KEM Data Archival Web Portal

Summer Internship

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INDEX

1. Overview..... 03

2. Proposed Solution along with Architecture..... 03

3. Implementation Details

    3.1 Technology Used..... 04

    3.2 Database Structure..... 05

4. Snapshots..... 06

5. Acknowledgement..... 09

1. Overview:

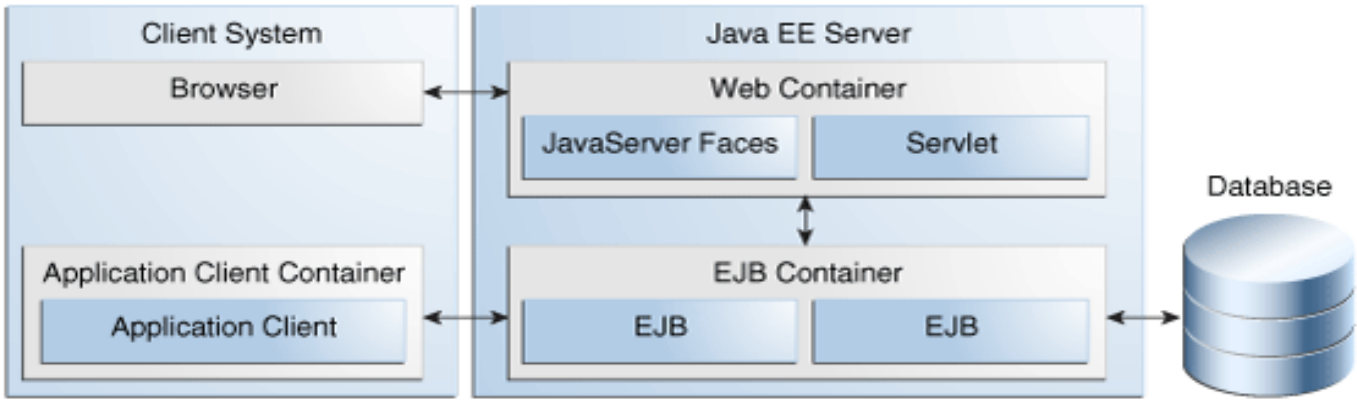
This project is intended towards the development of data archival web portal for the King Edward Memorial Hospital, Pune, India. This documentation aims to demonstrate insights of the works and implementation in this regards.
Diabetic Unit at KEM Hospital carries out lot of research studies which involve 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.

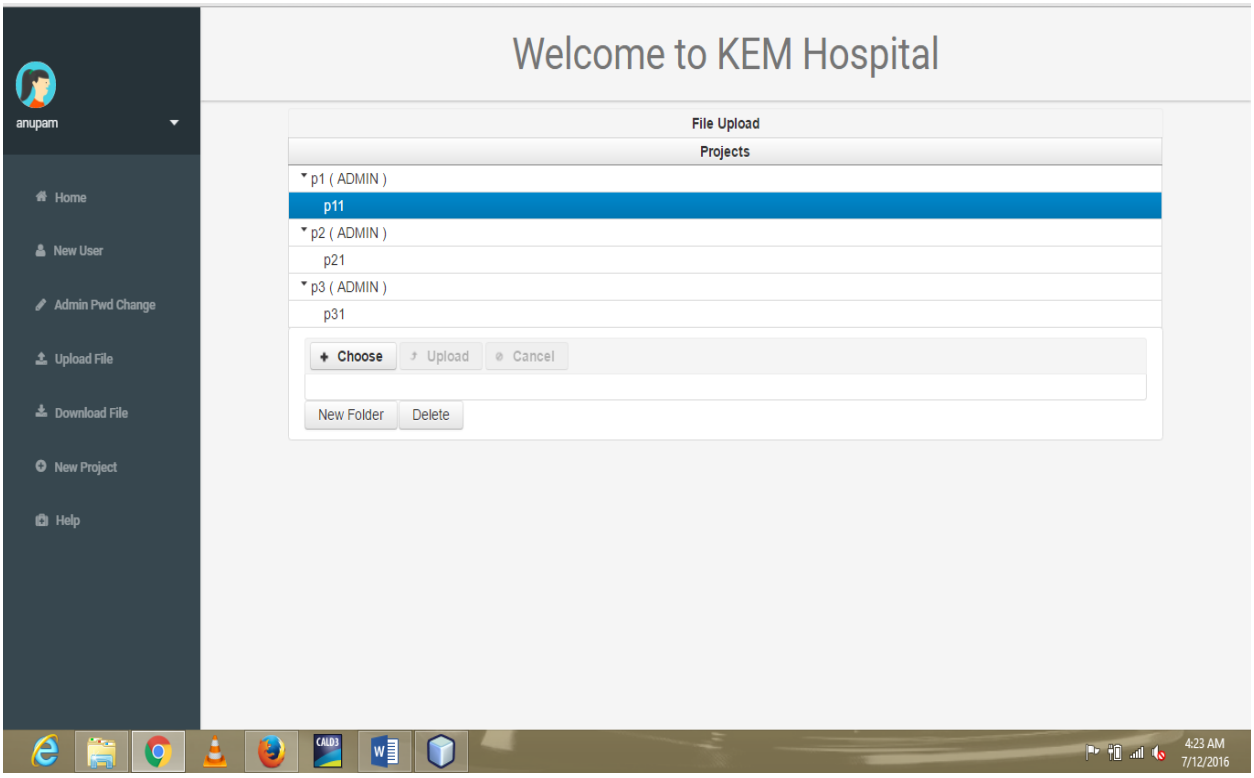
4. **AccessMap:** Here in this table all the projects are mapped to the users. The column "PROJECTROLE" stores respective roles of the users to the corresponding project.

4. Snapshots

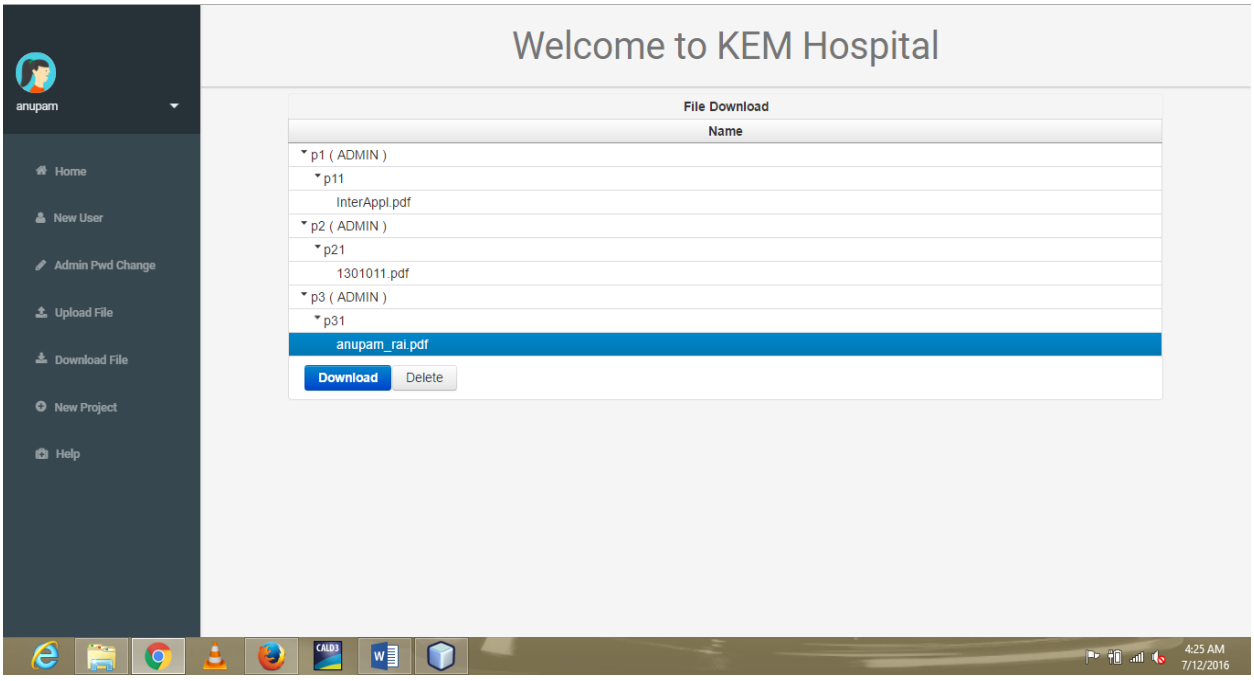
4.1 Home Page for Admin

4.2 Home Page for User

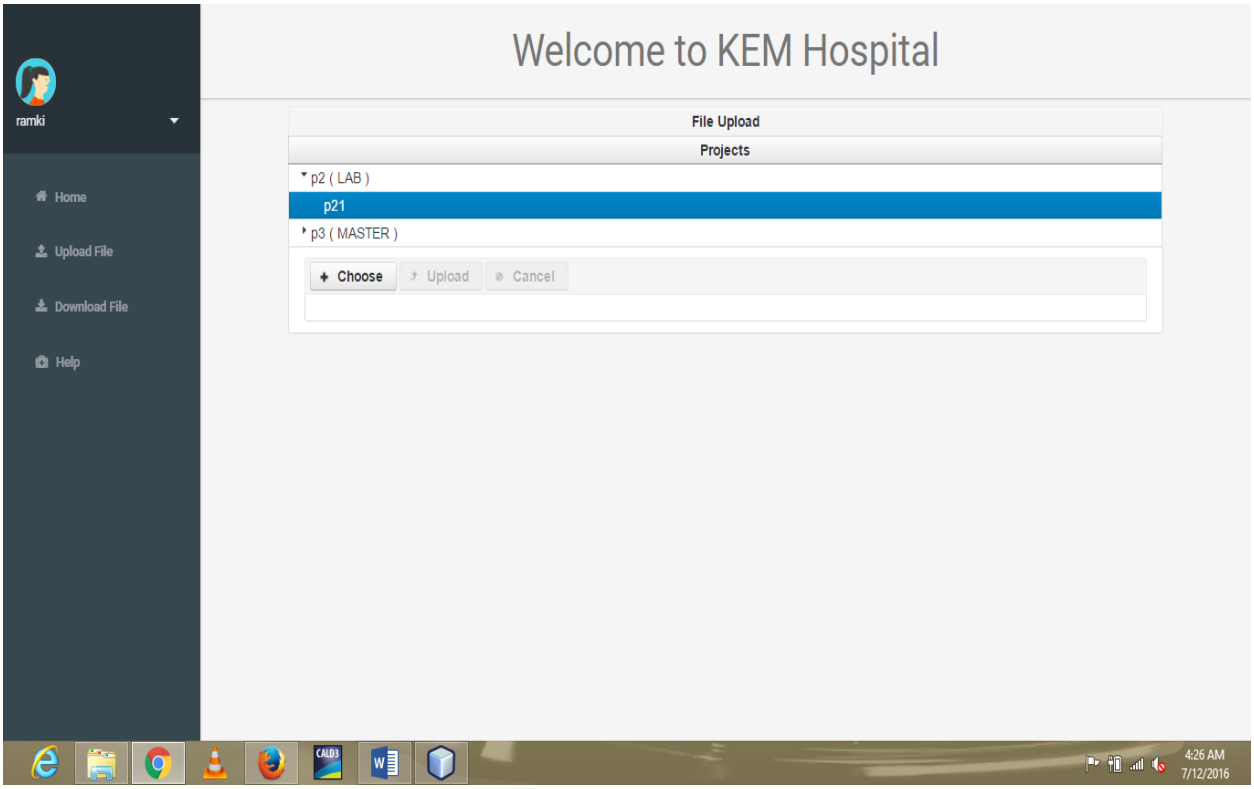
4.3 Upload page for Admin



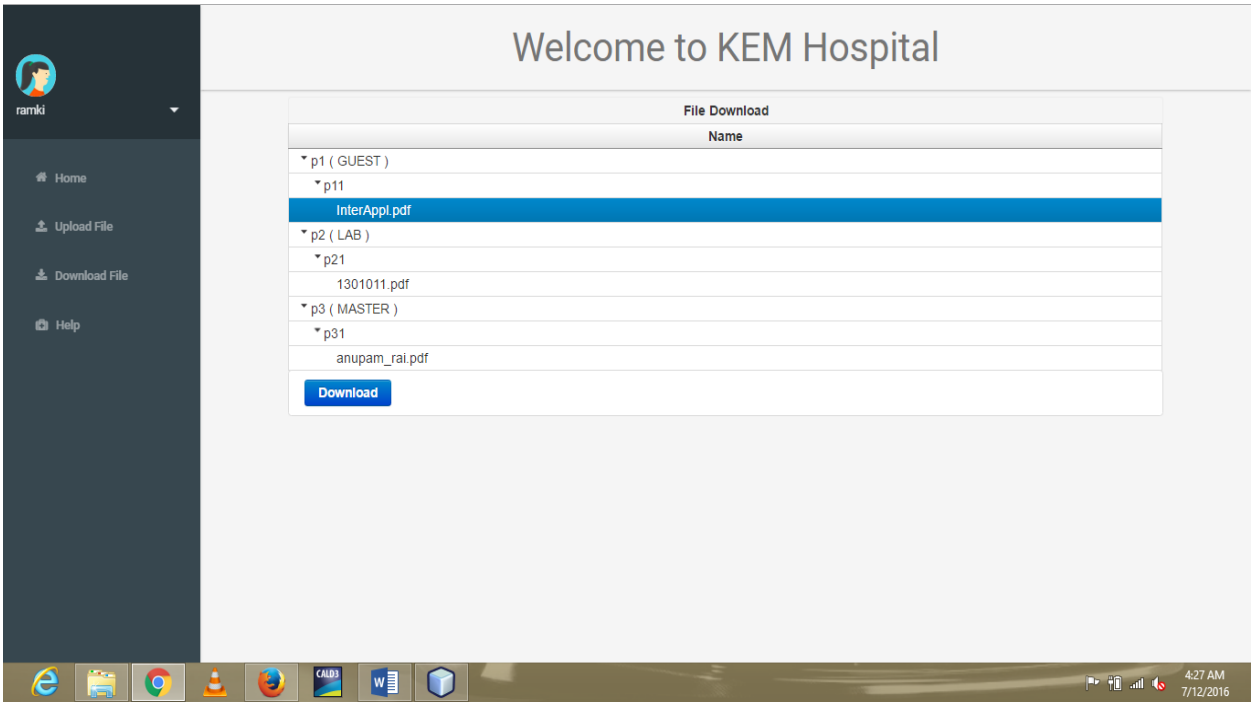
4.4 Download Page for Admin



4.5 Upload Page for Users



4.6 Download page for user



5. Acknowledgement

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