

KEM Data Archival Web Portal

**Summer Internship
at C-DAC, Pune**



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1. Overview:

This project is intended towards the development of data archival web portal for the King Edward Memorial Hospital, Pune, India. This documentation aims to demonstrate insights of the works and implementation in this regards.

Diabetic Unit at KEM Hospital carries out lot of research studies which involve collaborations internationally. The studies generate lot of documents and clinical data. The data management becomes a challenge when it needs to be stored and shared for access across continents. The proposed web portal prototype aims to address this challenge by providing an easy-to-use web portal for data archival.

2. Proposed Solution along with Architecture

Objective of this project to develop software where there are two interfaces for the users.

- **Admin's interface:** Admin is a person who will handle the entire portal. For that person has to give the username and password to enter the admin page. After entering right password admin person can enter the admin home area.

Admin can specifically perform following actions:

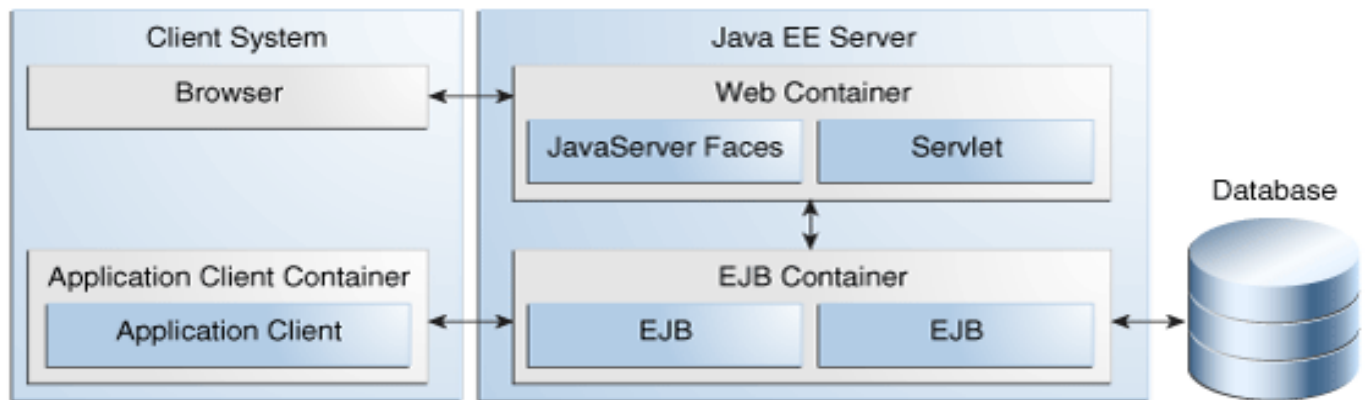
- ❖ Create new users.
- ❖ Change password of users.
- ❖ Create new projects.

- **User's interface:** Only registered user can login from the login module. Based on their roles they will enter to their page and can access the projects in which they have right to access.

There are three types of roles defined for the users in our project.

- ❖ **Master:** Master can create and delete folders in the project created by admin. Master can also upload, download and delete files.
- ❖ **Lab Technician:** Lab technician can upload and download files from the folders created by master.
- ❖ **Guest:** Guest users can download files only.

Architecture:



3. Implementation Details

3.1 Technology Used

- a) **Java Server Faces (JSF 2.2):** Java Server Faces (JSF) is a new standard. Java framework for building Web applications. JSF ensures that applications are well designed with greater maintainability by integrating the well-established Model-View-Controller (MVC) design pattern into its architecture. JSF is often used together with Ajax, a Rich Internet application technology. Ajax is a combination of technologies that make it possible to create rich user interfaces.
- b) **PrimeFaces 5.3** - PrimeFaces is open source User Interface (UI) component library for Java Server Faces (JSF) based applications.
- c) **OmniFaces 2.3** - OmniFaces is an open source utility library for the Java Server Faces 2 framework. Its aim is to make JSF life easier by providing set of artifacts meant to improve the functionality of the JSF framework.
- d) **Java Persistence API (JPA 2.1)** - The Java Persistence API (JPA) is a Java application programming interface specification that describes the management of relational data in applications using Java Platform.
- e) **Apache Shiro 1.2.5** - Apache Shiro is an open source software security framework that performs authentication, authorization, cryptography and session management.

- f) **Apache Maven** - Maven is a build automation tool used primarily for Java projects. Maven addresses two aspects of building software: first, it describes how software is built, and second, it describes its dependencies.
- g) **Bootstrap**: Bootstrap is a free and open-source front-end web framework for designing websites and web applications.
- h) **Java EE web API 7.0**
- i) **JDK 1.8**
- j) **MySQL**


3.2 Database Structure

There are four tables in our database.

1. **User**: In user's table, all the records of registered users are saved. There is one column "ROLE" where the user's role is stored. User's account password is stored in the "PASSWORD" column using SHA-256 encryption method.
2. **ProjectList**: In this table, details of the project created by admin are stored with creation date and project id.
3. **FileDetails**: This table is for the security purpose where instead of giving the downloading file path, file is stored with some random id in this table. Corresponding file id is sent as URL instead of absolute path.
4. **AccessMap**: Here in this table all the projects are mapped to the users. The column "PROJECTROLE" stores respective roles of the users to the corresponding project.


4. Snapshots

4.1 Home Page for Admin


anupam

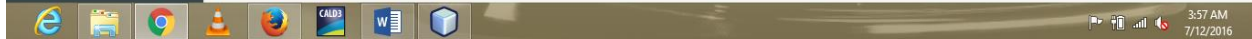
- Home
- New User
- Admin Pwd Change
- Upload File
- Download File
- New Project
- Help

Welcome to KEM Hospital




The KEM Hospital, Pune, India, is the largest Non-Govt. Organization hospital in the Pune District of Maharashtra State.

[>](#)




4.2 Home Page for User


ramki

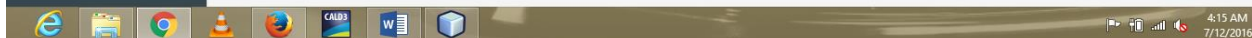
- Home
- Upload File
- Download File
- Help

Welcome to KEM Hospital



The KEM Hospital, Pune, India, is the largest Non-Govt. Organization hospital in the Pune District of Maharashtra State.

[>](#)




4.3 Upload page for Admin

The screenshot shows the 'File Upload' interface for an Admin user. The page title is 'Welcome to KEM Hospital'. On the left is a dark sidebar with the user profile 'anupam' and a list of menu items: Home, New User, Admin Pwd Change, Upload File, Download File, New Project, and Help. The main content area is titled 'File Upload' and 'Projects'. It displays a tree view of projects: p1 (ADMIN) containing p11, p2 (ADMIN) containing p21, and p3 (ADMIN) containing p31. The 'p11' project is selected and highlighted in blue. Below the tree view are buttons for '+ Choose', 'Upload', and 'Cancel'. At the bottom of the main area are buttons for 'New Folder' and 'Delete'. The Windows taskbar at the bottom shows various application icons and the system clock indicating 4:23 AM on 7/12/2016.

4.4 Download Page for Admin

The screenshot shows the 'File Download' interface for an Admin user. The page title is 'Welcome to KEM Hospital'. The sidebar is identical to the previous screenshot. The main content area is titled 'File Download' and 'Name'. It displays a tree view of files: p1 (ADMIN) containing p11 (InterAppl.pdf), p2 (ADMIN) containing p21 (1301011.pdf), and p3 (ADMIN) containing p31 (anupam_rai.pdf). The 'anupam_rai.pdf' file is selected and highlighted in blue. Below the tree view are buttons for 'Download' and 'Delete'. The Windows taskbar at the bottom shows various application icons and the system clock indicating 4:25 AM on 7/12/2016.

4.5 Upload Page for Users


ramki

Home

Upload File

Download File

Help

Welcome to KEM Hospital

File Upload

Projects

▼ p2 (LAB)


p21

▶ p3 (MASTER)

+ Choose


Upload

Cancel



4:26 AM
7/12/2016

4.6 Download page for user


ramki

Home

Upload File

Download File

Help

Welcome to KEM Hospital

File Download

Name

▼ p1 (GUEST)

▼ p11

InterAppl.pdf

▼ p2 (LAB)

▼ p21


1301011.pdf

▼ p3 (MASTER)

▼ p31

anupam_rai.pdf

Download



4:27 AM
7/12/2016

5. Acknowledgement

Simply put, I could not have done this work without the lots of help I received cheerfully from whole C-DAC. The work culture in C-DAC really motivates. People are very helpful here. Everybody is such a friendly and cheerful companion here that work stress never comes in way. I am also highly indebted to my supervisor Mrs. Rashmi Mahajan who seemed to have solutions to all my problems. I would specially like to thank Mr. Rama Krishnnan for proving the nice ideas to work upon. Not only they advised about my project but also promoted me to discuss on it and gave adequate time to familiarize myself to it. Meetings and discussions with them have evoked a good interest in the project idea

I also express my gratitude to Mr. Prasad Wadlakondwar, Mr. Abhishek Das, Mrs. Shweta Das and others for their help and support at C-DAC. C-DAC being my first interface to professionalism, has helped me learn qualities and discipline of it.

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