

Case Study:  
Employee Management System



## Problem Statement

In today's era, it is the team that succeeds, not an individual alone. The employees of a company form a crucial part of its existence and are the most important pillars for a company's success. It is quite essential that such an important and integral part of a business is monitored and administered immaculately. The fast-paced growth in today's world calls for the support of technology, without which it is not possible to stay abreast with the up-gradations.

So, HR professionals have a lot to keep track of, and it's difficult to keep the data accurate when information is scattered across spreadsheets and paper files. Anytime they need to make an update; they will find themselves chasing down several other files that they need to change as well.

## Solution:

Employee administration calls for a technically powered Employee database management system. When the data is stored in an organized manner, one can easily enter, update and ensure employee records instantaneously, and will never have to second-guess the accuracy again. An **online employee management system** ensures that employee data is perfectly synced across multiple key systems and in a secure environment at the same time.

Employee management System provides,

- Smooth on-boarding process for new employees
- Hassle-free employee transitions
- Staying up to date with employee information
- Enabling quick action on admin related issues and tasks

The application has multiple releases.

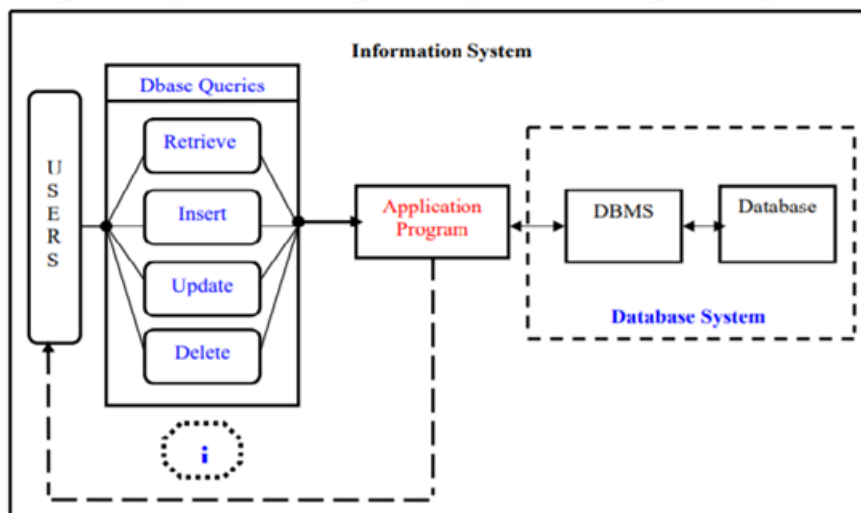
1. Release 1.0 UI Application – Angular JS + Middleware ( Servlet + JDBC)
2. Release 2.0 UI Application- Angular JS + Middleware ( Spring Boot + Spring REST+ Hibernate)

Future releases will implement micro services architecture.

Team Members:

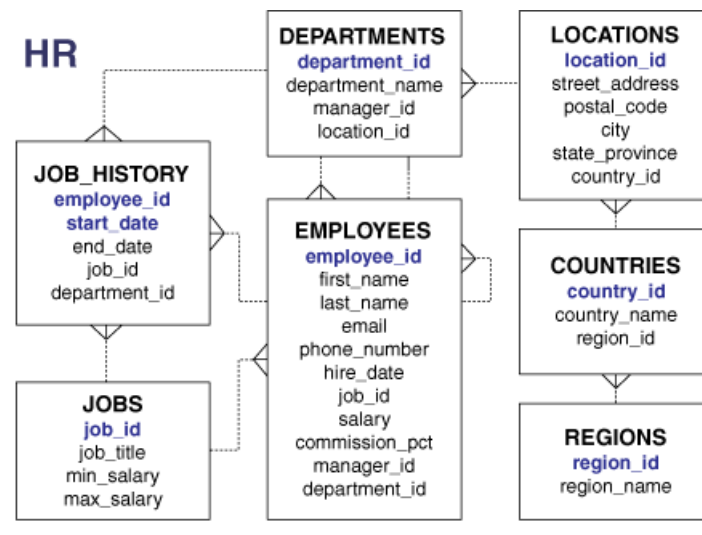
1. Pranaw Kaushal
2. Swati More
3. Siddhant Vora
4. Pooja Sonawane
5. Reshma Shelar

### Principal Scheme:

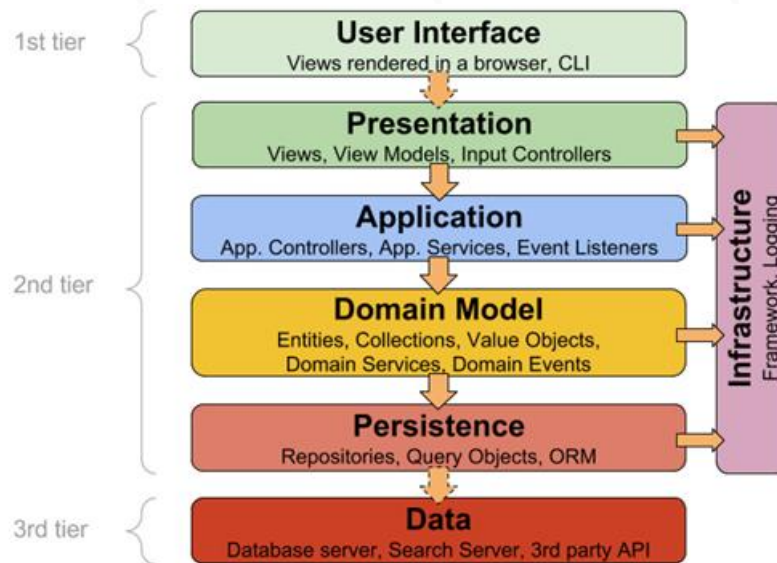


Database used for system is MySQL

## Database Schema:



## Architecture :



## Technology stack

UI technologies: Angular 1.x, JQuery, Bootstrap

Specifications: HTML 5, CSS 3, Servlet 4.0, JDBC 4.0

Frameworks: Spring 5.0, Hibernate 4.0

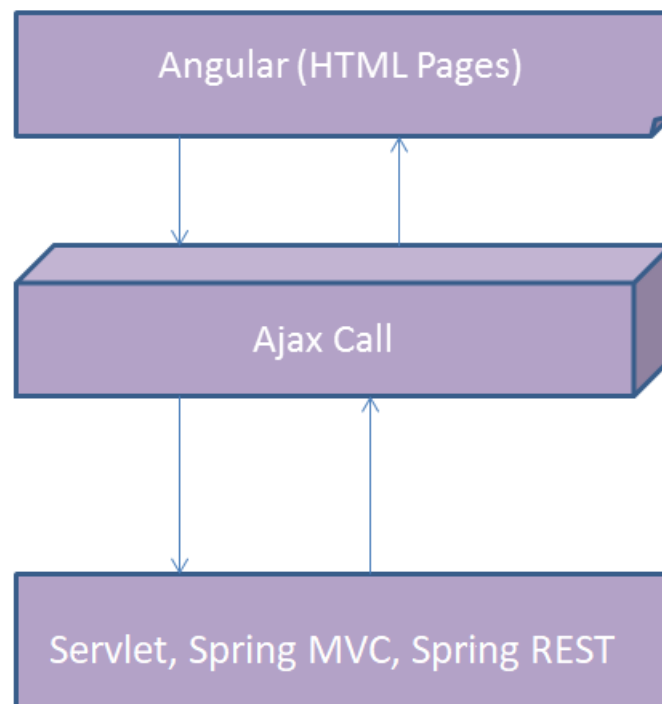
IDE: Eclipse STS 4.0, Visual Code

Team collaboration : GIT, GITHUB, EGIT plugin in eclipse

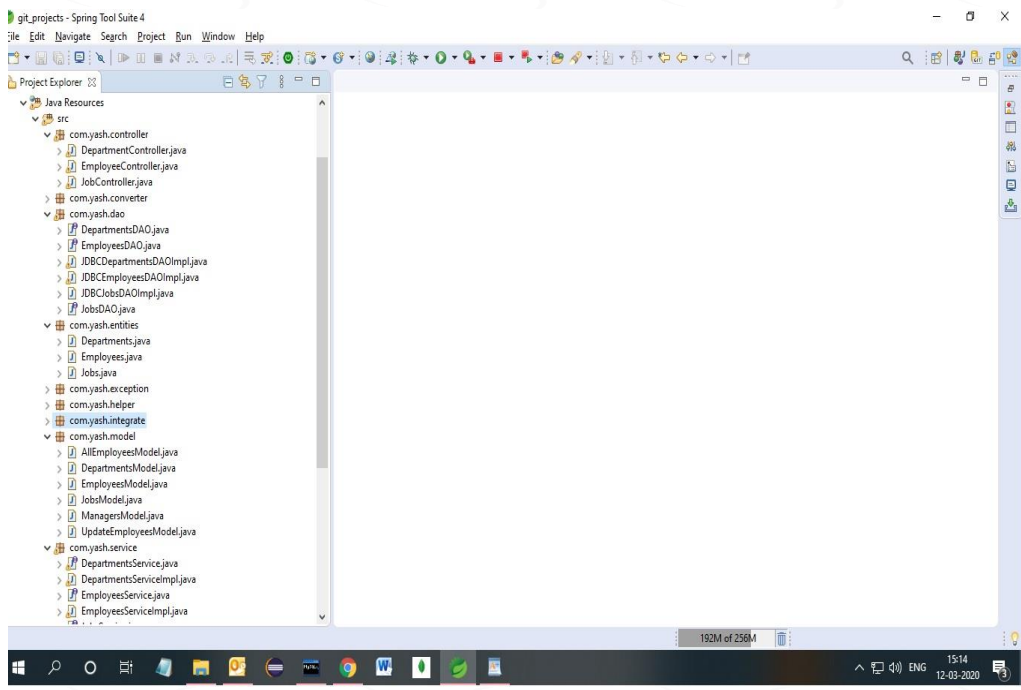
Database software: MySQL 5.x

DVT(Data visualization technique): Zing Chart

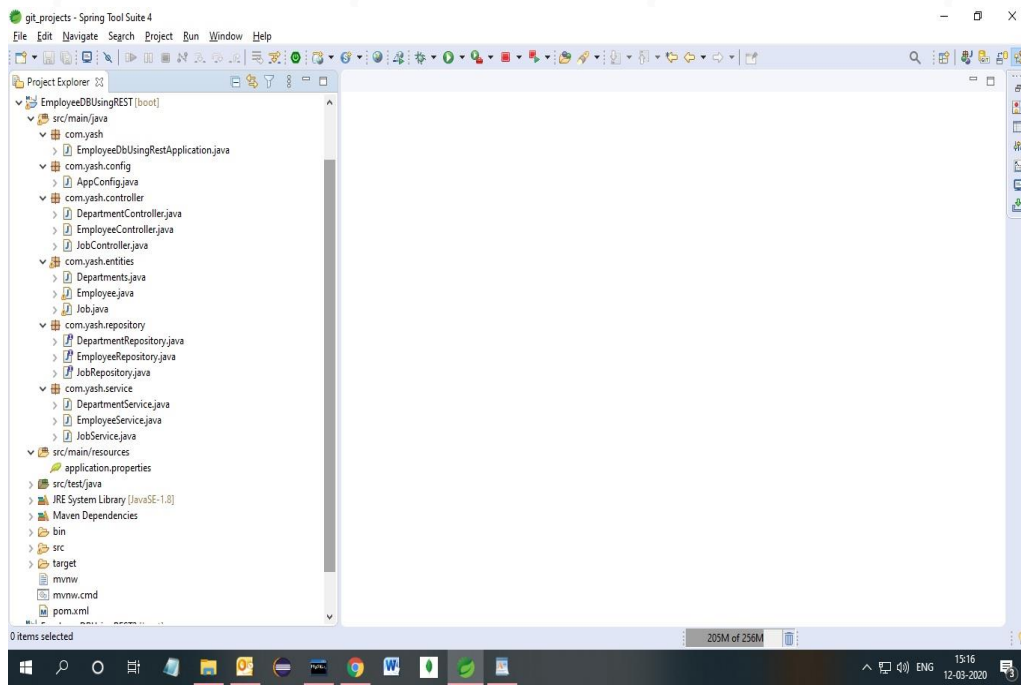
User Interface is created in Angular1.x and middleware in Servlet as well as Spring REST deployed on tomcat 8.0.



Layered middleware application structure using Servlet+JDBC is as below,



Layered middle ware application structure using Spring REST is as follows,



## UI Wire Frame :

### 1. Login Screen



LOGIN FORM

YE1009417

.....

➔ Sign in

[Forgot password?](#)

LOGIN FORM

YE1009417

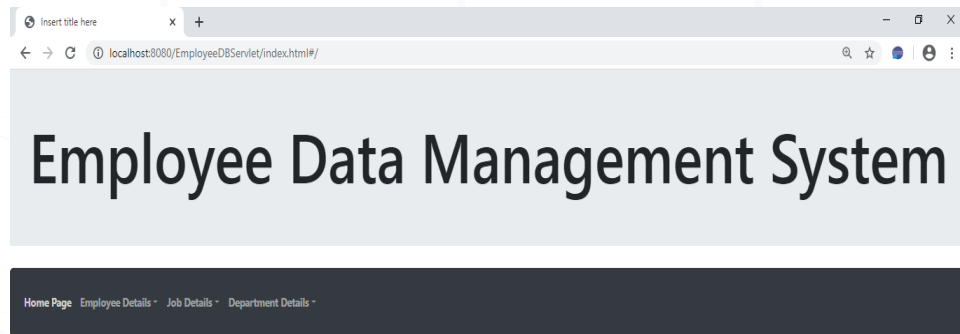
.....|

enter valid password

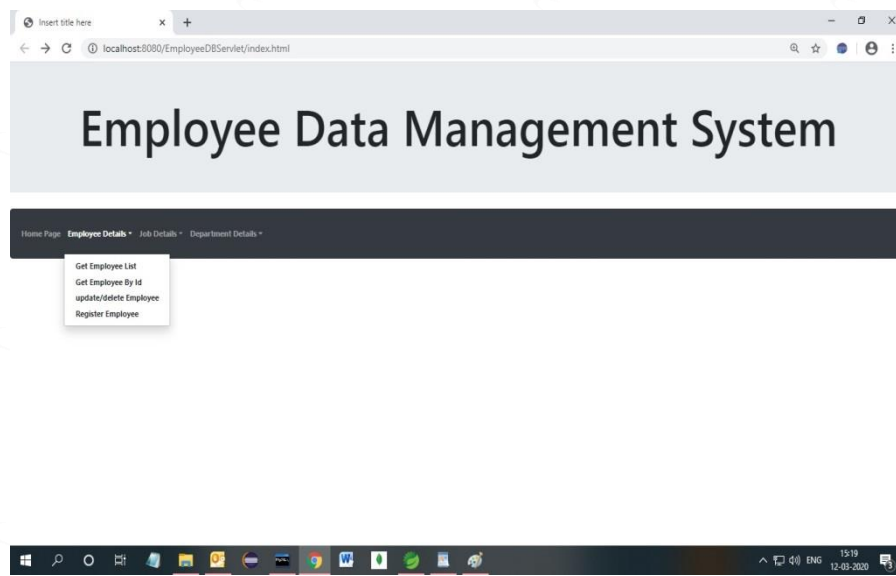
➔ Sign in

[Forgot password?](#)

## 2. Home Page



### 3. Employee Page



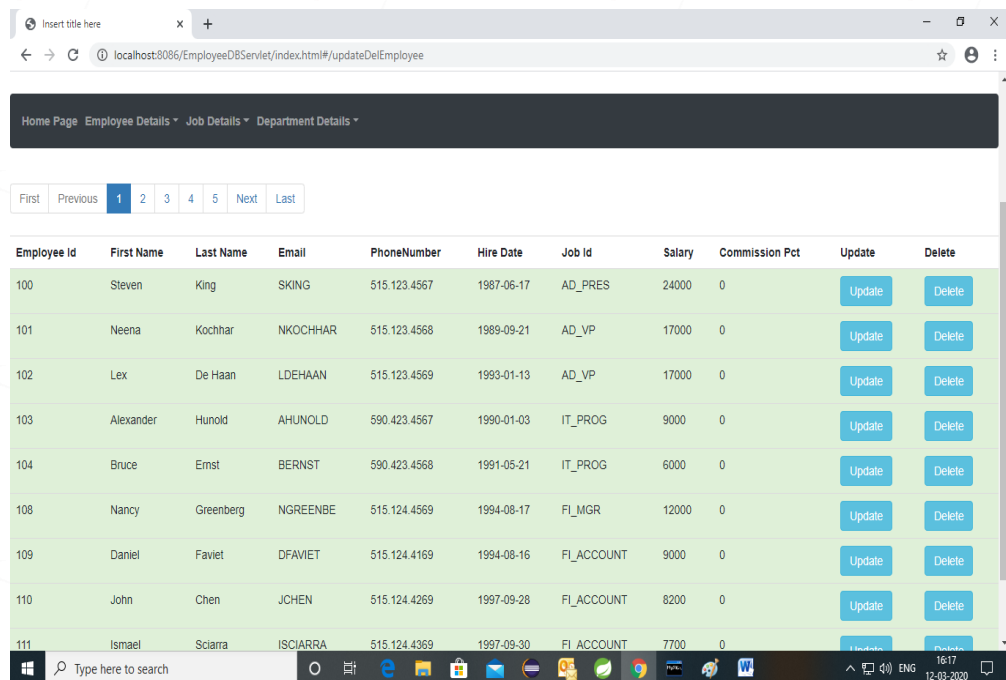
Employee details page shows detailed information about 10 employees at a time.

Employee Id	FirstName	LastName	EmailID	PhoneNumber	Hire Date	JobId	Salary	CommissionPCT	ManagerId	DepartmentId
100	Steven	King	SKING	515 123 4567	1987-06-17	AD_PRES	24000	0	0	90
101	Neena	Kochhar	NKOCHHAR	515 123 4568	1988-09-21	AD_VP	17000	0	100	90
102	Lex	De Haan	LDEHAAN	515 123 4569	1993-01-13	AD_VP	17000	0	100	90
103	Alexander	Hunold	AHUNOLD	580 423 4567	1990-01-03	IT_PROG	9000	0	102	60
104	Bruce	Ernst	BERNST	580 423 4568	1991-05-21	IT_PROG	8000	0	103	60
108	Nancy	Greenberg	NGREENBE	515 124 4569	1994-08-17	FI_MGR	12000	0	101	100
109	Daniel	Faviet	DFAVIET	515 124 4169	1994-08-16	FI_ACCOUNT	9000	0	108	100
110	John	Chen	JCHEN	515 124 4269	1997-09-28	FI_ACCOUNT	8200	0	108	100
111	Ismail	Scarra	ISCARRA	515 124 4369	1997-09-30	FI_ACCOUNT	7700	0	108	100
113	Luis	Popp	LPOPP	515 124 4567	1999-12-07	FI_ACCOUNT	6900	0	108	100

Search screen helps to find employee information based on Employee Id

Employee Id	Full Name	Total Salary	Contact Number	Tax	EmailID
101	Neena Kochhar	17000	Ph No 515 123 4568 Email NKOCHHAR	0	NKOCHHAR

Employee information can be modified or deleted by the user with role as 'Admin'



Employee Id	First Name	Last Name	Email	PhoneNumber	Hire Date	Job Id	Salary	Commission Pct	Update	Delete
100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000	0	<a href="#">Update</a>	<a href="#">Delete</a>
101	Neena	Kochhar	NKOCHHAR	515.123.4568	1989-09-21	AD_VP	17000	0	<a href="#">Update</a>	<a href="#">Delete</a>
102	Lex	De Haan	LDEHAAN	515.123.4569	1993-01-13	AD_VP	17000	0	<a href="#">Update</a>	<a href="#">Delete</a>
103	Alexander	Hunold	AHUNOLD	590.423.4567	1990-01-03	IT_PROG	9000	0	<a href="#">Update</a>	<a href="#">Delete</a>
104	Bruce	Ernst	BERNST	590.423.4568	1991-05-21	IT_PROG	6000	0	<a href="#">Update</a>	<a href="#">Delete</a>
108	Nancy	Greenberg	NGREENBE	515.124.4569	1994-08-17	FI_MGR	12000	0	<a href="#">Update</a>	<a href="#">Delete</a>
109	Daniel	Faviet	DFAVIET	515.124.4169	1994-08-16	FI_ACCOUNT	9000	0	<a href="#">Update</a>	<a href="#">Delete</a>
110	John	Chen	JCHEN	515.124.4269	1997-09-28	FI_ACCOUNT	8200	0	<a href="#">Update</a>	<a href="#">Delete</a>
111	Ismael	Sciarra	ISCIARRA	515.124.4369	1997-09-30	FI_ACCOUNT	7700	0	<a href="#">Update</a>	<a href="#">Delete</a>

Employee Data Management System

Home Page Employee Job Details Department Details

Emp id: Emp Name: Emp Salary: Emp Email: Emp PhoneNumber: Emp Jobid: Emp Salary: Emp commissionPct: Emp managerId: Emp department:

Update reset

Employee Sign Up

employeeId  
Enter employeeId

firstName  
Enter firstName

lastName  
Enter lastName

Email  
Enter Email

Phone Number  
Enter phoneNumber

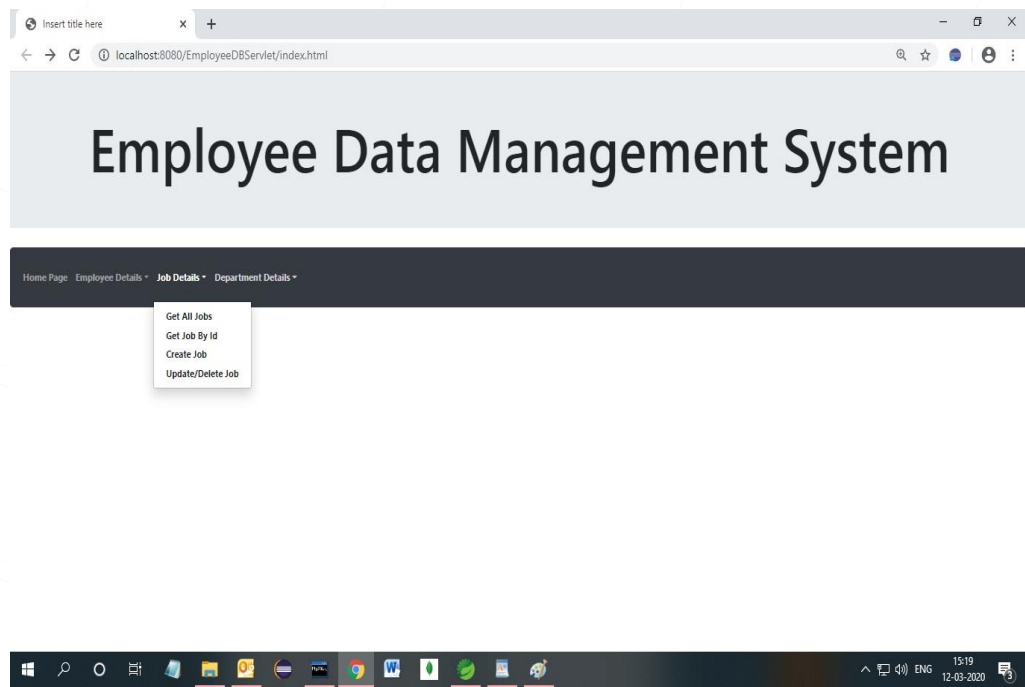
jobid  
Enter jobid

Employee registration form has dynamic drop down box for Job id populated by Job Title, department Id populated by Department Name and Manager Id populated by Manager's Name.

The screenshot shows a web browser window with the address bar displaying 'localhost:8080/EmployeeDBServlet/index.html#/addEmployee'. The form is titled 'Enter jobid' and contains several input fields and dropdown menus. A dropdown menu is open, showing a list of departments: SELECT, Administration, Marketing, Purchasing, Human Resources, Shipping, IT (highlighted), Public Relations, Sales, Executive, Finance, Accounting, Treasury, Corporate Tax, Control And Credit, Shareholder Services, Benefits, Manufacturing, and Construction. Below the dropdown menu, there are two more dropdown menus labeled 'Select Job:' and 'Select Manager:'. At the bottom of the form, there are two buttons: 'Cancel' (red) and 'Sign Up' (green). The Windows taskbar is visible at the bottom of the screen, showing the date and time as 16:24 on 12-03-2020.

#### 4. Jobs Page

Jobs menu helps user to get detailed information about jobs in organization. If user has admin role can put new jobs, update or delete a particular job.





Home Page Employee Details Job Details Department Details

### Job Details

First Previous 1 2 Next Last

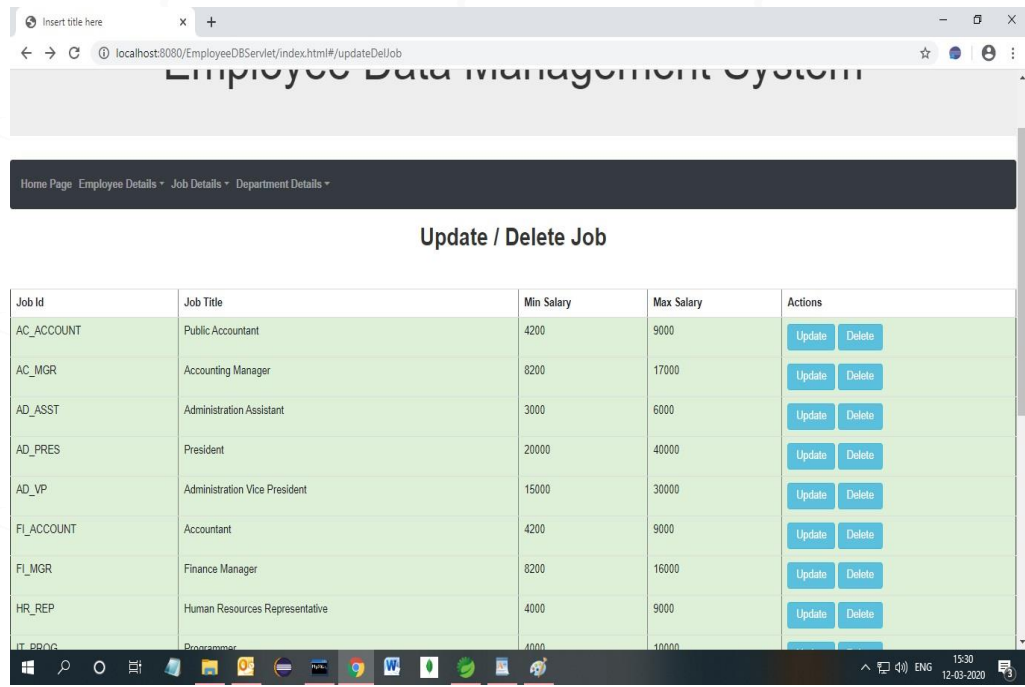
Job Id	Title	Min Salary	Max Salary
AC_ACCOUNT	Public Accountant	4200	9000
AC_MGR	Accounting Manager	8200	17000
AD_ASST	Administration Assistant	3000	6000
AD PRES	President	20000	40000
AD_VP	Administration Vice President	15000	30000
FI_ACCOUNT	Accountant	4200	9000
FI_MGR	Finance Manager	8200	16000
HR_REP	Human Resources Representative	4000	9000
IT_PROG	Programmer	4000	10000
MK_MAN	Marketing Manager	9000	15000

Min and max salary can be retrieved from each Job Id using Job search screen.

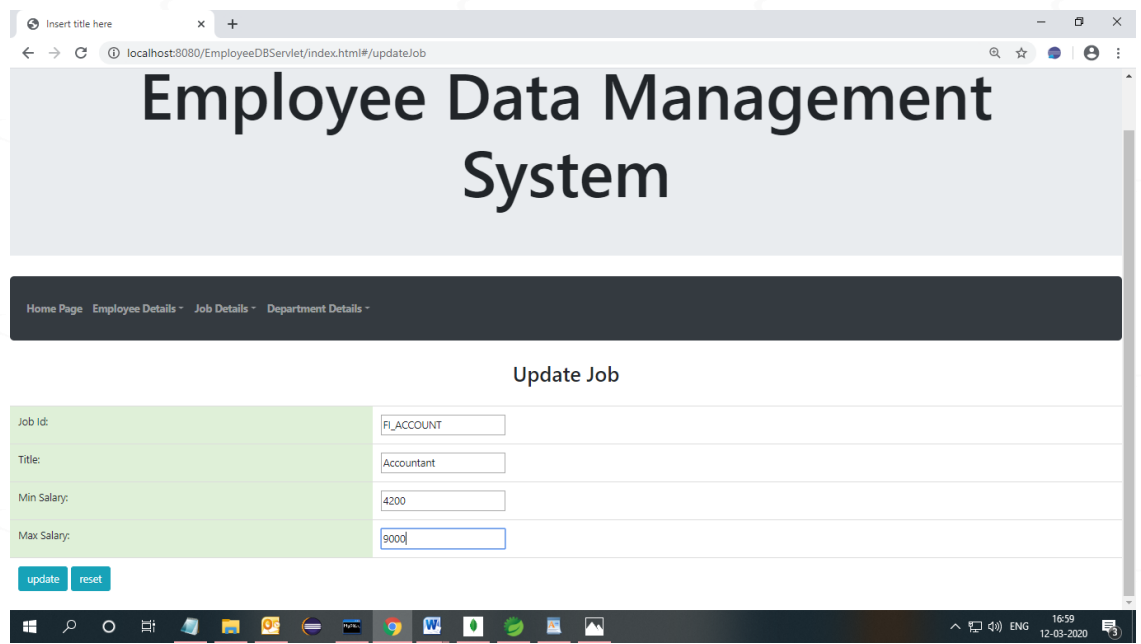
Home Page Employee Details Job Details Department Details

Job Id: SA\_MAN Click

Job Id	Title	Min Salary	Max Salary
SA_MAN	Sales Manager	10000	20000

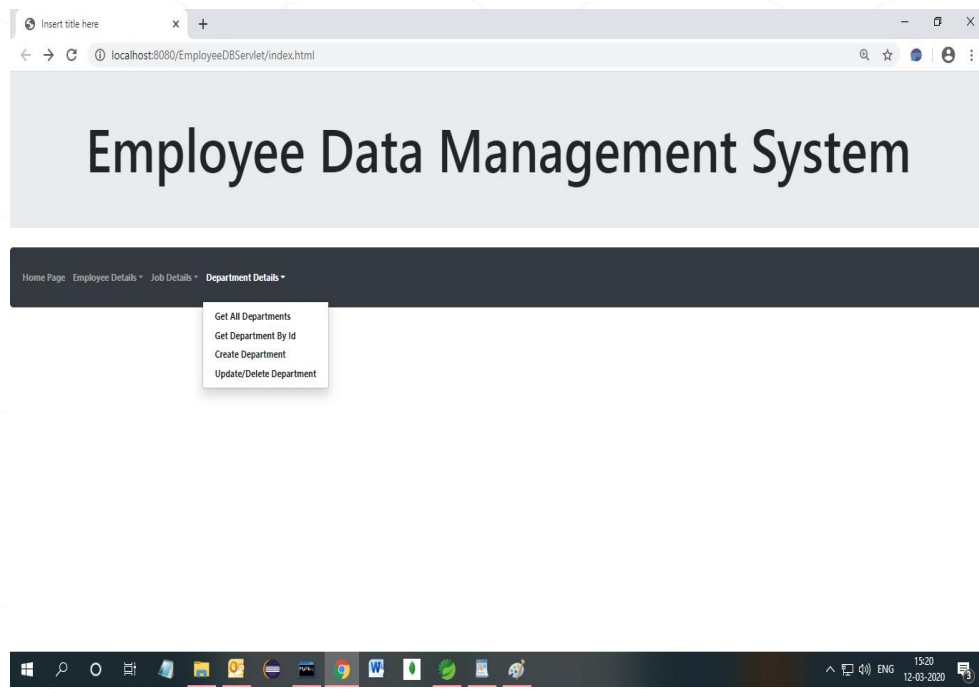


Job details can be updated using Update job screen.



## 5. Department Page

Department information can be obtained by using department menu. If a user has admin privileges can put new department details, update or delete department.



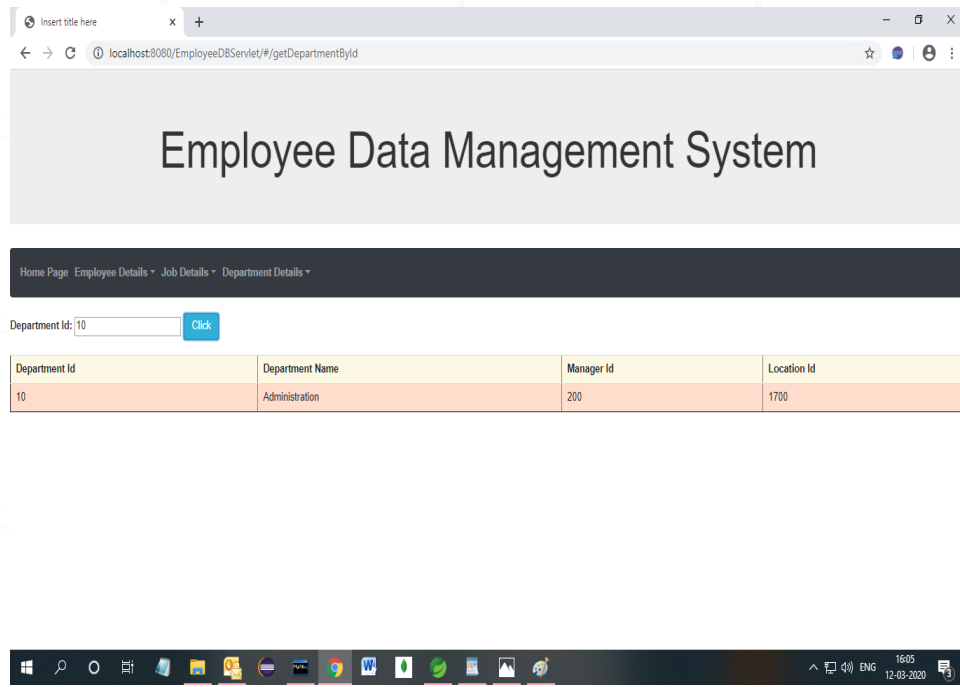
Home Page Employee Details Job Details Department Details

### Department Details

First Previous 1 2 3 Next Last

Department Id	Name	Manager ID	Location ID
10	Administration	200	1700
20	Marketing	201	1800
30	Purchasing	114	1700
40	Human Resources	203	2400
50	Shipping	121	1500
60	IT	103	1400
70	Public Relations	204	2700

Department details can be retrieved based on Department Id using department search screen.



New department details can be entered in system using Create new department screen.

Insert title here

localhost:8080/EmployeeDBServlet/index.html#/addDepartment

## Employee Data Management System

Home Page Employee Details Job Details Department Details

### Create New Department

Create Department

Department Id	10
Department Name	HR
Manager ID	1005
Location ID	90

SUBMIT

Insert title here

localhost:8080/EmployeeDBServlet/#/updateDelDepartment

Home Page Employee Details Job Details Department Details

### Update / Delete Department

Department Id	Department Name	Manager ID	Location ID	Actions
10	Administration	200	1700	<a href="#">Update</a> <a href="#">Delete</a>
20	Marketing	201	1800	<a href="#">Update</a> <a href="#">Delete</a>
30	Purchasing	114	1700	<a href="#">Update</a> <a href="#">Delete</a>
40	Human Resources	203	2400	<a href="#">Update</a> <a href="#">Delete</a>
50	Shipping	121	1500	<a href="#">Update</a> <a href="#">Delete</a>
60	IT	103	1400	<a href="#">Update</a> <a href="#">Delete</a>
70	Public Relations	204	2700	<a href="#">Update</a> <a href="#">Delete</a>
80	Sales	145	2500	<a href="#">Update</a> <a href="#">Delete</a>
90	Executive	100	1700	<a href="#">Update</a> <a href="#">Delete</a>
100	Finance	108	1700	<a href="#">Update</a> <a href="#">Delete</a>
110	Accounting	205	1700	<a href="#">Update</a> <a href="#">Delete</a>

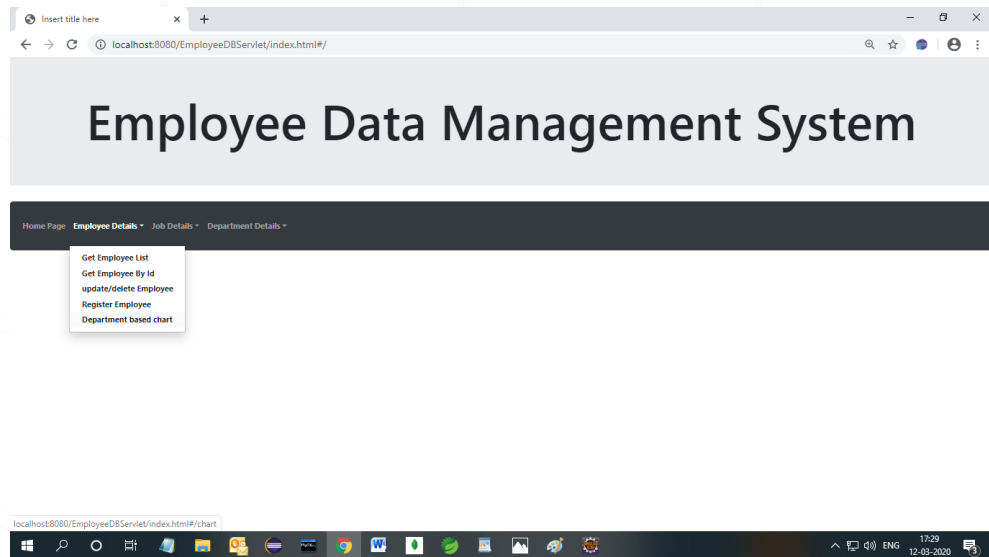
Department details can be updated using Update department screen.

The screenshot shows a web browser window displaying the 'Employee Data Management System'. The page has a header with navigation links: 'Home Page', 'Employee Details', 'Job Details', and 'Department Details'. The main content area is titled 'Update Department' and contains a form with the following fields:

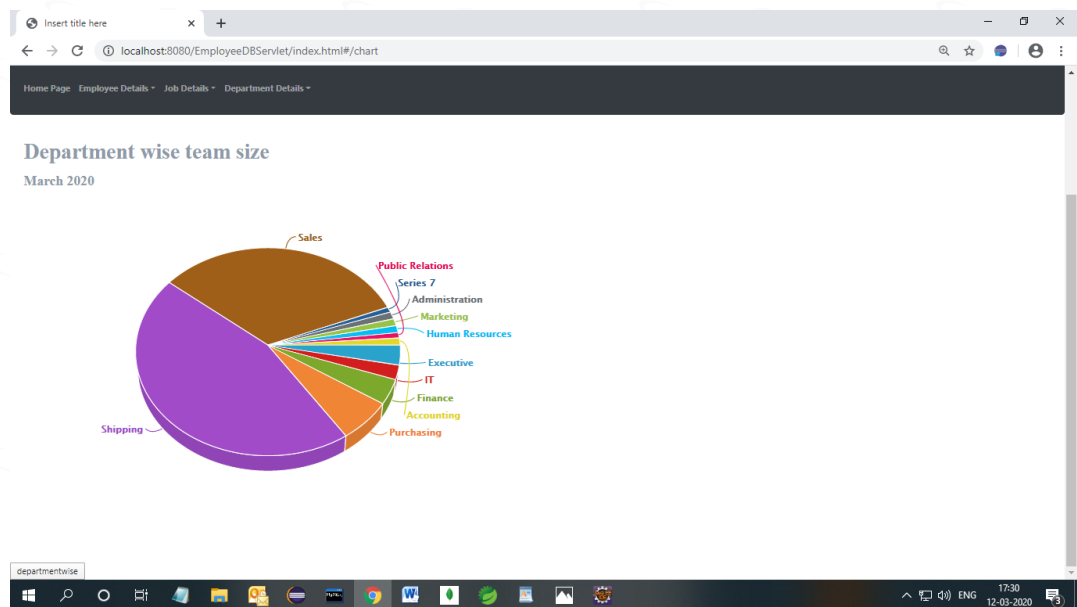
Department Id:	<input type="text" value="60"/>
Name:	<input type="text" value="IT"/>
Manager ID:	<input type="text" value="103"/>
Location ID:	<input type="text" value="1400"/>

Below the form are two buttons: 'update' and 'reset'. The browser's address bar shows the URL 'localhost:8080/EmployeeDBServlet/index.html#/updateDept'. The Windows taskbar at the bottom shows the system time as 17:53 on 12-03-2020.

Analysis of employee data can be done using employee chart menu



Department wise team analysis can be done using following chart.





Note: Detailed source code can be shared upon request.