

**A REPORT
ON
DIGITALIZATION OF RECOVERY CERTIFICATE
(RC)
BY**

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<i>Sarthak Chowdhury</i>	<i>2017B5AA0909H</i>

AT



Board of Revenue, Govt. of UP- Lucknow

A Practice School-I station of



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<i>Jai Arora</i>	<i>2017B1A30876H</i>	<i>Biological Science and Electrical</i>
<i>Kirti Vatsal Mishra</i>	<i>2017B4AA0995H</i>	<i>Mathematics and Electronics.</i>
<i>Sarthak Chowdhury</i>	<i>2017B5AA0909H</i>	<i>Physics and Electronics.</i>

Prepared in partial fulfilment of the

Practice School-I Course

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BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE
PILANI (RAJASTHAN)
Practice School Division

Station(s): *_Board OF Revenue-UP GOvt.* Centre: *Lucknow*

Duration: From: *21/05/2019* To: *12/07/2019*

Date of Submission: *13/06/2019*

Title of the Project: **DIGITALIZATION OF RECOVERY CERTIFICATE (RC)**

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Key Words: *SQL, HTML CSS*

Project Area(s): *web development and database management*

Abstract:

BOARD OF REVENUE, UP GOVERNMENT is one of the biggest organizations in UP dealing with land records and delivering efficient services for the benefit of people. The organization has a vast record of data and documents stored in a digitised manner. The purpose of our project is digitisation of defaulted land records. It provides all information with regard to the status, condition and situation of the land. The database here is linked with other government records as well, hence providing a complete overview of the same.

Signature(s) of Student(s)

Signature of PS Faculty

Note:

- 1. Title of the project in this proforma should be the same as that on the cover page and title page.*
- 2. Abstract should briefly describe the information given in the report in about 200 words.*
- 3. It is essential for both the students and faculty to sign the abstract sheet.*



BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

JUNE 2019

ACKNOWLEDGEMENTS

Our group would like to extend its sincere gratitude to all those who made it possible for us to become an intern at BOARD OF REVENUE. It being a renowned and well recognized organization gives us great pride and honour to work for them.

We will like to thank Mr.Pravir Kumar (IAS) who is the chairperson of the organization for granting us this opportunity to work with BOARD OF REVENUE.The fact that he gave us work from the current ongoing tasks of the organisation is really overwhelming.

We will also like to thank Mr.Rajesh Tripathi (technical team head) who is also the coordinator for us. Notwithstanding the fact that he has an overload of work he has been constant in his effort to make us understand

technical terms as well as the basic workings of the organization.We will be forever indebted to you.

We also want to thank Mr.Ankit Tiwari, who has contributed a lot in helping us with installing and understanding of the basic concepts of various softwares like Netbeans, SQL etc. He took an extra effort in ensuring that we get used to these softwares as early as possible.

Lastly we also want to thank our instructors from BITS, Mr.Ashish Tiwari and Mrs.Taru. Both of them have been a constant support for us.The way they regularly keep on checking with the progress made with the respective projects, ensures that there is no slag from either us or the organization.

We also thank everyone else who has been associated with this project in any way. This project is a milestone in each of our careers and we are obliged and humbled to be a part of this.

TABLE OF CONTENTS

Sr. No.	TOPIC	Page No.
1.	INTRODUCTION	8
2.	Technical Difficulties and website functioning	10
3.	TECHNIQUES USED	11
4.	CODE SNIPPETS	15
5.	REFERENCES USED	18
6.	FINAL STEPS	19
7.	CONCLUSIONS	19

INTRODUCTION

BOARD OF REVENUE is a government organization that deals with everything related to land purchases, sales, information etc. The organization which started in Allahabad in 1831, is now headquartered at Lucknow. The organization has a vast plethora of database, with every piece of land in Uttar Pradesh registered. Not only that, it also has linked its database with other government institutions. Each land has been given a unique code by virtue of which you can have all the required information you need. The type of soil, crops grown in all 3 seasons, court cases (if any), dates of the proceedings, map of the land etc are just some of the terms regarding which information is available on the website.

We were presented with 4 available projects: RC, GIS, R6 and Kisan bima. This report deals with the work done in RC project.

RC- Recovery Certificates basically refers to the land deals that are in some or the other problem. This may include errors incurred during the land deal, loan defaulted, mortgage problems etc. This project also deals with the digitization of land records using softwares like Java, Netbeans with apache/glassfish etc. To get used to with the workings of these aforementioned softwares we were given the task to create a university portal form, which takes 5-6 entries and has a database stored in SQL.



राजस्व परिषद, उत्तर प्रदेश
वसूली प्रमाण पत्रों की प्रबंधन प्रणाली -2015
(विविध देयों हेतु)



- आवेदन सूची

आर0 सी0 संख्या द्वारा सूचना

महत्वपूर्ण लिंक

- ➔ राजस्व परिषद
- ➔ ई डिस्ट्रिक्ट
- ➔ उ.प्र. सरकार
- ➔ यू0 पी0 ऑनलाइन
- ➔ एस0एस0डी0जी0
- ➔ तहसील दिवस
- ➔ उ.प्र. सरकार
- ➔ सूचना का अधिकार



- हमारे बारे में

वसूली प्रमाण पत्रों योजना कंप्यूटरीकृत प्रबंधन प्रणाली-2015

लॉग इन

- ➔ राजस्व परिषद
- ➔ जनपद
- ➔ तहसील
- ➔ व्यापार कर विभाग

विभागीय लॉगिन

Developed By: Board of Revenue, Lucknow

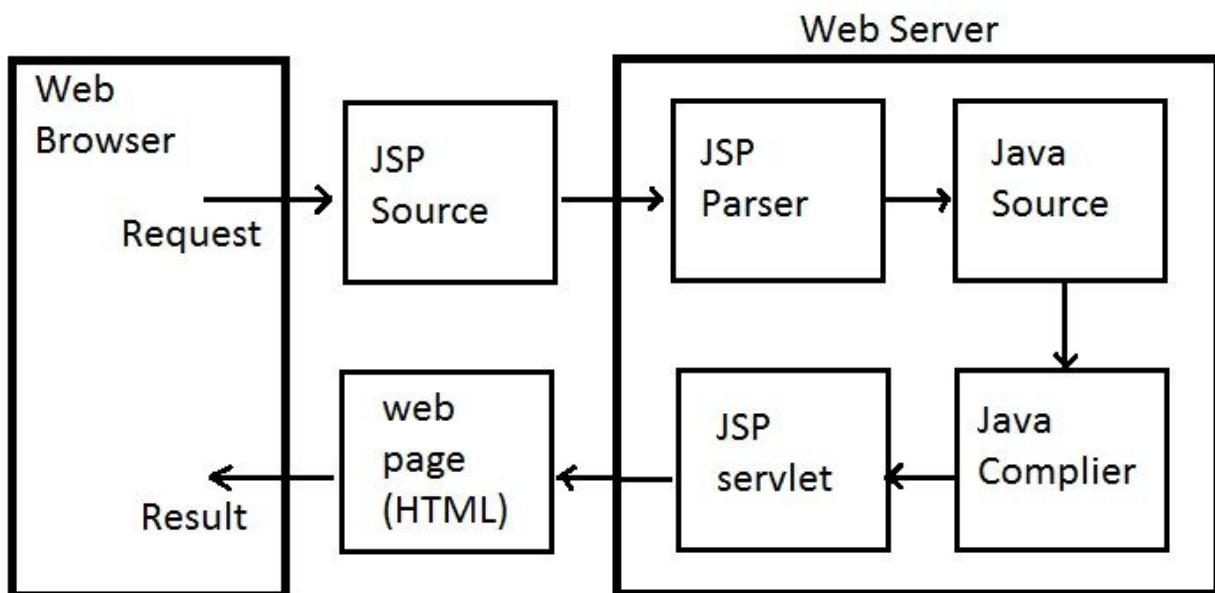
This is how the current page of RC looks like on the official page of BOARD OF REVENUE.

This report gives an overview of the steps and procedure followed in the making of this form, using front-end and back-end coding using html and java respectively. It also explains various softwares used in a detailed manner.

Technical difficulties and Website Functioning

The registration page we are trying to create uses Java Web Application concepts (JSPs and Servlets). A sound knowledge of Object Oriented Programming was essential for building the required JSP files and linking them to the database. Here we used PostgreSQL for our database management. Technical difficulties were there on multiple occasions, which includes lack of structured course material, which we managed to get hands on via different websites on google.

On the form page created, there are various fields to input data like - Name, ID, College Name, etc. Two options are provided on the top right corner, either to insert new entry or to retrieve data regarding existing entries stored in the database, each pointing to a different page with a different jsp file.



A connection class connects the database with the required jsp files. The connection function of this class is called in the subsequent data entry java files (OOPs Concept). A query is then generated, to retrieve data from the website and store it in the postgresql server database using the connection function. Similarly, for retrieving data, another query is generated, which searches the database for the keywords provided and returns required data on user request, just like the Registration/Login Portal on the BOR website.

Hence this can be used in the RC project as well, wherein databases can be searched and recovery generated through web portal.

Techniques Used

Our registration page was primarily made using the following softwares -

- **NetBeans**- An Integrated Development Environment for Java
- **PostgreSQL**- An Object Relational Database Management System
- **Oracle GlassFish** - A Server Project
- **Cascading Style Sheets** - To format the layout of Web Pages

NetBeans was our IDE (Integrated Development Environment) for creating the Servlet API and JSP (Java Server Pages) files that is designed to fulfill the role of a user interface for a Java web application. We used the servlets to add dynamic functionality to our form. By dynamic functionality what we mean is that the page may change with the user that accesses our registration page, or the type of user interaction. NetBeans

provides a large number of plugins for creating Java web applications which makes it the ideal choice for IDE. Also the Struts framework available inside NetBeans makes our development all the more simpler.



PostgreSql- For database management we used PostgreSql. It acts as an interface between our registration page and the database. The JSP files created in NetBeans are linked to PostGreSql.. The programming involved to establish this connection involved four steps-

Import JDBC(Java Database Connection) Packages: Add import statements to your Java program to import required classes in your Java code.

Register JDBC Driver: This step causes the JVM to load the desired driver implementation into memory so it can fulfill your JDBC requests.

Database URL Formulation: This is to create a properly formatted address that points to the database to which you wish to connect.

Create Connection Object: Finally, code a call to the DriverManager object's getConnection() method to establish actual database connection.

After this linking has been done we can use Postgres to extract, append or delete data from our database via query. This needed basic programming knowledge like, generating a query, data filtering, table joining e.t.c.



Oracle GlassFish Server- Oracle GlassFish Server is the reference implementation of Java Enterprise Edition(Java EE).

Oracle GlassFish Server delivers a flexible, lightweight, and production-ready Java EE 6 application server.

It supports EnterpriseJavaBeans,JPA,etc and mainly JavaServer Pages and servlets which we use in our project.

This allows developers to create enterprise applications that are portable and scalable and that integrate with legacy technologies. Optional components can also be installed for additional services.

We use this over Apache Tomcat because it is merely a HTTP server and Java servlet container whereas GlassFish is full-blown Java-EE application server. GlassFish has a heavier memory footprint compared to Tomcat.



Cascading Style Sheets- CSS is a language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers.

However CSS is independent of HTML and can be used with any other XML - based markup language.

Here in our project, the XML-based markup language we are using is JSP. We can consider JSP page as an advanced HTML along with features of java. So we can use CSS the same way as we do it in HTML by using it inline or inside the page or link an external CSS file to the page.



Some Code Snippets for “find” Algorithm

```
<%@page import = "java.sql.*" %>
<% Class.forName("com.mysql.jdbc.Driver"); %>
<%@page contentType="text/html" pageEncoding="UTF-8"%>

<%!
class Database{

    public String[] find(String college_id) {

        String url = "jdbc:postgresql://localhost:5432/postgres";
        Connection con;

        String[] result = new String[6];
        ResultSet rs = null;
        String sqlstr1 = "select * from nameid, student_info where nameid.id = " + college_id +
        "" AND student_info.id = " + college_id + ",";

        try {
            Class.forName("org.postgresql.Driver");
        }
        catch(java.lang.ClassNotFoundException e) {
            System.err.print("ClassNotFoundException: ");
            System.err.println(e.getMessage());
        }

        try {
            con = DriverManager.getConnection(url,"postgres", "postgres");

            Statement st1 = con.createStatement();
            rs = st1.executeQuery(sqlstr1);

            while(rs.next()) {
```

```

        result[0] = rs.getString(1);
        result[1] = rs.getString(2);
        result[2] = rs.getString(3);
        result[3] = rs.getString(4);
        result[4] = rs.getString(5);
        result[5] = rs.getString(6);
    }

    st1.close();
    con.commit();
    con.close();
    return result;
}

catch(SQLException ex) {
    System.err.println("SQLException: " + ex.getMessage());
}

return result;
}
}

%>

```

Board of Revenue

[Home](#)
[Insert](#)
[Retrieve](#)

Add Data

Retrieve Data!

Result

Name:	Vatsal
ID:	B4AA
College Name:	BITS
Gender:	Male
Degree:	Mathematics

Here are a few images to showcase the workings of the web form. It takes in 5 entries from the user, and displays the stored data when prompted to do so, by entering the ID Number of the specified student.

References Used :

- **This gives an overview of the code to follow**
<https://stackoverflow.com/questions/51067322/login-registration-form-with-eclipse-ee-and-postgresql>
- Helps with the concepts of JSP
<https://www.javatpoint.com/jsp-tutorial>
- Understanding of how PostgreSQL works
<https://www.tutorialspoint.com/postgresql/>
- Understanding Java Web Applications
<https://medium.com/@kasunpdh/sample-java-web-application-using-servlets-and-jsp-5621cad2f582>

FINAL STEPS

1. We have to create several web pages and a navigation menu bar which will contain links to other web pages and forms.
2. We will also be required to create more web forms using java backend and html css frontend. Linking this with the database on sql has also to be carried out. These webforms should at the end be able to cater to the needs of the organization.
3. These webpages will have to be styled using CSS.

CONCLUSIONS

The project of RC was undertaken by us and we have been working on it since the last 3 weeks. In this period we came to know about a lot of jargons related to land records. We worked together in a team and came to know how a government organization actually works. We became acquainted with new softwares like Netbeans and SQL which increased our technical knowledge. We learned to create a university portal form which helped us in becoming familiar to these softwares.

We look further to provide our inputs in the project of RC undertaken by us so that the organization is benefited by our new ideas and we can further help them in the digitization of the land records as we have successfully completed the task assigned to us by our coordinators.