

EduBridge



A ProjectReportOn

Hotel Management System

By

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Introduction

The aim of this project is to develop an integrated Hotel Management System that both administrators and customers can use. The admin will inform customers of the availability of rooms in various hotels, and customers will verify the availability of rooms in the desired hotel. Customers should be able to find out if a room in a particular hotel is available. They should be able to book available rooms in advance based on their needs to make their stay more comfortable.

Modules:

1. Guest Module.
2. Employee Module.
3. Admin Module.

I have developed this Application in Java, JSP, Servlets, Hibernate and MySQL. It's a web-based projects so I have used HTML, CSS, JavaScript also.

Existing System:

- The Existing system was paper-based.
- keeping track of all the activities and their records on paper is very cumbersome and error prone.
- It was very inefficient and a time-consuming process Observing the continuous increase in population and number of people visiting the hotel. Recording and maintaining all these records on paper was highly unreliable, inefficient and error-prone.
- It is too slow and cannot provide updated lists of required things within reasonable timeframe.
- It is also not economically & technically feasible to maintain these records on paper.

Existing System Drawbacks:

- Chances of data loss and inadequacy.
- Too slow and cannot provide updated lists of patients within reasonable timeframe.
- Also, management of hotel was cumbersome and error prone.

- Modifying previous mistakes wasn't easy.
- No reliable storage and backup facilities.
- It is also not economically & technically feasible to maintain these records on paper.

Proposed System:

The main goal of this project is to create a hotel management framework for use in a hotel. The system should be as adaptable as possible, allowing it to be used in a variety of hotels. To learn about the various techniques that hotels have used. We need to figure out what protocols hotels use, and then build a machine that follows those procedures. We need to look up how a hotel system functions on the internet, use our own knowledge, or speak with people who work in the hotel industry directly. The more varied your information sources are, the better the resulting method and, potentially, your rating would be. This project aims to make record updating, maintenance, and searching more user-friendly. The entire information has been stored in the database or archives, and anyone who wishes to retrieve it will be unable to do so; only authentication will be able to retrieve the correct information from the files.

- 1) The system maintains the different location that are available and registered in a central DB, which leads easy accessibility and consistency.
- 2) Each Accommodation available units and all the unit facilities are also available at the click of a mouse.
- 3) The registration of new guest is online house new guest can make them they convenient for registration process on the basic of 24x7x326days.
- 4) The Units can be booked by the Registered guest irrespective of the Geographical barriers.
- 5) The Guest are provided with up to minute information related to the unit availability and their status. From their convenient place.
- 6) The decision process in more faster and more consistent.
- 7) The guest have information at their demand related to any unit status of their own unit booking status.

Software Requirement & Adapted Methodologies

Software Requirement Specification:

The software requirement specification is produced at the culmination of the analysis task. The function and performance allocated to software as part of system engineering are redefined by establishing a complete information description as functional requirement, a representation of system behaviour, an indication of performance requirement and design constraints, appropriate validation criteria.

IDE Used: -

- Eclipse is a widely used IDE primarily for Java development. Eclipse is used for C and C++ development as well as PHP among other programming languages
- Eclipse IDE is written in Java. It mainly consists of a base ‘Workspace’ and a plug-in system so that we can add more features to it through plugins and extend the functionality of the IDE.
- Eclipse works on all the major platforms including Windows, Mac OS, Linux, etc. and boasts of powerful features that can be used to develop full-fledged projects.

➤ Features Of Eclipse IDE:

- Almost everything in Eclipse is a plugin.
- We can extend the functionality of Eclipse IDE by adding plugins to the IDE, maybe for additional programming language or version control system or UML.
- Supports various source knowledge tools like folding and hyperlink navigation, grading, macro definition browser, code editing with syntax highlighting.
- Provides excellent visual code debugging tool to debug the code.
- Eclipse has a wonderful user interface with drag and drop facility for UI designing.
- Supports project development and administered framework for different toolchains, classic make framework, and source navigation.

- Java Eclipse IDE has a Javadoc facility using which we can automatically create documentation for classes in our application.

➤ **Development Environment for Eclipse includes:**

- Eclipse Java Development Tools (JDT) for Java and Scala.
- Eclipse C/C++ Development Tools (CDT) for C/C++.
- Eclipse PHP Development Tools (PDT) for PHP.

Server Used:

Tomcat is a popular web container software designed to execute Java servlets and render web pages that use Java Server page coding. Accessible as either a binary or a source code version. Tomcat's been used to power a wide range of applications and websites across the Internet. At this time, it's definitely one of the more popular servlet containers available.

Features:

1. Incredibly Lightweight: -

Even with Java EE certification, Tomcat is an incredibly lightweight application. It offers only the most basic functionality necessary to run a server, meaning it provides relatively quick load and redeploy times compared to many of its peers, which are bogged down with far too many bells and whistles. This lightweight nature also allows it to enjoy a significantly faster development cycle.

2. Open-Source-

It is an open-source Server which means it is free of cost. Tomcat's free, and the source code for the server is readily available to anyone who'd care to download it. What this means is that – assuming you're willing to tinker with the moving parts of your server – you've got an incredible degree of freedom insofar as what you want to do with a Tomcat installation.

Highly Flexible

Thanks to its lightweight nature and a suite of extensive, built-in customization options, Tomcat is quite flexible. You can run it in virtually any fashion you choose, and it'll still work as intended. The fact that it's open-source helps as well, since you can tweak it to fit your needs, provided you've the knowledge to do so.

Language Used: -

The Java programming language is designed to meet the challenges of application development in the context of heterogeneous, network-wide distributed environments.

Paramount among these challenges is secure delivery of applications that consume the minimum of system resources, can run on any hardware and software platform, and can be extended dynamically.

The Java programming language originated as part of a research project to develop advanced software for a wide variety of network devices and embedded systems.

Java has proven ideal for developing secure, distributed, network-based end-user applications in environments ranging from network-embedded devices to the World-Wide Web and the desktop.

Frameworks Used: -

1) Hibernate: -

- Hibernate is an open-source Java persistence framework project.
- It performs powerful Object-relational mapping and query databases using HQL and SQL.
- Hibernate is a great tool for ORM mappings in Java. It can cut down a lot of complexity and thus defects as well from your application, which may otherwise find a way to exist.
- This is especially boon for developers with limited knowledge of SQL.

➤ Hibernate Architecture

1. Configuration:

In hibernate.properties or hibernate.cfg.xml files. For Java configuration, you may find class annotated with `@Configuration`. It is used by SessionFactory to work with Java Application and the Database. It represents an entire set of mappings of an application Java Types to an SQL database.

2. Session Factory:

Any user application requests Session Factory for a session object. Session Factory uses configuration information from above listed files, to instantiates the session object appropriately.

3. Session:

This represents the interaction between the application and the database at any point of time. This is represented by the `org.hibernate.Session` class. The instance of a session can be retrieved from the SessionFactory bean.

4. Query :

It allows applications to query the database for one or more stored objects. Hibernate provides different techniques to query database, including `NamedQuery` and `Criteria` API.

5. First-level cache :

It represents the default cache used by Hibernate Session object while interacting with the database. It is also called as session cache and caches objects within the current session. All requests from the Session object to the database must pass through the first-level cache or session cache. One must note that the first-level cache is available with the session object until the Session object is live.

6. Transaction :

Enables you to achieve data consistency, and rollback incase something goes unexpected.

- The following diagram summarizes the main building blocks in hibernate architecture.

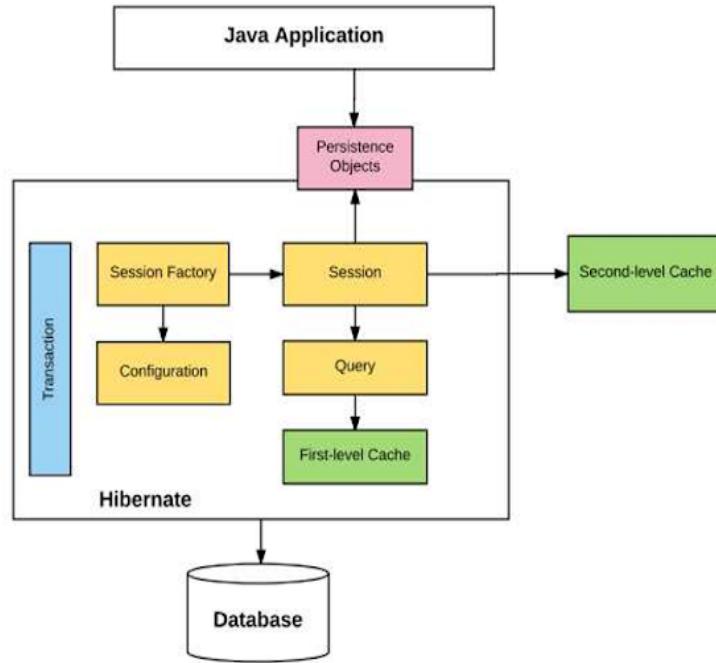


Fig. Hibernate Architecture

- **Why to use Hibernate technology –**

- Hibernate supports Inheritance, Associations, Collections.
- In hibernate if we save the derived class object, then its base class object will also be stored into the database, it means hibernate supporting inheritance
- Hibernate supports relationships like One-To-Many, One-To-One, Many-To-Many-to-Many, Many-To-One
- This will also supports collections like List, Set, Map (Only new collections)
- In jdbc all exceptions are checked exceptions, so we must write code in try, catch and throws, but in hibernate we only have Un-checked exceptions, so no need to write try, catch, or no need to write throws. Actually in hibernate we have the translator which converts checked to Un-checked
- Hibernate has capability to generate primary keys automatically while we are storing the records into database
- Hibernate has its own query language ,i.e hibernate query language which is database independent
- Hibernate supports annotations, apart from XML

- So if we change the database, then also our application will work as HQL is database independent.

2) Spring Boot:-

• Advantages Of Spring Boot Framework:-

1. **Separate roles** - The Spring MVC separates each role, where the model object, controller, command object, view resolver, DispatcherServlet, validator, etc. can be fulfilled by a specialized object.
2. **Light-weight** - It uses light-weight servlet container to develop and deploy your application.
3. **Powerful Configuration** - It provides a robust configuration for both framework and application classes that includes easy referencing across contexts, such as from web controllers to business objects and validators.
4. **Rapid development** - The Spring MVC facilitates fast and parallel development.
5. **Reusable business code** - Instead of creating new objects, it allows us to use the existing business objects.
6. **Easy to test** - In Spring, generally we create JavaBeans classes that enable you to inject test data using the setter methods.
7. **Flexible Mapping** - It provides the specific annotations that easily redirect the page.

Features:

1. Taskmanager:-

- Chrome has its own Task Manager that shows you how much memory and CPU usage each tab and plug-in is using.
- You can open it by clicking Shift-Esc from within Chrome.
- You can get more details by clicking the "Stats for nerds" link on the Task Manager and it will open a page with a full breakdown of memory and CPU usage for each process within the browser.

2. Upgraded tabs:-

- The Chrome development team views tabs as one of the best new innovations to Web browsing in recent years and so they wanted to expand the functionality of tabs since users .

- In Chrome you can drag a tab into its own window, and drag it back to the main window. This is called "Dynamic Tabs." Also, by default, the "New Tab" page in Chrome features a page that shows thumbnails of your most visited Web sites, a list of your recent bookmarks, and a search box that allows you to search your history.

Hardware Specification:-

Content	Description
Processors	i3,i5,i7
Hard Drive	1GB(minimum) 2GB(Recommended)
RAM	512MB(minimum) 1GB(Recommended)
Operating System	Windows 10,Windows 7,Windows 8

Database and other software specification:-

Content	Description
Language	HTML, JAVA, JAVASCRIPT,CSS
Database	MySQL
Framework	Hibernate ,Spring Boot
Dependency Manager	Maven
Server	Apache Tomcat

DataDictionary:

Database:

The screenshot shows the MySQL Workbench interface with the following details:

- Top Bar:** MySQL Workbench, localhost, File, Edit, View, Query, Database, Server, Tools, Scripting, Help.
- Navigator:** Schemas (codejavadb, codejavadb1, prat, project, projectthms), Tables, Views, Stored Procedures, Functions.
- Query Editor:** Query 1, adminlogin, booking, employee, users. The query is: `SELECT * FROM projectthms.employee;`. The results grid shows data for 9 employees:

ID	Designation	Email	Firstname	Lastname	Password	Phone	Current Address
1	Employee	shivam@gmail.com	Shivam	Rao	NULL	9876543210	Anravati Maharashtra
3	Manager	riya@gmail.com	Riya	Gupta	12345	9876543209	Nagpur
4	Employee	priya@gmail.com	Priya	Rai	123456	9876543209	Delhi
5	Employee	sya@gmail.com	Sya	Moon	12345678	9876543210	Pune
6	Employee	shyama@gmail.com	Shyama	Surapne	123456789	9876543201	Mumbai
8	Manager	Shivaji@gmail.com	Shivaji	Deshmukh	123456	9876543210	Pune Maharashtra
9	Manager	Shivaji@gmail.com	Shivaji	Deshmukh	123456	9876543210	Pune Maharashtra

- Action Output:** Shows the history of actions taken on the database, including queries and DDL statements, with their execution time and message.
- Bottom Bar:** Administration, Schemas, Information.

Hotel Management System

The image shows two side-by-side screenshots of a database management interface, likely MySQL Workbench or a similar tool.

Screenshot 1 (Top): Booking Table

Query: `SELECT * FROM projecthms.booking;`

Result Grid:

ID	checkin_date	checkout_date	email	firstname	lastname	no_of_persons	phone
1	2023-02-12 00:00:00.000000	2023-02-14 00:00:00.000000	shivali@gmail.com	shivali	deshmukh	2	9876548967
2	2024-12-12 00:00:00.000000	2024-12-12 00:00:00.000000	maan@gmail.com	maan	sing	1	9876543210
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Screenshot 2 (Bottom): Users Table

Query: `SELECT * FROM projecthms.users;`

Result Grid:

ID	Phone	Email	Password	first_name	last_name
1	9876543210	mira@gmail.com	mira@123	mira	desai
2	8765432109	shubh@gmail.com	shubh123	shubh	narayan
3	7867655645	shubhada@gmail.com	shubhada123	SHUBHADA	DESHMUKH
*	NULL	NULL	NULL	NULL	NULL

Hotel Management System

Table: adminlogin

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
<input checked="" type="checkbox"/> id	BIGINT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> email	VARCHAR(45)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> password	VARCHAR(64)	<input type="checkbox"/>								

Table: employee

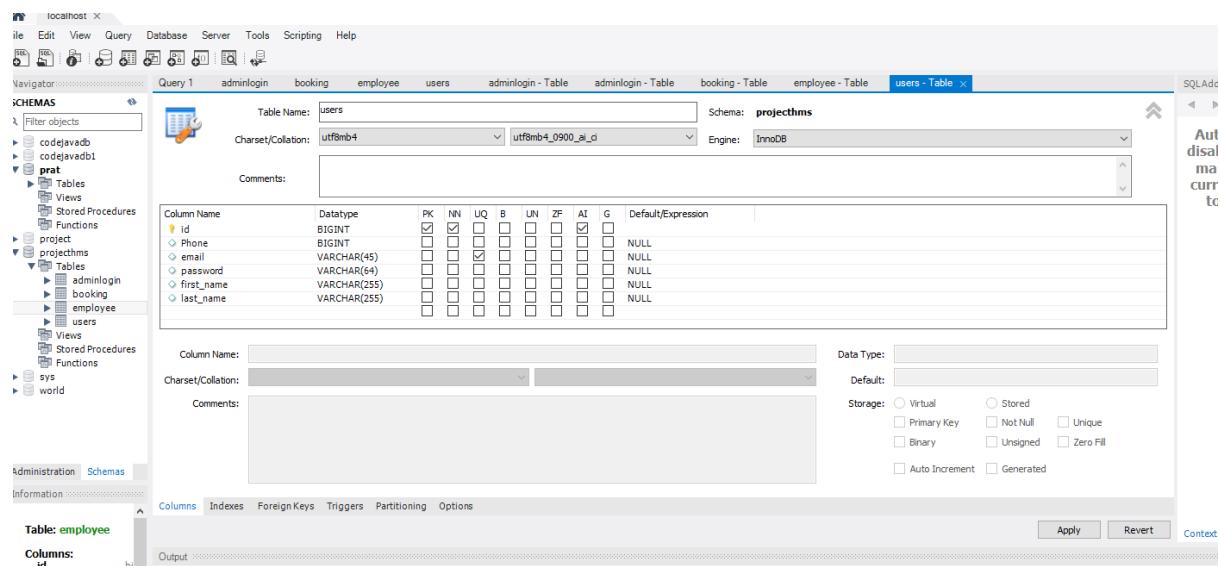
Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
<input checked="" type="checkbox"/> id	BIGINT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> designation	VARCHAR(255)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> email	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> firstname	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> lastname	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> password	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> phone	BIGINT	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> current_address	VARCHAR(255)	<input checked="" type="checkbox"/>								

Table: booking

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
<input checked="" type="checkbox"/> checkin_date	DATETIME(6)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> checkout_date	DATETIME(6)	<input type="checkbox"/>								
<input checked="" type="checkbox"/> email	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> firstname	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> lastname	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> no_of_persons	INT	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> phone	BIGINT	<input checked="" type="checkbox"/>								

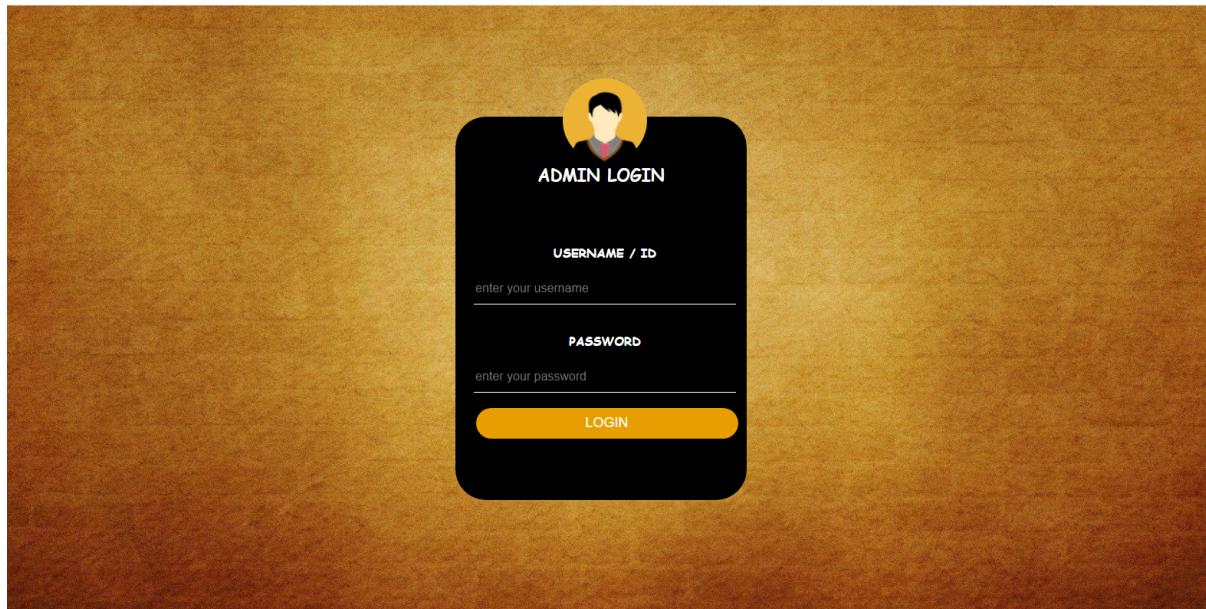
Table: employee

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
<input checked="" type="checkbox"/> id	BIGINT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> designation	VARCHAR(255)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> email	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> firstname	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> lastname	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> password	VARCHAR(255)	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> phone	BIGINT	<input checked="" type="checkbox"/>								
<input checked="" type="checkbox"/> current_address	VARCHAR(255)	<input checked="" type="checkbox"/>								



Output :

The image shows a screenshot of a web-based hotel management system. At the top, there is a "GUEST LOGIN" interface with a placeholder user icon. It includes fields for "USERNAME / ID" (containing "mira@gmail.com") and "PASSWORD" (containing "enter your password"). Below these are a "LOGIN" button and a link to "create a new account". The main content area is titled "Reservation Form". It contains several input fields: "First Name" (placeholder "Firstname"), "Last Name" (placeholder "Lastname"), "Phone No." (placeholder "phone no."), "Email ID" (placeholder "Enter Email"), and "Persons" (placeholder "Enter no of person"). At the bottom, there are two date input fields: "Checkin Date" and "Checkout Date", each followed by a calendar icon. A large "Book" button is positioned below these fields.



Employee Registration Form

This form allows users to enter employee details:

First Name:	Firstname
Last Name:	Lastname
Phone No:	phone no.
Address:	CurrentAddress
Email ID:	Enter Email
Designation:	Enter Designation
Password:	Enter Password

Add Employee

Employee List							
Employee Id	First Name	Last Name	Phone	Designation	Email	Current Address	Action
1	shiwam	deshpande	9878767654	employee	shiwam@gmail.com	Chennai	Edit Delete
3	niya	gupta	9877654398	manager	niya@gmail.com	nagpur	Edit Delete
4	priya	rai	9876540989	employee	priya@gmail.com	delhi	Edit Delete
12	mahi	rao	9876543210	Employee	mahi@gmail.com	Amravati	Edit Delete
14	ram	narayan	9876543210	EMPLOYEE	ram@gmail.com	pune Maharashtra	Edit Delete
15	anjana	reddy	8976544332	manager	pavuthra@gmail.com	chennai	Edit Delete
16	Shravan	Maan	9087654321	Employee	shravan@gmail.com	Amravati Maharashtra	Edit Delete

Edit Employee

Employee ID:	<input type="text" value="1"/>
First Name:	<input type="text" value="shiwam"/>
Last Name:	<input type="text" value="deshpande"/>
Phone No:	<input type="text" value="9878767654"/>
Designation:	<input type="text" value="employee"/>
Email:	<input type="text" value="shiwam@gmail.com"/>
Current Address:	<input type="text" value="Chennai"/>
<input type="button" value="Save"/>	

OTHER ASPECTS

Advantages:

The main aim of hotel management software system is to eliminate the drawbacks of manual hotel operations management. Some of the advantages of the system are

1. Eliminate redundancy in term of data storage. Data will be stored in a computer not heap of files.
2. Increase Efficiency and Interactivity in any area of specialization in the hotel.
3. Able to quickly collect and edit data, summarize result and adjust as well as collect errors promptly.
4. Uses Bcrypt encoding technique to store passwords hash for secure logins.
5. Easy to maintain large amount of data. It saves time, energy and user-friendly environment, which gives us quick response in time.

Conclusion And Reference

The entire project has been developed and deployed as per the requirements stated by the user, it is found to be bug free as per the testing standards that are implemented. Any specification untraced errors will be concentrated in the coming versions, which are planned to be developed in near future. The system needs more elaborative technicality for its inception and evolution

This project is designed to fulfill all the requirements that are necessary to manage a hotel. It has been developed using HTML, CSS, Java Script for front end and using Java

spring for back end keeping in mind the specifications of the system. We have used MySQL for hotel database management. For designing and planning the system we have used simple data flow diagrams. Overall, this project teaches us development of a successful website and database management.

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