

DBMS PROJECT→

MADE BY --> 1. Mohammad Maksood(202401100600113)

2.Parth Pathak(202401100600125)

Github Repo Link (of this Project)→ [parth1234560/dbms_oracle_end_sem](https://github.com/parth1234560/dbms_oracle_end_sem)

1. Frontend→

The image shows two screenshots of a web application interface. The top screenshot displays the homepage of the 'College Management System' with a dark blue header. It features a central white box containing the system's name and several navigation buttons labeled 'Department', 'Student', 'Course', 'Faculty', 'Enrollment', 'Examination', and 'Exam Report'. Below this is a copyright notice: '© College Management System'. The bottom screenshot shows a 'Department Management' page. It includes a 'Home' button, a success message 'Department deleted successfully!', and two input fields for 'Department ID' and 'Department Name'. Below these are 'Add' and 'Update' buttons. A table lists four departments with columns for 'ID', 'Name', and 'Delete' (with a link). The table data is as follows:

ID	Name	Delete
1	bcae	Delete
2	Information Technology	Delete
3	Electronics	Delete
4	Mechanical	Delete

localhost:65001/mypp_app/jsp/course.jsp

Summarize | | | | | | Chat

Course

[Home](#)

ID

Name

[Add](#)

[Update](#)

ID	Name	Delete
101	DBMS	Delete
102	Operating Systems	Delete
103	Data Structures	Delete

localhost:65001/mypp_app/jsp/faculty.jsp

Faculty

[Home](#)

Faculty ID

Name

Department ID

Course ID

[Add Faculty](#)

localhost:65001/mypp_app/jsp/enrollment.jsp

Enrollment

Home

Enroll ID

Student ID

Course ID

Enroll

ID	Student	Course	Delete
5001	1	101	Delete
5002	2	101	Delete
5003	3	102	Delete

localhost:65001/mypp_app/jsp/examination.jsp

Examination

Home

Exam ID

Marks

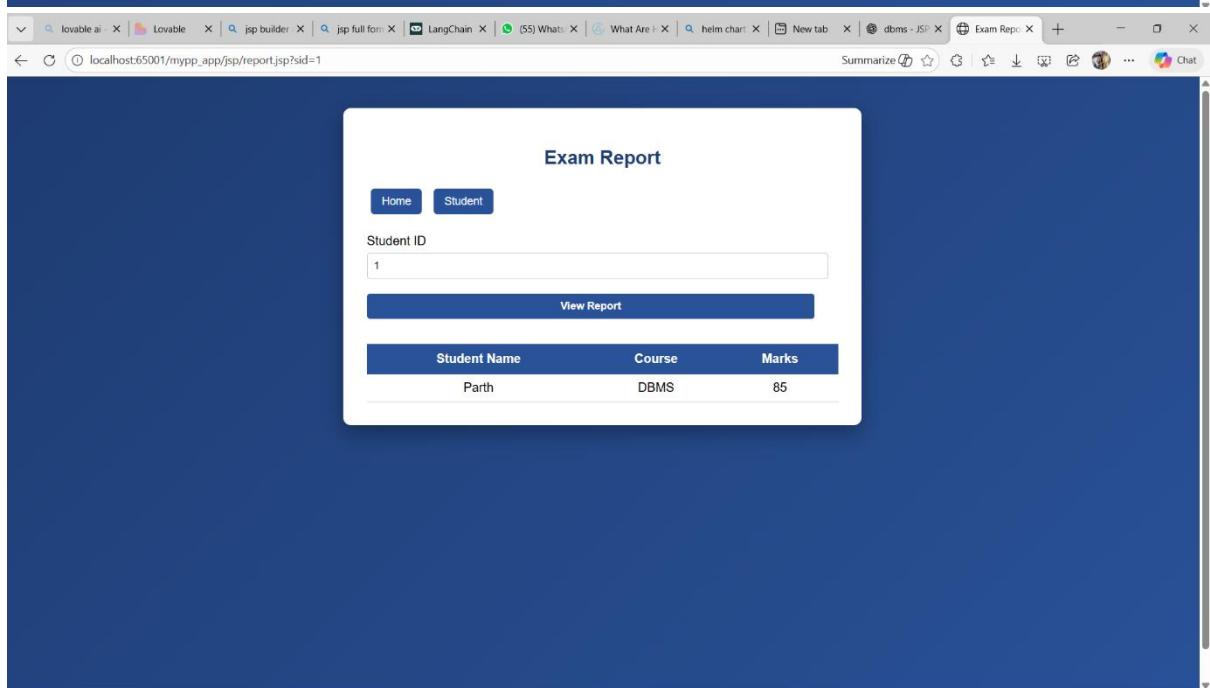
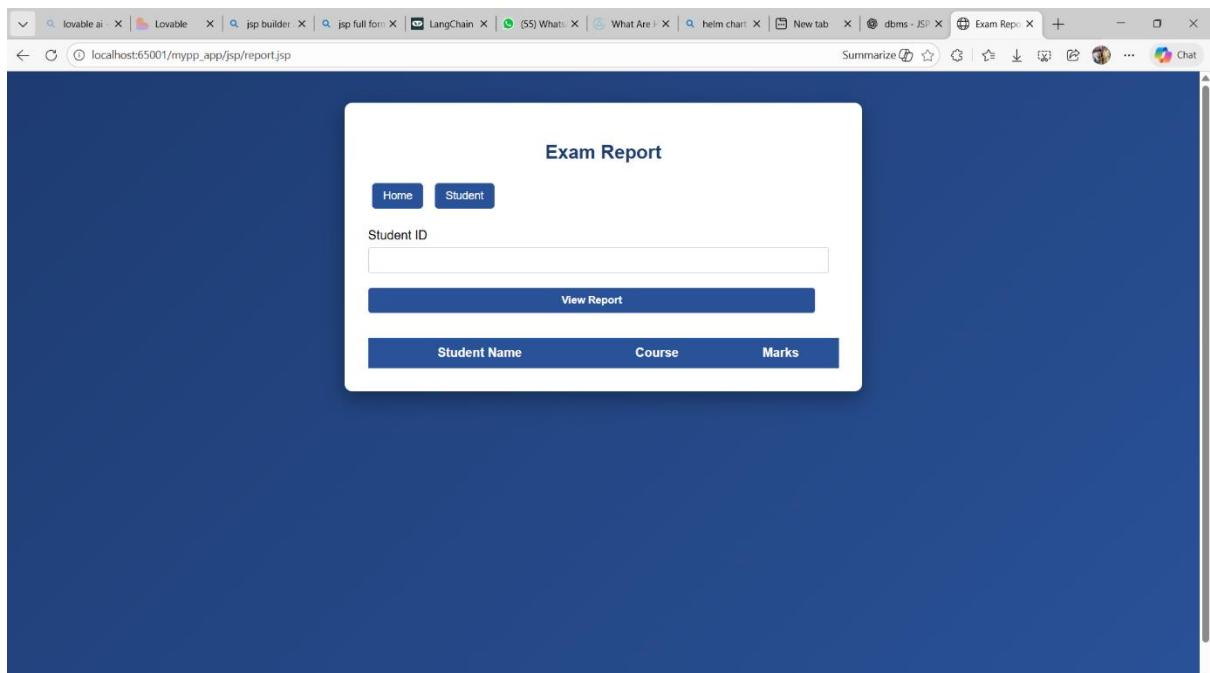
Course ID

Student ID

Add

Update

ID	Marks	Delete
9001	85	Delete
9002	78	Delete
9003	89	Delete



Frontend Code→

eclipse-workspace - dbms_grand_final/src/main/webapp/jsp/style.css - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer X

> collage_management

> dbms_grand_final

> JRE System Library [JavaSE-21]

> src/main/java

> Server Runtime [Apache Tomcat v10.1]

> Web App Libraries

> build

> src

> main

> webapp

> jsp

> course.jsp

> dbjsp

> department.jsp

> enrollment.jsp

> examination.jsp

> faculty.jsp

> index.jsp

> report.jsp

> student.jsp

> style.css

> META-INF

> WEB-INF

> ese

> java-db

> java-kiet-all-programs

> JavaLibManager-main

> KIET_MSE_1

> kiet-class-work

> kunal

> library_final

> library_management

> masood

> mse2

> mypp

> JRE System Library [JavaSE-21]

examination.jsp enrollment.jsp index.jsp faculty.jsp dbjsp department.jsp db.jsp report.jsp student.jsp

```
1<body>
2   margin: 0;
3   padding: 0;
4   font-family: Arial, Helvetica, sans-serif;
5   background: linear-gradient(135deg, #1e3c72, #2a5298);
6   min-height: 100vh;
7 }
8
9 /* Main white card */
10 .container {
11   background: #fffffe;
12   width: 600px;
13   margin: 40px auto;
14   padding: 30px;
15   border-radius: 10px;
16   box-shadow: 0 10px 25px #rgba(0,0,0,.3);
17 }
18
19 /* Page heading */
20 h2, h3 {
21   text-align: center;
22   color: #1e3c72;
23 }
24
25 /* Navigation links */
26 .nav a {
27   display: inline-block;
28   text-decoration: none;
29   background: #2a5298;
30   color: #fff;
31   padding: 8px 14px;
32   margin: 5px;
33   border-radius: 5px;
34   font-size: 14px;
35 }
36
37 .nav a:hover {
38   background: #1e3c72;
39 }
40
41 /* Forms */
42 form {
43   margin-top: 20px;
44 }
45
46 input, select {
47   width: 85%;
48   padding: 8px;
49   margin: 6px 0 12px 0;
50   border-radius: 4px;
51   border: 1px solid #ccc;
52 }
53
54 /* Buttons */
55 input[type="submit"] {
56   background: #2a5298;
57   color: #fff;
58   border: none;
59   cursor: pointer;
60   font-weight: bold;
61 }
```

Backend Code →

eclipse-workspace - dbms_grand_final/src/main/webapp/jsp/index.jsp - Eclipse IDE

```

<!DOCTYPE html>
<html>
<head>
<title>College Management</title>
<link rel="stylesheet" href="style.css">
</head>
<body>
<div class="container">
<h2>College Management System</h2>
<div class="nav">
<a href="department.jsp">Department</a>
<a href="student.jsp">Student</a>
<a href="course.jsp">Course</a>
<a href="faculty.jsp">Faculty</a>
<a href="enrollment.jsp">Enrollment</a>
<a href="examination.jsp">Examination</a>
<a href="report.jsp">Exam Report</a>
</div>
<div class="footer">
    © College Management System
</div>
</body>
</html>

```

eclipse-workspace - dbms_grand_final/src/main/webapp/jsp/db.jsp - Eclipse IDE

```

<%@ page import="java.sql.*" %>
Connection con = null;
try {
    Class.forName("oracle.jdbc.driver.OracleDriver");
    con = DriverManager.getConnection(
        "jdbc:oracle:thin:@localhost:1521:XE",
        "parth",
        "Parth@123"
    );
} catch (Exception e) {
    out.println("<p style='color:red'>Database connection failed</p>");
}

```

eclipse-workspace - dbms_grand_final/src/main/webapp/jsp/department.jsp - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

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- dbms_grand_final
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- src
 - main
 - webapp
 - jsp
 - course.jsp
 - db.jsp
 - department.jsp**
 - enrollment.jsp
 - examination.jsp
 - faculty.jsp
 - index.jsp
 - report.jsp
 - student.jsp
 - style.css
 - META-INF
 - WEB-INF
- ese
- java-db
- java-kiet-all-programs
- javLibManager-main
- KIET_MSE_I
- kiet-class-work
- kunal
- library_final
- library_management
- mاسود
- mse2
- mypp
 - JRE System Library [JavaSE-21]
 - src/main/java

eclipse-workspace - dbms_grand_final/src/main/webapp/jsp/examination.jsp - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer examination.jsp enrollment.jsp index.jsp faculty.jsp db.jsp department.jsp db.jsp report.jsp student.jsp *style.css

1 **examination.jsp** include file="db.jsp" 3 4 if(request.getParameter("add")!=null){ 5 PreparedStatement ps=con.prepareStatement(6 "INSERT INTO Examination VALUES (?, ?, ?, ?)"); 7 ps.setInt(1, Integer.parseInt(request.getParameter("eid"))); 8 ps.setInt(2, Integer.parseInt(request.getParameter("marks"))); 9 ps.setInt(3, Integer.parseInt(request.getParameter("dept"))); 10 ps.setInt(4, Integer.parseInt(request.getParameter("cid"))); 11 ps.executeUpdate(); 12 } 13 14 if(request.getParameter("del")!=null){ 15 PreparedStatement pscon=con.prepareStatement(16 "DELETE FROM Examination WHERE Exam_ID=?"); 17 ps.setInt(1, Integer.parseInt(request.getParameter("del"))); 18 ps.executeUpdate(); 19 } 20 21 if(request.getParameter("update")!=null){ 22 PreparedStatement pscon=con.prepareStatement(23 "UPDATE Examination SET Marks=? WHERE Exam_ID=?"); 24 ps.setInt(1, Integer.parseInt(request.getParameter("marks"))); 25 ps.setInt(2, Integer.parseInt(request.getParameter("eid"))); 26 ps.executeUpdate(); 27 } 28 29 30 <!DOCTYPE html> 31 <html> 32 <head> 33 <title>Examination</title> 34 <link rel="stylesheet" href="style.css"> 35 </head> 36 <body> 37 38 <div class="container"> 39 <div>Examination</div> 40 <div class="nav">Home</div> 41 </div> 42 <form> 43 Exam ID <input name="eid"> 44 Marks <input name="marks"> 45 Course ID <input name="dept"> 46 Student ID <input name="cid"> 47 48 <input type="submit" name="add" value="Add"> 49 <input type="submit" name="update" value="Update"> 50 </form> 51 52 <table> 53 <tr><td>ID</td><td>Marks</td><td>Delete</td></tr> 54 <tbody> 55 ResultSet rs=con.createStatement() 56 .executeQuery("SELECT * FROM Examination"); 57 while(rs.next()){ 58 <tr> 59 <td> 60 <td>rs.getInt(1)</td> 61 </tr> 62 } 63 </tbody> 64 </table>

examination.jsp - dbms_grand_final/src/main/webapp/jsp

eclipse-workspace - dbms_grand_final/src/main/webapp/jsp/faculty.jsp - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer examination.jsp enrollment.jsp index.jsp faculty.jsp db.jsp department.jsp db.jsp report.jsp student.jsp *style.css

1 **faculty.jsp** include file="db.jsp" 2 <!DOCTYPE html> 3 <html> 4 <head> 5 <title>Faculty</title> 6 <link rel="stylesheet" href="style.css"> 7 </head> 8 <body> 9 10 <div class="container"> 11 <div>Faculty</div> 12 <div class="nav">Home</div> 13 </div> 14 <form> 15 Faculty ID <input name="fid"> 16 Name <input name="name"> 17 Department ID <input name="dept"> 18 Course ID <input name="cid"> 19 <input type="submit" name="add" value="Add Faculty"> 20 </form> 21 <div> 22 if(request.getParameter("add")!=null){ 23 PreparedStatement ps=con.prepareStatement(24 "INSERT INTO Faculty VALUES (?, ?, ?, ?)"); 25 ps.setInt(1, Integer.parseInt(request.getParameter("fid"))); 26 ps.setString(2, request.getParameter("name")); 27 ps.setInt(3, Integer.parseInt(request.getParameter("dept"))); 28 ps.setInt(4, Integer.parseInt(request.getParameter("cid"))); 29 ps.executeUpdate(); 30 } 31 </div> 32 </div> 33 </body> 34 </html>

faculty.jsp - dbms_grand_final/src/main/webapp/jsp

The screenshot shows two instances of the Eclipse IDE interface, each displaying a different JSP file from a web application project.

Top Window (eclipse-workspace - dbms_grand_final/src/main/webapp/jsp/report.jsp - Eclipse IDE)

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer X

- collage_management
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 - webapp
 - jsp
 - course.jsp
 - db.jsp
 - department.jsp
 - enrollment.jsp
 - examination.jsp
 - faculty.jsp
 - index.jsp
 - report.jsp
 - student.jsp
 - style.css
- META-INF
- WEB-INF

report.jsp - dbms_grand_final/src/main/webapp/jsp

```
1 <%@ page import="java.sql.*" %>
2 <%@ include file="db.jsp" %>
3 <!DOCTYPE html>
4 <html>
5 <head>
6 <title>Exam Report</title>
7 <!-- @ External CSS -->
8 <link rel="stylesheet" href="style.css">
9 </head>
10 <body>
11 <div class="container">
12 <h2>Exam Report</h2>
13 <div class="row">
14 <a href="index.jsp">Home</a>
15 <a href="student.jsp">Student</a>
16 </div>
17 <form>
18 Student ID
19 <input name="sid" required="required" type="submit" value="View Report">
20 </form>
21 <table>
22 <thead>
23 <tr>
24 <th>Student Name</th>
25 <th>Course</th>
26 <th>Marks</th>
27 </tr>
28 <tbody>
29 <tr>
30 <td><%
31 if (request.getParameter("sid") != null) {
32 if (con != null) {
33 try {
34 PreparedStatement ps = con.prepareStatement(
35 "SELECT s.stu_name, c.course_name, e.marks "
36 + "FROM student s, course c, examination e "
37 + "WHERE s.course_id = c.course_id "
38 + "AND c.course_id = e.course_id "
39 + "AND s.stu_id = e.sid");
40 ps.setInt(1, Integer.parseInt(request.getParameter("sid")));
41 ResultSet rs = ps.executeQuery();
42 boolean found = false;
43 while (rs.next()) {
44 found = true;
45 }
46 }
47 rs.close();
48 }
49 }
50 </td>
51 <td><%
52 if (request.getParameter("sid") != null) {
53 int id = Integer.parseInt(request.getParameter("sid"));
54 String name = request.getParameter("name");
55 ps.setInt(1, id);
56 ps.setString(2, name);
57 ps.executeUpdate();
58 }
59 </td>
60 <td><%
61 if (request.getParameter("sid") != null) {
62 int id = Integer.parseInt(request.getParameter("sid"));
63 String name = request.getParameter("name");
64 ps.setInt(1, id);
65 ps.setString(2, name);
66 ps.executeUpdate();
67 }
68 </td>
69 </tr>
70 </tbody>
71 </table>
```

Bottom Window (eclipse-workspace - dbms_grand_final/src/main/webapp/jsp/student.jsp - Eclipse IDE)

File Edit Source Refactor Navigate Search Project Run Window Help

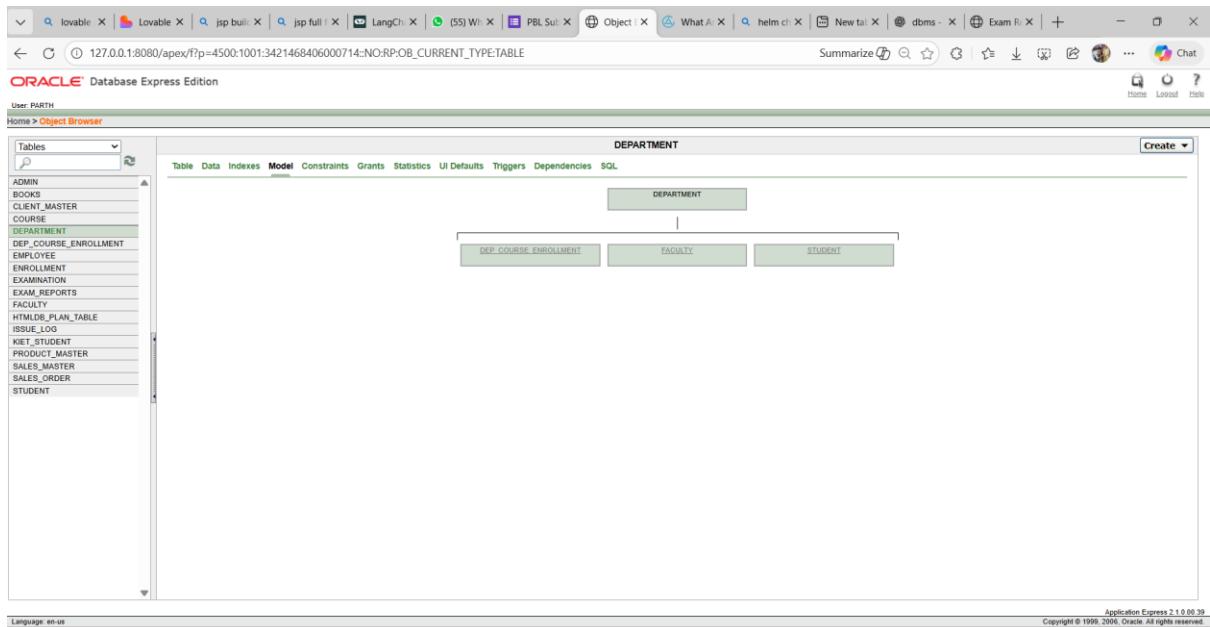
Package Explorer X

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 - faculty.jsp
 - index.jsp
 - report.jsp
 - student.jsp
 - style.css
- META-INF
- WEB-INF

student.jsp - dbms_grand_final/src/main/webapp/jsp

```
1 <%@ include file="db.jsp" %>
2 <!
3 <%if (request.getParameter("add")!=null){%>
4 <PreparedStatement ps=con.prepareStatement(
5 "INSERT INTO STUDENT VALUES (?,?)");
6 ps.setInt(1, Integer.parseInt(request.getParameter("sid")));
7 ps.setString(2, request.getParameter("name"));
8 ps.setInt(3, Integer.parseInt(request.getParameter("dept")));
9 ps.executeUpdate();
10 <%
11 }%>
12 <%if (request.getParameter("del")!=null){%>
13 <PreparedStatement ps=con.prepareStatement(
14 "DELETE FROM STUDENT WHERE STU_ID=?");
15 ps.setInt(1, Integer.parseInt(request.getParameter("del")));
16 ps.executeUpdate();
17 <%
18 }%>
19 <%if (request.getParameter("update")!=null){%>
20 <PreparedStatement ps=con.prepareStatement(
21 "UPDATE STUDENT SET STU_NAME=?,DEPT_ID=? WHERE STU_ID=?");
22 ps.setString(1, request.getParameter("name"));
23 ps.setInt(2, Integer.parseInt(request.getParameter("dept")));
24 ps.setInt(3, Integer.parseInt(request.getParameter("sid")));
25 ps.executeUpdate();
26 <%
27 }%>
28 <!
29 <!DOCTYPE html>
30 <html>
31 <head>
32 <title>Student</title>
33 <link rel="stylesheet" href="style.css">
34 </head>
35 <body>
36 <div class="container">
37 <h2>Student</h2>
38 <a href="index.jsp">Home</a>
39 </div>
40 <form>
41 ID <input name="sid">
42 Name <input name="name">
43 Dept <select name="dept">
44 <%
45 ResultSet deccon.createStatement();
46 executeQuery("SELECT * FROM DEPARTMENT");
47 while(d.next()){
48 option value="<%d.getInt(1)%>"> <d.getString(2)%></option>
49 <%
50 </select>
51 <input type="submit" name="add" value="Add">
52 <input type="submit" name="update" value="Update">
53 </form>
54 <table>
55 <thead>
56 <tr>
57 <th>STU_ID</th>
58 <th>STU_NAME</th>
59 <th>DEPT_ID</th>
60 </tr>
61 <tbody>
62 <tr>
63 <td><%
64 <%
65 </td>
66 <td><%
67 <%
68 </td>
69 <td><%
70 <%
71 </td>
72 </tr>
73 </tbody>
74 </table>
```

Backend Database implementation on oracle→



The screenshot shows the Oracle Database Express Edition interface. The left sidebar lists various database objects under 'Tables'. The main area displays the structure of the 'DEPARTMENT' table. The table has two columns: 'DEPT_ID' and 'DEPT_NAME'. 'DEPT_ID' is defined as a NUMBER type and is marked as the Primary Key. 'DEPT_NAME' is defined as a VARCHAR2(100) type. Below the table structure, there is a note '1 - 2' indicating a range of values for the primary key.

Project Based Learning (PBL) Description

Project Title→

College Management System using JSP and Oracle Database

Problem Statement

In many colleges, academic data such as departments, students, courses, enrollments, and examination records are managed manually or using disconnected systems. This leads to data redundancy, errors, difficulty in maintaining relationships between entities, and lack of centralized access. There is a need for a simple, web-based system that can efficiently manage college-related data in a structured and reliable manner.

Objective of the Project

The objective of this project is to design and develop a **web-based College Management System** that provides a centralized platform to manage academic information using **JSP** and **Oracle Database**. The system aims to simplify data entry, ensure data integrity using relational constraints, and provide easy access to student and examination records.

Scope of the Project

The scope of the project includes:

- Managing departments, students, courses, faculty, enrollments, and examinations
- Performing **CRUD operations** (Create, Read, Update, Delete) on all entities
- Maintaining relationships between tables using **primary and foreign keys**
- Generating examination reports for students
- Providing a user-friendly interface using JSP and CSS

The project is designed for academic use and does not include advanced features such as authentication or role-based access.

Technologies Used

- **Frontend:** JSP (Java Server Pages), HTML, CSS
 - **Backend:** Java (JDBC)
 - **Database:** Oracle 10g
 - **Web Server:** Apache Tomcat
 - **Tools:** Eclipse IDE, GitHub
-

System Modules

1. Department Module

- Add, update, delete, and view departments

2. Student Module

- Add, update, delete students
- Assign students to departments

3. Course Module

- Manage course details

4. Faculty Module

- Store faculty information and department/course mapping

5. Enrollment Module

- Enroll students into courses

6. Examination Module

- Store student marks for courses

7. Report Module

- Generate student examination reports using SQL joins
-

Database Design

The database follows a **relational model** with proper normalization.

Primary keys uniquely identify records, while foreign keys maintain relationships between tables such as Student–Department, Enrollment–Student, and Examination–Course.

Oracle constraints are used to ensure:

- Data integrity
 - Prevention of invalid deletions
 - Consistency across related tables
-

Key Features

- Centralized academic data management
- Real-time database updates

- Referential integrity using Oracle constraints
 - Safe handling of delete operations to avoid data inconsistency
 - Simple and clean user interface
 - External CSS for consistent UI across pages
-

Learning Outcomes

Through this project, the following concepts were learned:

- JSP page lifecycle and request handling
 - JDBC connectivity with Oracle database
 - SQL queries including joins and constraints
 - Handling database exceptions and integrity violations
 - Importance of separation of concerns (UI, logic, database)
 - Secure handling of configuration and environment variables
 - Version control and secret protection using GitHub
-

Conclusion

The College Management System successfully demonstrates how a web-based application can manage academic data efficiently using JSP and Oracle Database. The project provides hands-on experience with database design, backend integration, and frontend development. It serves as a strong foundation for understanding enterprise-level web applications and database-driven systems.