakG8C8>
- [4] <https://youtu.be/hIZyJzP96Pg>
- [5] <https://www.javatpoint.com/example-to-connect-to-the-mysql-database>

## VII. CONCLUSION

In this project, Java Swing UI is introduced for web applications. The database is created for storing data of the customer. We researched current such restaurant management software. By implementing this project, we will convert the restaurant billing and ordering system online so that resources like food and paper as well as time get saved. It also maintains social distancing in this Corona epidemic by assigning on three tables at a particular time slot.

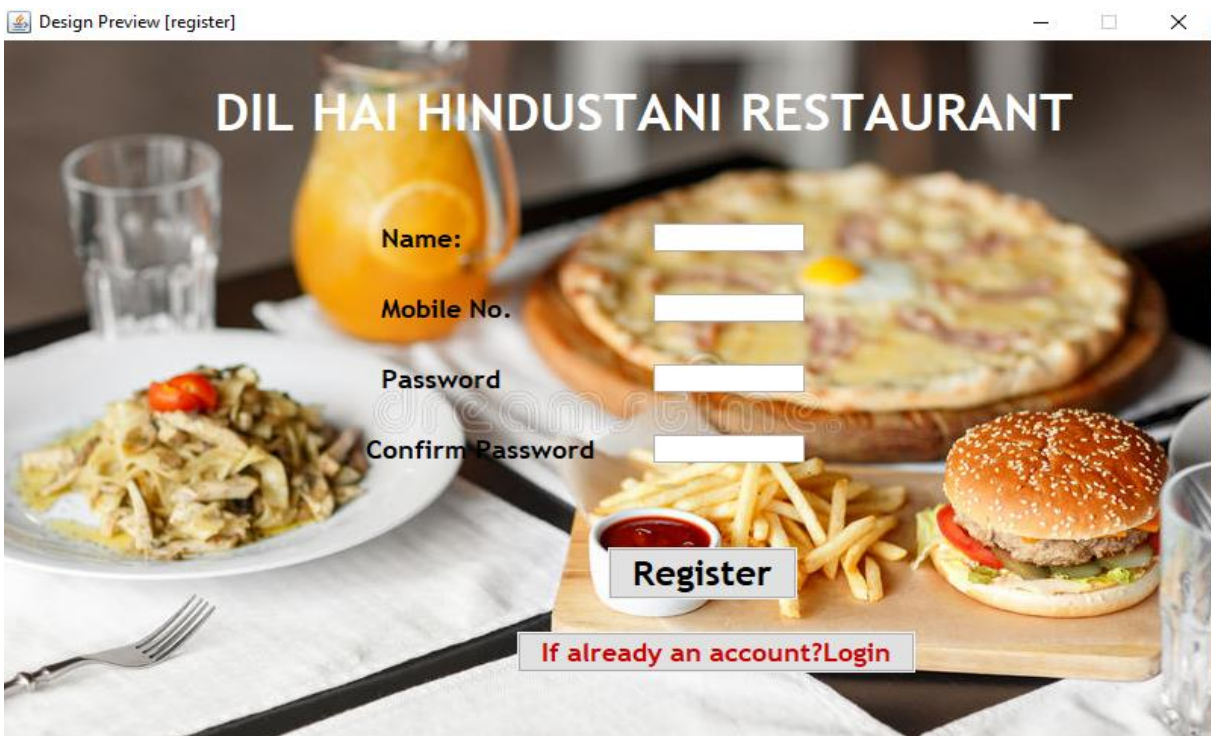
All the IDE and Java Swing used in this are recommendable and sufficient for a user-friendly environment.

## VIII. IMAGES

### 1. START PAGE:



### 2. REGISTRATION:

A registration form for "DIL HAI HINDUSTANI RESTAURANT" is overlaid on a background image of a restaurant meal. The form includes the following fields and buttons:

- Name:**
- Mobile No.:**
- Password:**
- Confirm Password:**
- Register** button
- If already an account?Login** button

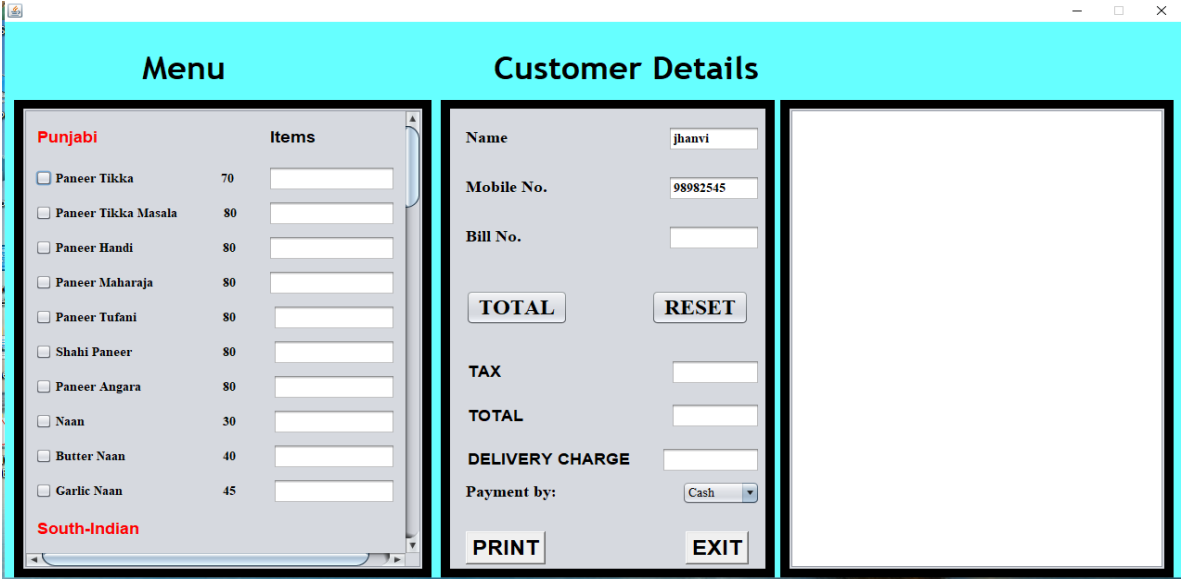
The background image shows a plate of spaghetti, a glass of water, a pitcher of orange juice, a pizza, a burger, and fries.



3. LOGIN:



4. MENU:



5. PAYMENT:

Design Preview [Payment]

# DIL HAI HINDUSTANI RESTUARANT

Card holder's Name:

Card number:

CVV

Captcha



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6. EXIT:

