



**AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**SPRING 2024-25**

**Title: Final Term Project Documentation**  
**Project Name: Lawyer Appointment Management System**  
**Course Name: Advance Database Management System**  
**Section: C**

**Group Member**

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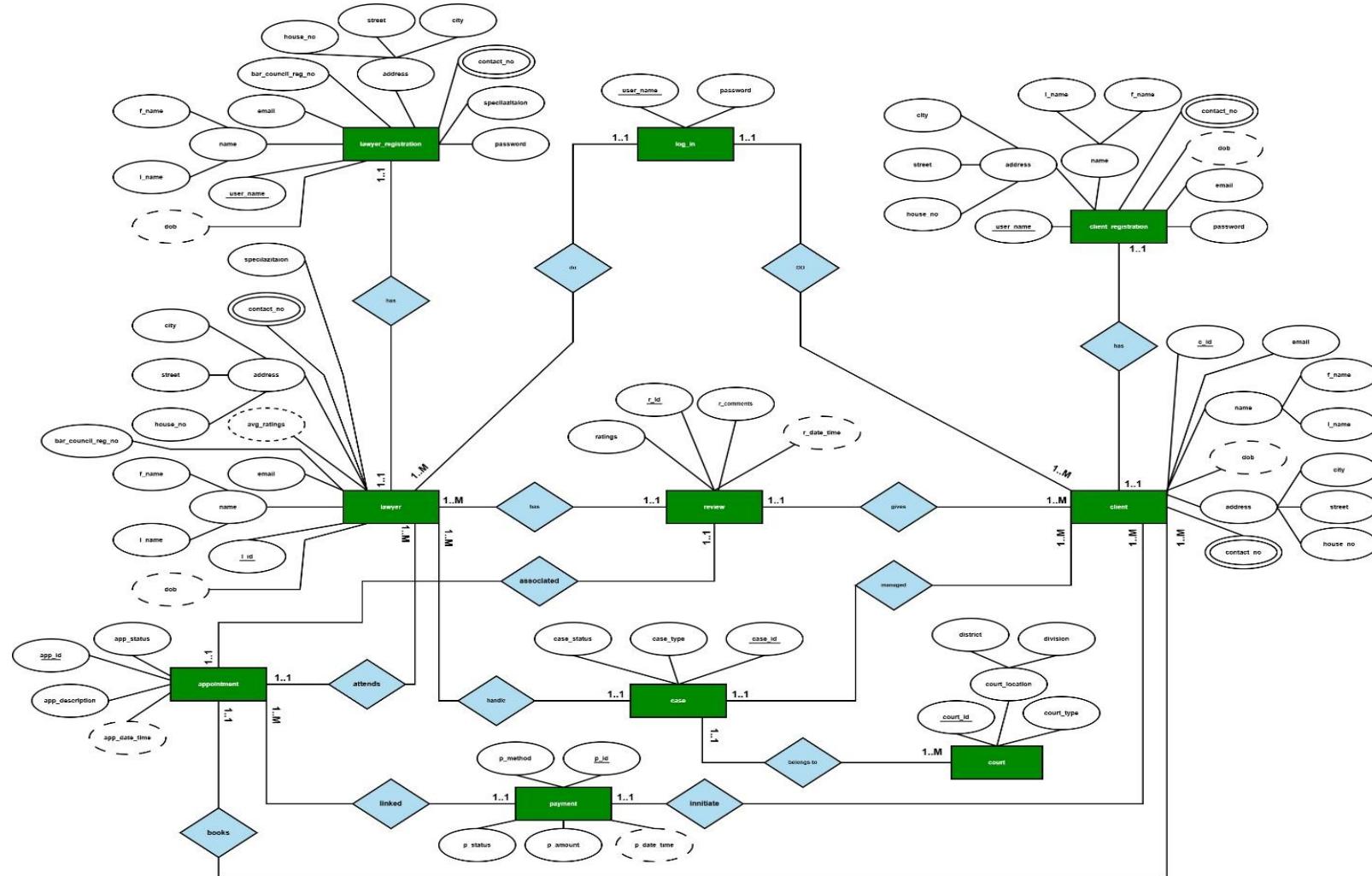
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# Project Updates

## Scenario Description:

In a lawyer appointment management system, a client can register by providing a unique username, first name, last name, date of birth, contact number, email, and password. This information is stored through the Client Registration process. Each Client Registration creates exactly one client, and each client is derived from exactly one registration. Each client is also associated with an address consisting of a city name, street number, and house number. A lawyer can also register using the same credentials, with the addition of a bar registration number and his/her specialization. This is done through the Lawyer Registration process, where each Lawyer Registration creates exactly one lawyer, and each lawyer is derived from exactly one registration. Each client and lawyer can log in using their valid username and password. A client can have multiple login instances, but each login is tied to exactly one client. Similarly, a lawyer can have multiple login instances, and each login is tied to exactly one lawyer. After login, each client and lawyer are identified with a unique ID and linked to other relevant entities in the system. A client can book multiple appointments, and each appointment stores a unique appointment ID, date, time, status, and an optional description. Each appointment is associated with exactly one client and exactly one lawyer, while a lawyer can handle multiple appointments. Each appointment can have multiple payments, but each payment belongs to only one appointment. Payments are managed carefully in the system and are recorded with a payment ID, amount, date, method (Cash, Mobile Banking, or Bank Transfer), and status (Paid or Unpaid). Every payment is always initiated by a client, and each client can initiate many payments, while each payment is tied to exactly one client. A legal case is identified by a case ID and contains case type, case description, and case status (either Ongoing or Closed). Each case is managed by exactly one client and handled by exactly one lawyer. A client can manage multiple cases, and a lawyer can handle multiple cases. Every case must belong to exactly one court, and a court can handle many cases. Courts are identified by a court ID, and the system stores the court type (Supreme, High, or District), court location, division, and district information. The review system allows clients to give feedback to lawyers. A review is uniquely identified by a review ID and includes the review date, rating (between 1 and 5), and optional comments. A client can submit multiple reviews, but each review is tied to exactly one client. Each review is also linked to one appointment, and each appointment can have exactly one review, ensuring no duplicate feedback. Each review is associated with exactly one lawyer, and a lawyer can receive many reviews, which contribute to the lawyer's average rating being updated accordingly.

## E-R Diagram:

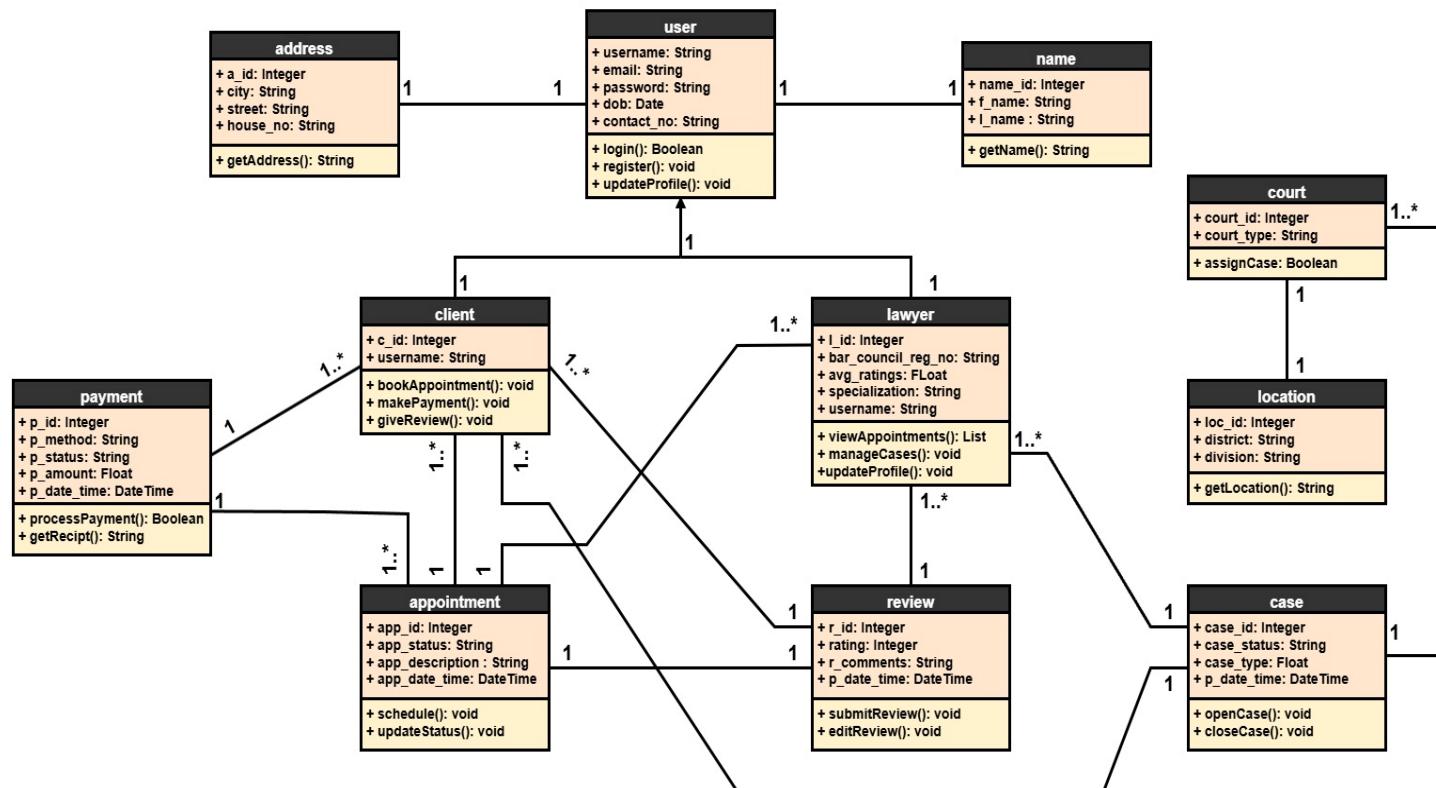


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# Project Proposal

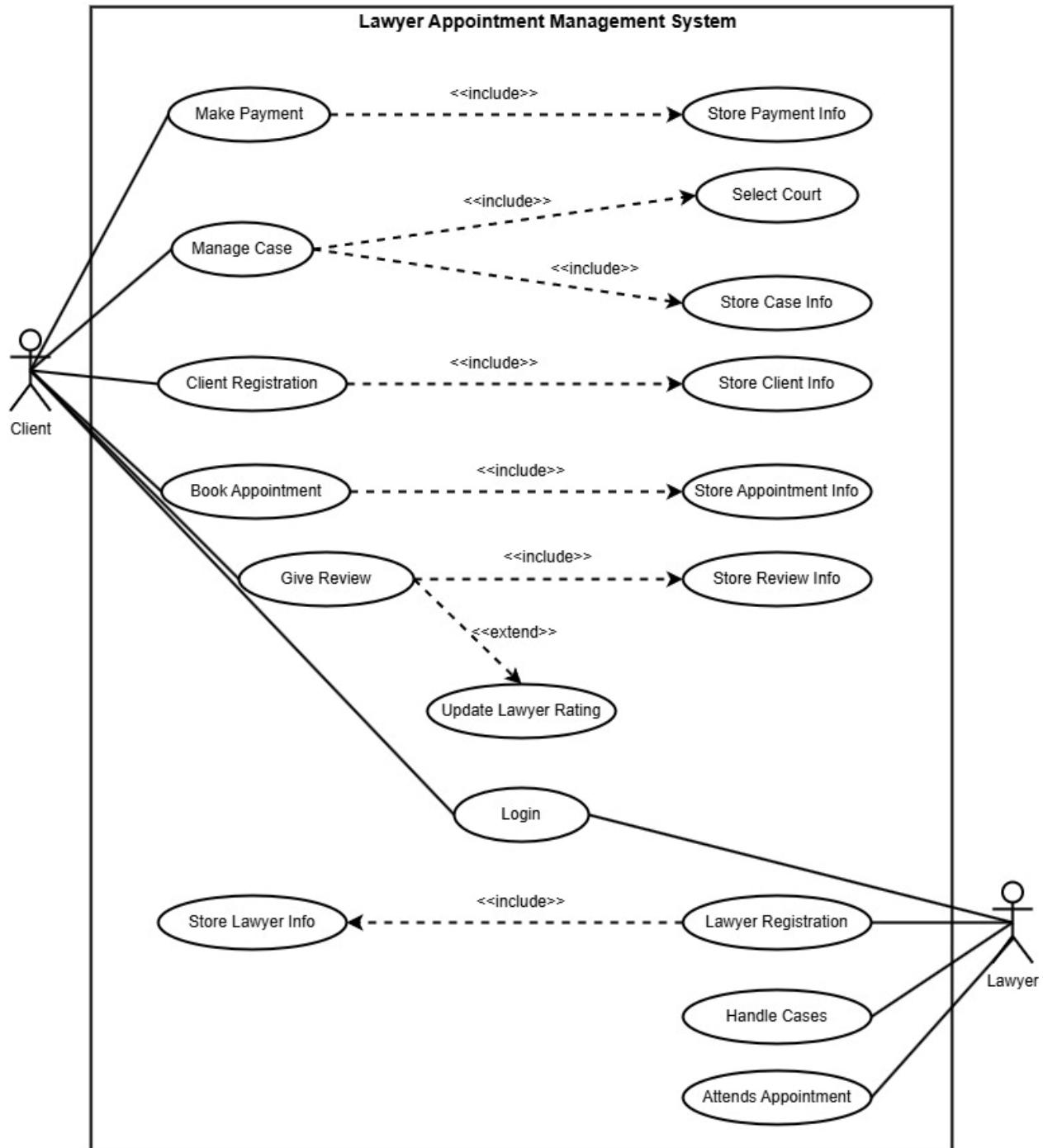
The proposed project involves the development of an online Lawyer Appointment Management System designed to enable clients to efficiently locate and connect with legal professionals for a variety of legal matters, including family disputes, property issues, and business-related concerns. The system will allow clients to register, book appointments, manage case histories, and perform secure online payments. Legal professionals will have the capability to create detailed profiles, organize their schedules, and maintain case records. Following each appointment, clients will be able to provide feedback and ratings, thereby supporting informed decision-making for future users. All sensitive data, including user profiles, case information, court records, and payment history—will be securely stored in an Oracle database. PL/SQL will be employed to ensure robust backend operations and maintain data consistency. Additionally, data privacy and access control mechanisms will be implemented to ensure the confidentiality and security of all user information. The project will follow a structured software development lifecycle comprising requirement analysis, system design, implementation, testing, and deployment. The proposed system aims to enhance the accessibility and efficiency of legal service interactions by automating and streamlining the appointment process.

# Class Diagram



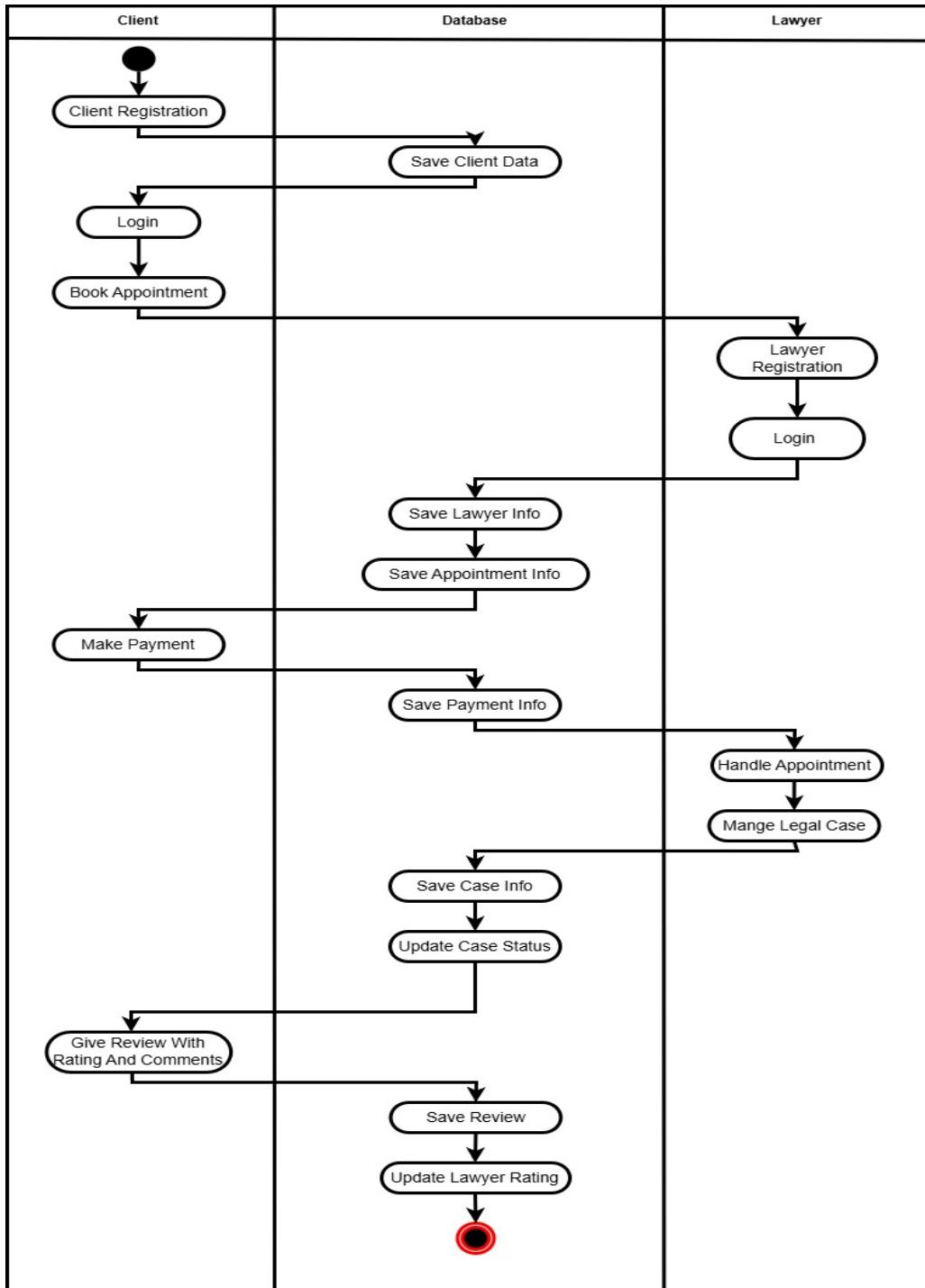
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# Use Case Diagram



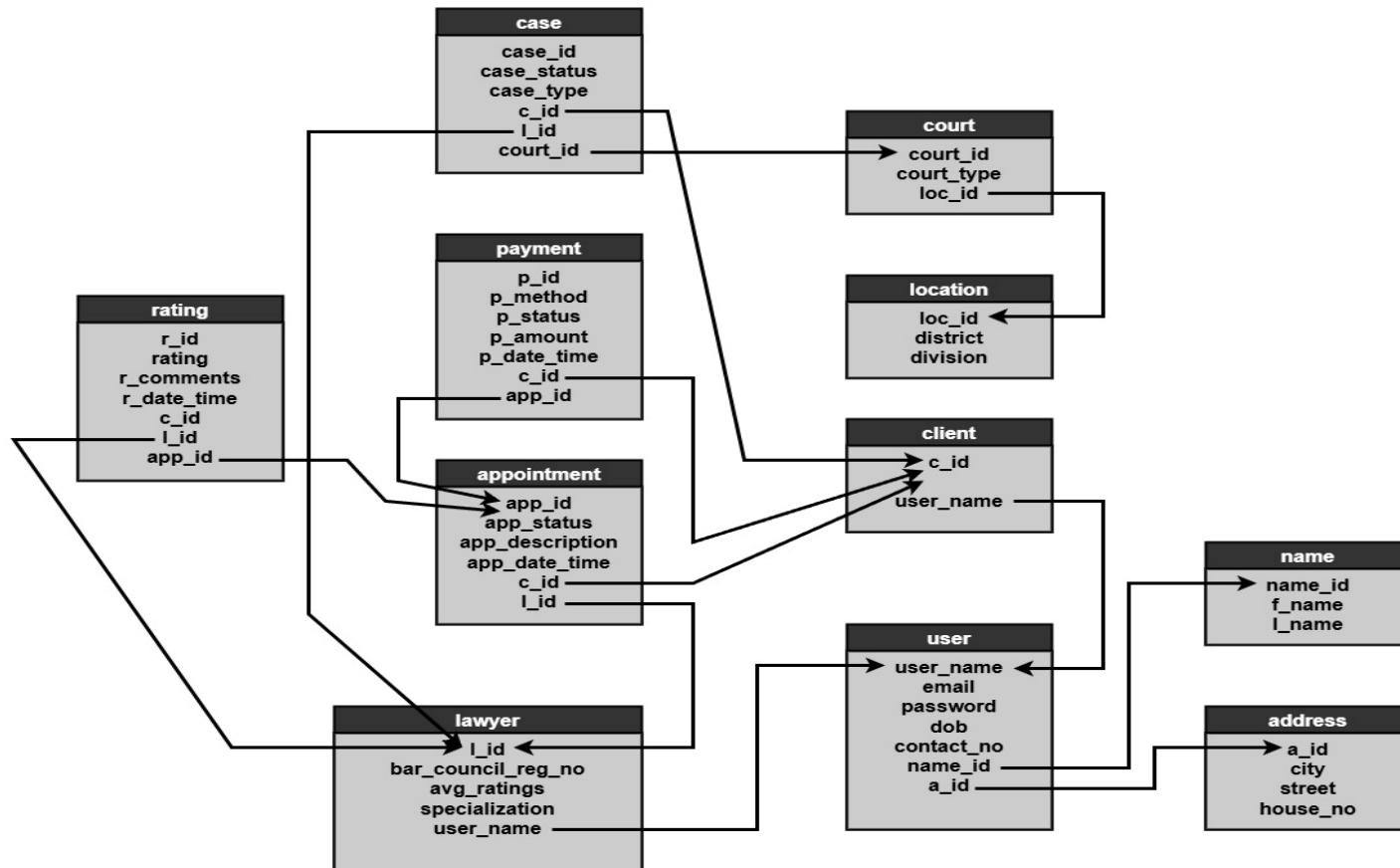
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# Activity Diagram



[View Online](#)

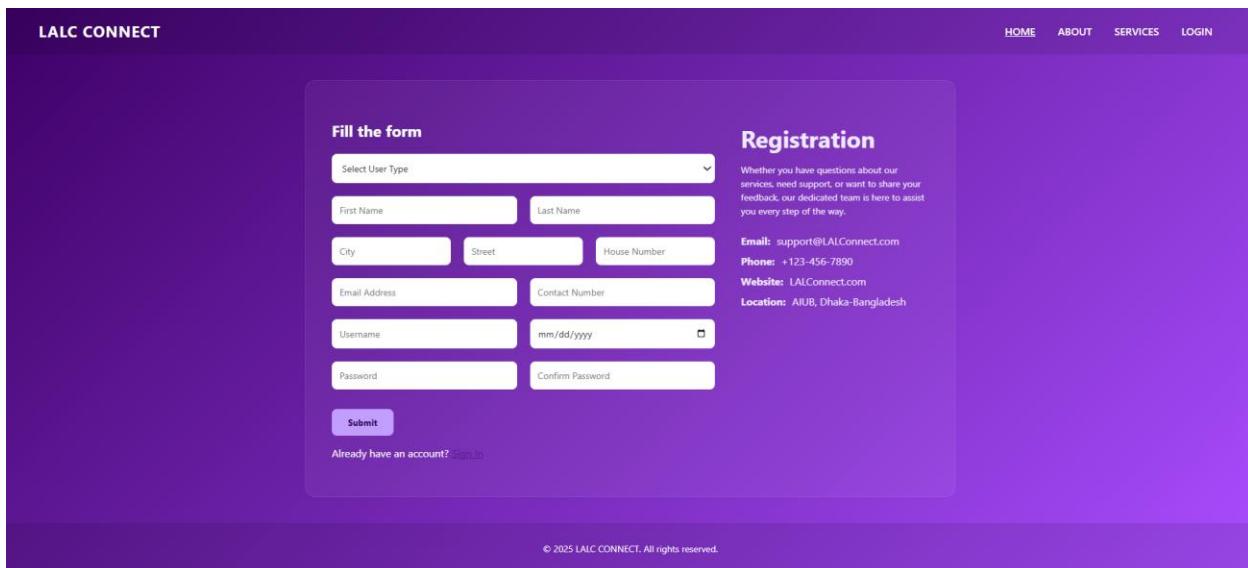
# Schema Diagram



[View Online](#)

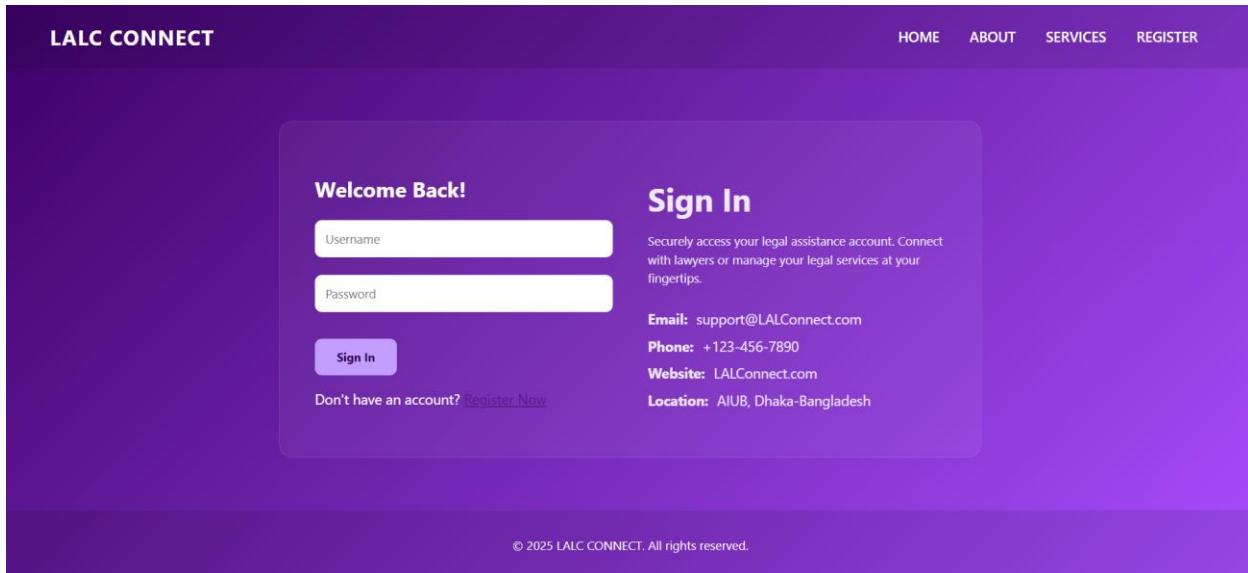
# User Interface

## 1. Registration Page:



The registration page for LALC CONNECT features a header with the logo and navigation links for HOME, ABOUT, SERVICES, and LOGIN. The main content area is titled "Fill the form" and contains fields for First Name, Last Name, City, Street, House Number, Email Address, Contact Number, Username, Password, and Confirm Password. A "Submit" button is at the bottom left, and a link to "Already have an account? [Login](#)" is at the bottom right. To the right of the form is a "Registration" section with contact information: Email: support@LALConnect.com, Phone: +123-456-7890, Website: LALConnect.com, and Location: AIUB, Dhaka-Bangladesh. A note states: "Whether you have questions about our services, need support, or want to share your feedback, our dedicated team is here to assist you every step of the way."

## 2. Sign-in Page:



The sign-in page for LALC CONNECT features a header with the logo and navigation links for HOME, ABOUT, SERVICES, and REGISTER. The main content area is titled "Welcome Back!" and contains fields for Username and Password, with a "Sign In" button. Below these fields is a link: "Don't have an account? [Register Now](#)". To the right is a "Sign In" section with a note: "Securely access your legal assistance account. Connect with lawyers or manage your legal services at your fingertips." It includes the same contact information as the registration page: Email: support@LALConnect.com, Phone: +123-456-7890, Website: LALConnect.com, and Location: AIUB, Dhaka-Bangladesh. A copyright notice at the bottom states: "© 2025 LALC CONNECT. All rights reserved."

### 3. Homepage:

The screenshot shows the LALC Connect homepage with a dark purple header. The header features the "LALC CONNECT" logo on the left and navigation links for "HOME", "ABOUT", "SERVICES", and "LOGIN" on the right. Below the header, the main title "Seamless Legal Appointments & Case Management" is displayed in large white text. A sub-copy below the title reads: "Connecting clients with expert lawyers, tracking case progress, managing payments, and gathering feedback—all in one secure platform." A "Get Started" button is located at the bottom left of the main title area. To the right of the title is a decorative image of a bronze statue of Lady Justice (Themis) standing next to an open book and scales of justice.

#### Secure Registration

Clients & lawyers create verified profiles with all necessary credentials and specializations.

#### Appointment Booking

Easily schedule, reschedule or cancel appointments. Receive reminders and status updates.

#### Case Management

Track ongoing and closed cases, view court assignments, and access detailed case records.

The screenshot shows the LALC Connect homepage with a dark purple header. The main content area contains six service modules arranged in two rows of three. Each module includes an icon, a title, and a brief description.

<div></div> <div><h4>Secure Registration</h4></div> <div><p>Clients &amp; lawyers create verified profiles with all necessary credentials and specializations.</p></div>	<div></div> <div><h4>Appointment Booking</h4></div> <div><p>Easily schedule, reschedule or cancel appointments. Receive reminders and status updates.</p></div>	<div></div> <div><h4>Case Management</h4></div> <div><p>Track ongoing and closed cases, view court assignments, and access detailed case records.</p></div>
<div></div> <div><h4>Payment Processing</h4></div> <div><p>Multiple payment methods with secure transaction history and status (Paid/Unpaid) tracking.</p></div>	<div></div> <div><h4>Reviews &amp; Ratings</h4></div> <div><p>Clients leave one review per appointment. Lawyers' average ratings update in real-time.</p></div>	<div></div> <div><h4>Encrypted &amp; Monitored</h4></div> <div><p>State-of-the-art encryption and monitoring protect against DDoS, data breaches, and unauthorized access.</p></div>

© 2025 LALC CONNECT. All rights reserved.

## 4. Lawyer's Dashboard:

The Lawyer's Dashboard is titled "LALC CONNECT". It features a sidebar with links for Dashboard, Overview, Appointments, Assigned Cases, Client Reviews, and Logout. The main content area includes sections for Upcoming Appointments (1), Ongoing Cases (1), and New Reviews (1). Below these are tables for Recent Appointments, Assigned Cases, and Client Reviews. At the bottom, a copyright notice reads "© 2025 LALC CONNECT. All rights reserved."

ID	Date	Status	Client
8001	1970-01-01 01:00	Scheduled	Abdul Rahman

Case ID	Type	Status	Court
7002	Divorce	Pending	Supreme Court of Bangladesh

Review ID	Date	Rating	Comment
10001	2023-07-22	5	Excellent professional service

## 5. Client's Dashboard

The Client's Dashboard is titled "LALC CONNECT". It features a sidebar with links for Dashboard, Overview, My Appointments, My Cases, My Payments, My Reviews, and Logout. The main content area includes sections for Upcoming Appointments (1), Ongoing Cases (1), Pending Payments (0), and New Reviews (1). Below these are tables for Recent Appointments, My Cases, Recent Payments, and My Reviews. At the bottom, a copyright notice reads "© 2025 LALC CONNECT. All rights reserved."

ID	Date	Time	Status	Lawyer
8004	2023-08-10	09:30	Rescheduled	Ayesha Siddiqua

Case ID	Type	Status	Court
7005	Civil	Appeal	Family Court

Payment ID	Amount	Date	Status
9004	\$15000	2023-08-11	Paid

Review ID	Date	Rating	Comments
10004	2023-08-12	5	Highly recommended lawyer

## 6. Client Appointments: Clients can book appointments.

The screenshot shows the 'Book a New Appointment' section of the LALC CONNECT website. On the left, a sidebar menu includes 'Dashboard', 'Overview', 'My Appointments' (which is selected and highlighted in blue), 'My Cases', 'My Payments', 'My Reviews', and 'Logout'. The main content area has a header 'LALC CONNECT' and navigation links 'Home', 'Services', 'Register', and 'Login'. Below this is a form for booking an appointment with fields for date ('05/05/2025'), time ('11:00 AM'), lawyer selection ('Select Lawyer' dropdown showing 'John Doe (Criminal)' and 'Jane Smith (Civil)', with 'Jane Smith (Civil)' selected), and a 'Book' button. A table titled 'Your Upcoming Appointments' lists two entries: A001 (2025-05-10, 10:00 AM, Confirmed, Consultation) and A002 (2025-05-12, 02:00 PM, Pending, Case Discussion). At the bottom, a footer bar contains the text '© 2025 LALC CONNECT. All rights reserved.'

## 7. Client Cases: Client can open new cases

The screenshot shows the 'Open New Case' section of the LALC CONNECT website. The sidebar menu is identical to the previous screenshot. The main content area has a header 'LALC CONNECT' and navigation links 'Home', 'Services', 'Register', and 'Login'. Below this is a form for opening a new case with fields for case type ('Family') and court ('District Court' dropdown showing 'Select Court', 'High Court', and 'District Court', with 'District Court' selected), followed by a 'Create' button. A table titled 'My Cases' lists two entries: C100 (Criminal, Ongoing, High Court) and C101 (Civil, Closed, District Court). At the bottom, a footer bar contains the text '© 2025 LALC CONNECT. All rights reserved.'

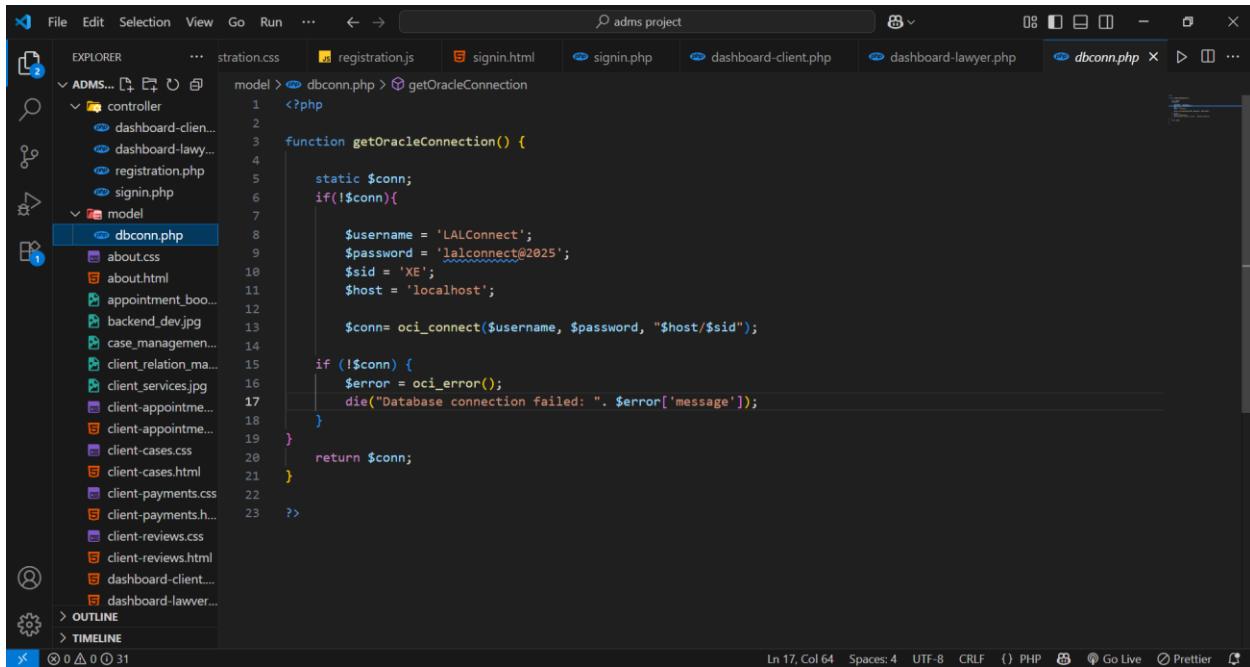
## 8. Client Payment

The screenshot shows the LALC CONNECT client payment interface. On the left, a sidebar menu includes 'Dashboard', 'Overview', 'My Appointments', 'My Cases', 'My Payments' (which is selected and highlighted in blue), 'My Reviews', and 'Logout'. The main content area has a header 'LALC CONNECT' and navigation links 'Home', 'Services', 'Register', and 'Login'. Below this is a section titled 'Make a Payment' with fields for 'Case ID' (A002) and 'Amount' (\$1000). To the right is a dropdown menu for 'Method' with options 'Method', 'Cash', 'Mobile Banking' (selected and highlighted in blue), and 'Bank Transfer'. A 'Pay' button is located next to the dropdown. At the bottom, a table titled 'My Payments' lists two entries: P500 (\$150, 2025-05-01, Paid) and P501 (\$200, 2025-05-03, Unpaid). The footer contains the copyright notice '© 2025 LALC CONNECT. All rights reserved.'

Payment ID	Amount	Date	Status
P500	\$150	2025-05-01	Paid
P501	\$200	2025-05-03	Unpaid

# Database Connection

## First Connection:



The screenshot shows a code editor interface with the title bar "adms project". The left sidebar shows a project structure under "ADMS PROJECT" with "controller" and "model" folders. In the "model" folder, the "dbconn.php" file is selected. The code in dbconn.php is as follows:

```
<?php

function getOracleConnection() {
    static $conn;
    if(!$conn){

        $username = 'LALConnect';
        $password = 'lalconnect@2025';
        $sid = 'XE';
        $host = 'localhost';

        $conn= oci_connect($username, $password, "$host/$sid");

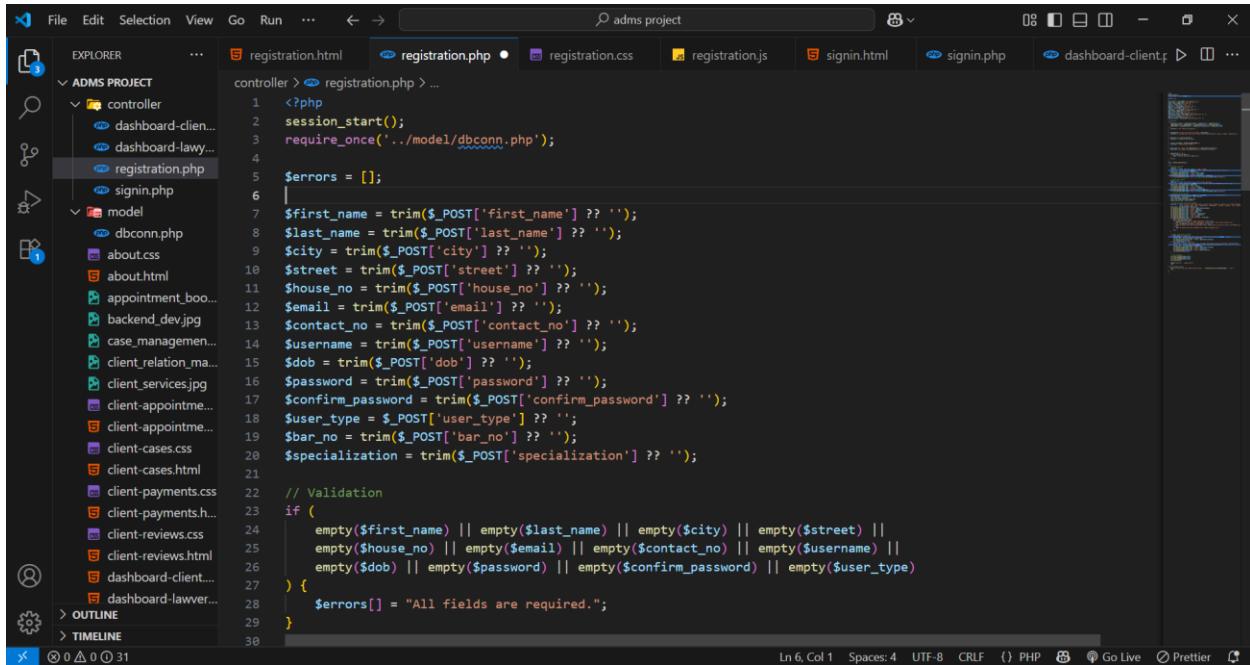
        if (!$conn) {
            $error = oci_error();
            die("Database connection failed: ". $error['message']);
        }
    }
    return $conn;
}

?>
```

At the bottom, status bars show "Ln 17, Col 64", "Spaces: 4", "UTF-8", "CRLF", "PHP", "Go Live", and "Prettier".

## Few Codes After Successfull Connection to Oracle 10G

### 1. Registration.php:



The screenshot shows a code editor interface with the title bar "adms project". The left sidebar shows a project structure under "ADMS PROJECT" with "controller" and "model" folders. In the "controller" folder, the "registration.php" file is selected. The code in registration.php is as follows:

```
<?php
session_start();
require_once('../model/dbconn.php');

$errors = [];

$first_name = trim($_POST['first_name'] ?? '');
$last_name = trim($_POST['last_name'] ?? '');
$city = trim($_POST['city'] ?? '');
$street = trim($_POST['street'] ?? '');
$house_no = trim($_POST['house_no'] ?? '');
$email = trim($_POST['email'] ?? '');
$contact_no = trim($_POST['contact_no'] ?? '');
$username = trim($_POST['username'] ?? '');
$dob = trim($_POST['dob'] ?? '');
$password = trim($_POST['password'] ?? '');
$confirm_password = trim($_POST['confirm_password'] ?? '');
$user_type = $_POST['user_type'] ?? '';
$bar_no = trim($_POST['bar_no'] ?? '');
$specialization = trim($_POST['specialization'] ?? '');

// Validation
if (
    empty($first_name) || empty($last_name) || empty($city) || empty($street) ||
    empty($house_no) || empty($email) || empty($contact_no) || empty($username) ||
    empty($dob) || empty($password) || empty($confirm_password) || empty($user_type)
) {
    $errors[] = "All fields are required.";
}
```

At the bottom, status bars show "Ln 6, Col 1", "Spaces: 4", "UTF-8", "CRLF", "PHP", "Go Live", and "Prettier".

```

controller > registration.php > ...
57     // Insert into name
58     $name_id = null;
59     $name_sql = "INSERT INTO name (name_id, f_name, l_name)
60             VALUES (name_seq.NEXTVAL, :fname, :lname) RETURNING name_id INTO :name_id";
61     $name_stmt = oci_parse($conn, $name_sql);
62     oci_bind_by_name($name_stmt, ":fname", $first_name);
63     oci_bind_by_name($name_stmt, ":lname", $last_name);
64     oci_bind_by_name($name_stmt, ":name_id", $name_id, -1, SQLT_INT);
65     if (!oci_execute($name_stmt)) throw new Exception(oci_error($name_stmt)['message']);
66
67     // Insert into address
68     $a_id = null;
69     $addr_sql = "INSERT INTO address (a_id, city, street, house_no)
70             VALUES (address_seq.NEXTVAL, :city, :street, :house_no) RETURNING a_id INTO :a_id";
71     $addr_stmt = oci_parse($conn, $addr_sql);
72     oci_bind_by_name($addr_stmt, ":city", $city);
73     oci_bind_by_name($addr_stmt, ":street", $street);
74     oci_bind_by_name($addr_stmt, ":house_no", $house_no);
75     oci_bind_by_name($addr_stmt, ":a_id", $a_id, -1, SQLT_INT);
76     if (!oci_execute($addr_stmt)) throw new Exception(oci_error($addr_stmt)['message']);
77
78     // Generate system username
79     $user_seq_sql = "SELECT 'user' || LPAD(user_seq.NEXTVAL, 3, '0') AS uname FROM dual";
80     $user_seq_stmt = oci_parse($conn, $user_seq_sql);
81     oci_execute($user_seq_stmt);
82     $row = oci_fetch_assoc($user_seq_stmt);
83     $generated_username = $row['UNAME'];
84
85     // Insert into users (with new username)
86     $user_sql = "INSERT INTO users (user_name, email, password, dob, contact_no, name_id, a_id, input_username)

```

Ln 72, Col 50 Spaces:4 UTF-8 CRLF () PHP Go Live Prettier

## 2. Signin.php:

```

controller > signin.php > ...
1 <?php
2 session_start();
3 require_once('../model/dbconn.php');
4
5 $username = trim($_POST['username'] ?? '');
6 $password = trim($_POST['password'] ?? '');
7
8 if (empty($username) || empty($password)) {
9     echo "<p style='color:red;'>Both username and password are required.</p>";
10    exit;
11 }
12
13 $conn = getOracleConnection();
14
15 // Look up by input_username OR email
16 $sql = "SELECT * FROM users
17         WHERE (input_username = :uname OR email = :uname)
18             AND password = :pass";
19 $stid = oci_parse($conn, $sql);
20 oci_bind_by_name($stid, ":uname", $username);
21 oci_bind_by_name($stid, ":pass", $password);
22 oci_execute($stid);
23
24 $row = oci_fetch_assoc($stid);
25
26 if ($row) {
27     $actual_user_name = $row['USER_NAME'];
28     $_SESSION['username'] = $actual_user_name;
29     $_SESSION['name_id'] = $row['NAME_ID'];
30     $_SESSION['a_id'] = $row['A_ID'];

```

Ln 63, Col 3 Spaces:4 UTF-8 CRLF () PHP Go Live Prettier

```

controller > signin.php > ...
13     $conn = getOracleConnection();
14
15     // Look up by input_username OR email
16     $sql = "SELECT * FROM users
17             WHERE (input_username = :uname OR email = :uname)
18                 AND password = :pass";
19     $stmt = oci_parse($conn, $sql);
20     oci_bind_by_name($stmt, ":uname", $username);
21     oci_bind_by_name($stmt, ":pass", $password);
22     oci_execute($stmt);
23
24     $row = oci_fetch_assoc($stmt);
25
26     if ($row) {
27         $actual_user_name = $row['USER_NAME'];
28         $_SESSION['username'] = $actual_user_name;
29         $_SESSION['name_id'] = $row['NAME_ID'];
30         $_SESSION['a_id'] = $row['A_ID'];
31
32         // Check if the user is a client
33         $client_sql = "SELECT * FROM client WHERE user_name = :uname";
34         $client_stmt = oci_parse($conn, $client_sql);
35         oci_bind_by_name($client_stmt, ":uname", $actual_user_name);
36         oci_execute($client_stmt);
37
38         if (oci_fetch_assoc($client_stmt)) {
39             $_SESSION['user_type'] = 'client';
40             header("Location: dashboard-client.php");
41             exit;
42
43         }
44     }

```

### 3. Dashboard-Client.php:

```

controller > dashboard-client.php > html > body > aside.sidebar > a
1 <?php
2 session_start();
3 require_once('../model/dbconn.php');
4
5 if (!isset($_SESSION['username']) || $_SESSION['user_type'] != 'client') {
6     header("Location: ../signin.html");
7     exit();
8 }
9
10 $conn = getOracleConnection();
11 $username = $_SESSION['username'];
12
13 // Get client ID
14 $client_sql = "SELECT c_id FROM client WHERE user_name = :uname";
15 $client_stmt = oci_parse($conn, $client_sql);
16 oci_bind_by_name($client_stmt, ":uname", $username);
17 oci_execute($client_stmt);
18 $client_row = oci_fetch_assoc($client_stmt);
19 $c_id = $client_row['C_ID'] ?? null;
20
21 // Fetch upcoming appointments
22 $app_sql = "SELECT a.app_id, TO_CHAR(a.app_date_time, 'YYYY-MM-DD') AS app_date,
23                  TO_CHAR(a.app_date_time, 'HH24:MI') AS app_time, a.app_status,
24                  n.f_name || ' ' || n.l_name AS lawyer_name
25          FROM appointment a
26      JOIN lawyer l ON a.l_id = l.l_id
27      JOIN users u ON l.user_name = u.user_name
28      JOIN name n ON u.name_id = n.name_id
29      WHERE a.c_id = :cid
30      ORDER BY a.app_date_time DESC";

```

```

File Edit Selection View Go Run ... < - > adms project
EXPLORER registration.html registration.php registration.css registration.js signin.html signin.php dashboard-client.php ...
controller > dashboard-client.php > html > body > aside.sidebar > a
40 // Fetch client cases
41 $case_sql = "SELECT c.case_id, c.case_type, c.case_status, crt.court_type
42         FROM case c
43             JOIN court crt ON c.court_id = crt.court_id
44             WHERE c.c_id = :cid";
45 $case_stmt = oci_parse($conn, $case_sql);
46 oci_bind_by_name($case_stmt, ":cid", $c_id);
47 oci_execute($case_stmt);
48
49 $cases = [];
50 while ($row = oci_fetch_assoc($case_stmt)) {
51     $cases[] = $row;
52 }
53
54 // Fetch client payments
55 $payment_sql = "SELECT p.p_id, p.p_amount, TO_CHAR(p.p_date_time, 'YYYY-MM-DD') AS p_date, p.p_status
56         FROM payment p
57             WHERE p.c_id = :cid";
58 $payment_stmt = oci_parse($conn, $payment_sql);
59 oci_bind_by_name($payment_stmt, ":cid", $c_id);
60 oci_execute($payment_stmt);
61
62 $payments = [];
63 while ($row = oci_fetch_assoc($payment_stmt)) {
64     $payments[] = $row;
65 }
66
67 // Fetch client reviews
68 $review_sql = "SELECT r.r_id, TO_CHAR(r.r_date_time, 'YYYY-MM-DD') AS r_date, r.rating, r.r_comments
69         FROM rating r"

```

Ln 96, Col 12 Spaces: 4 UTF-8 CRLF {} PHP ⚡ Go Live ⚡ Prettier

1:03.3 KB/s CPU: 10% 9:05 AM 6/26/2025

#### 4. Dashboard-Lawyer.php:

```

File Edit Selection View Go Run ... < - > adms project
EXPLORER ion.php registration.css registration.js signin.html signin.php dashboard-client.php dashboard-lawyer.php ...
controller > dashboard-lawyer.php > html > body > div.main
1 <?php
2 session_start();
3 require_once('../model/dbconn.php');
4
5 if (!isset($_SESSION['username']) || $_SESSION['user_type'] != 'lawyer') {
6     header("Location: ../signin.html");
7     exit();
8 }
9
10 $conn = getOracleConnection();
11 $username = $_SESSION['username'];
12
13 // Overview Stats
14 $appointment_count = 0;
15 $case_count = 0;
16 $review_count = 0;
17
18 // Get Lawyer ID
19 $l_id = null;
20 $lid_sql = "SELECT l_id FROM lawyer WHERE user_name = :uname";
21 $lid_stmt = oci_parse($conn, $lid_sql);
22 oci_bind_by_name($lid_stmt, ":uname", $username);
23 oci_execute($lid_stmt);
24 if ($lid_row = oci_fetch_assoc($lid_stmt)) {
25     $l_id = $lid_row['L_ID'];
26 }
27
28 // Count Appointments
29 $app_sql = "SELECT COUNT(*) AS COUNT FROM appointment WHERE l_id = :lid AND app_status = 'Scheduled'";
30 $app_stmt = oci_parse($conn, $app_sql);

```

Ln 160, Col 1 Spaces: 4 UTF-8 CRLF {} PHP ⚡ Go Live ⚡ Prettier

The screenshot shows a code editor interface with the title bar "adms project". The left sidebar is titled "EXPLORER" and shows a tree view of the "ADMS PROJECT" directory. The "controller" folder is expanded, containing files like "dashboard-client.php", "dashboard-lawyer.php", "registration.php", and "signin.php". Other folders like "model" and "view" are also visible. The main editor area displays a PHP script. The code is as follows:

```
27
28 // Count Appointments
29 $app_sql = "SELECT COUNT(*) AS COUNT FROM appointment WHERE l_id = :lid AND app_status = 'Scheduled'";
30 $app_stmt = oci_parse($conn, $app_sql);
31 oci_bind_by_name($app_stmt, ":lid", $l_id);
32 oci_execute($app_stmt);
33 if ($row = oci_fetch_assoc($app_stmt)) {
34     $appointment_count = $row['COUNT'];
35 }
36
37 // Count Cases
38 $case_sql = "SELECT COUNT(*) AS COUNT FROM case WHERE l_id = :lid AND case_status IN ('Pending', 'Active')";
39 $case_stmt = oci_parse($conn, $case_sql);
40 oci_bind_by_name($case_stmt, ":lid", $l_id);
41 oci_execute($case_stmt);
42 if ($row = oci_fetch_assoc($case_stmt)) {
43     $case_count = $row['COUNT'];
44 }
45
46 // Count Reviews
47 $review_sql = "SELECT COUNT(*) AS COUNT FROM rating WHERE l_id = :lid";
48 $review_stmt = oci_parse($conn, $review_sql);
49 oci_bind_by_name($review_stmt, ":lid", $l_id);
50 oci_execute($review_stmt);
51 if ($row = oci_fetch_assoc($review_stmt)) {
52     $review_count = $row['COUNT'];
53 }
54
55 // Fetch recent appointments
56 $appointments = [];
```

The status bar at the bottom indicates "Ln 160, Col 1" and "Spaces: 4" and "UTF-8". There are also icons for "PHP", "Go Live", and "Prettier".

# Query Writing

## Exception Handling:

1. Write a PL/SQL block to retrieve the email of a user by username. Handle NO\_DATA\_FOUND if no username exists.

```
DECLARE
    u_email users.email%TYPE;
BEGIN
    SELECT email INTO u_email
    FROM users
    WHERE user_name = 'user999';

    DBMS_OUTPUT.PUT_LINE('Client Email: ' || u_email);
EXCEPTION
    WHEN NO_DATA_FOUND THEN
        DBMS_OUTPUT.PUT_LINE('Error: Client record not found');
    WHEN OTHERS THEN
        DBMS_OUTPUT.PUT_LINE('Unexpected error: ' || SQLERRM);
END;
/
```

The screenshot shows the Oracle Database Express Edition interface. In the SQL Commands window, a PL/SQL block is run. The code attempts to select the email of a user named 'user999' from the 'users' table. Since no user with that name exists, a 'NO\_DATA\_FOUND' exception is raised, which is caught and handled by printing an error message. The output window shows the error message 'Error: Client record not found'.

2. Write a PL/SQL block that takes an appointment date. If it's in the past, raise a user-defined exception.

```
DECLARE
    past_date_error EXCEPTION;
```

```

v_app_date appointment.app_date_time%TYPE := TO_TIMESTAMP('2023-06-
15 10:00:00', 'YYYY-MM-DD HH24:MI:SS');
BEGIN
    IF v_app_date < SYSTIMESTAMP THEN
        RAISE past_date_error;
    ELSE
        DBMS_OUTPUT.PUT_LINE('Appointment scheduled for: ' ||
TO_CHAR(v_app_date));
        END IF;
EXCEPTION
    WHEN past_date_error THEN
        DBMS_OUTPUT.PUT_LINE('Error: Appointment date cannot be in the
past!');
END;
/

```

The screenshot shows the Oracle Database Express Edition interface. In the SQL Commands window, a PL/SQL block is being run. The code checks if an appointment date is in the past and prints an error message if so. The output window shows the error message 'Error: Appointment date cannot be in the past!'.

```

DECLARE
    past_date_error EXCEPTION;
    v_app_date appointment.app_date_time%TYPE := TO_TIMESTAMP('2023-06-15 10:00:00', 'YYYY-MM-DD HH24:MI:SS');
BEGIN
    IF v_app_date < SYSTIMESTAMP THEN
        RAISE past_date_error;
    ELSE
        DBMS_OUTPUT.PUT_LINE('Appointment scheduled for: ' || TO_CHAR(v_app_date));
        END IF;
EXCEPTION
    WHEN past_date_error THEN
        DBMS_OUTPUT.PUT_LINE('Error: Appointment date cannot be in the past!');
END;
/

```

Error: Appointment date cannot be in the past!

Statement processed.

0.00 seconds

Language: en-us Application Express 2.1.0.00.39 Copyright © 1999, 2006, Oracle. All rights reserved.

## Implicit Locking:

1. Update user first name where name\_id = 1010.

Project Database	System Database
UPDATE name SET F_NAME = 'Luna' Where NAME_ID=1010;	UPDATE ADMSP.name SET F_NAME = 'Luna' Where NAME_ID=1010;

```

Windows PowerShell
Copyright (c) 1982, 2005, Oracle. All rights reserved.
Enter user-name: ADMSP
Enter password:

Connected to:
Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production
SQL> UPDATE TABLE name F_NAME = 'Luna' Where NAME_ID=10;
UPDATE TABLE name F_NAME = 'Luna' Where NAME_ID=10
*
ERROR at line 1:
ORA-00903: invalid table name

SQL> UPDATE TABLE nclsame F_NAME = 'Luna' Where NAME_ID=10;
UPDATE TABLE nclsame F_NAME = 'Luna' Where NAME_ID=10
*
ERROR at line 1:
ORA-00903: invalid table name

SQL> cls
SP2-0042: unknown command "cls" - rest of line ignored.
SQL> UPDATE name SET F_NAME = 'Luna' Where NAME_ID=1010;
1 row updated.

SQL>

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS C:\Users\shohan> sqlplus
SQL*Plus: Release 10.2.0.1.0 - Production on Wed Jun 25 18:11:01 2025
Copyright (c) 1982, 2005, Oracle. All rights reserved.
Enter user-name: SYSTEM
Enter password:

Connected to:
Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production
SQL> UPDATE ADMSP.name SET F_NAME = 'Luna' Where NAME_ID=1010;
|

```

2. Update location of court from court table

Project Database	System Database
<code>UPDATE location SET DISTRICT='Noakhali', DIVISION='Chottogram' WHERE LOC_ID=6005;</code>	<code>UPDATE ADMSP.location SET DISTRICT='Noakhali', DIVISION='Chottogram' WHERE LOC_ID=6005;</code>

```

Windows PowerShell
SQL> Disconnected from Oracle Database 10g
Express Edition Release 10.2.0.1.0 - Production
PS C:\Users\shohan> SQLPLUS

SQL*Plus: Release 10.2.0.1.0 - Production on
Wed Jun 25 18:46:37 2025

Copyright (c) 1982, 2005, Oracle. All rights reserved.

Enter user-name: SYSTEM
Enter password:

Connected to:
Oracle Database 10g Express Edition Release
10.2.0.1.0 - Production

SQL> UPDATE location SET DISTRICT='Noakhali',
DIVISION='Chottogram' WHERE LOC_ID=6005;
1 row updated.

SQL>

Windows PowerShell
SQL*Plus: Release 10.2.0.1.0 - Production on
Wed Jun 25 18:45:40 2025

Copyright (c) 1982, 2005, Oracle. All rights reserved.

Enter user-name: SYSTEM
Enter password:

Connected to:
Oracle Database 10g Express Edition Release
10.2.0.1.0 - Production

SQL> UPDATE ADMSP.location SET DISTRICT
='Noakhali', DIVISION='Chottogram' WHERE
LOC_ID=6005;

1 row updated.

SQL>

```

## Explicit Locking:

1. Lock name table using NOWAIT.

```
LOCK TABLE name IN EXCLUSIVE MODE NOWAIT;

Windows PowerShell
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PS C:\Users\shohan> sqlplus

SQL*Plus: Release 10.2.0.1.0 - Production on Wed Jun 25 19:22:20 2025

Copyright (c) 1982, 2005, Oracle. All rights reserved.

Enter user-name: ADMSP
Enter password:

Connected to:
Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production

SQL> LOCK TABLE name IN lock_mode MODE [NOWAIT];
LOCK TABLE name IN lock_mode MODE [NOWAIT]
*
ERROR at line 1:
ORA-01737: valid modes: [ROW] SHARE, [[SHARE] ROW] EXCLUSIVE, SHARE UPDATE

SQL> LOCK TABLE name IN EXCLUSIVE MODE NOWAIT;
Table(s) Locked.

SQL>
```

2. Lock address table using exclusive mode.

```
LOCK TABLE name IN ROW EXCLUSIVE MODE;

Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\shohan> SQLPLUS

SQL*Plus: Release 10.2.0.1.0 - Production on Wed Jun 25 19:28:01 2025

Copyright (c) 1982, 2005, Oracle. All rights reserved.

Enter user-name: ADMSP
Enter password:

Connected to:
Oracle Database 10g Express Edition Release 10.2.0.1.0 - Production

SQL> LOCK TABLE address IN ROW EXCLUSIVE MODE;
Table(s) Locked.

SQL>
```

# Relational Algebra

1. Find out p\_amount information from payment table where p\_amount>5000.

**$\sigma_{p\_amount > 5000} (payment)$  ;**

2. Project the f\_name, l\_name from name table.

**$\pi_{f\_name, l\_name} (name)$  ;**

3. Fetch specialization from lawyear table for those lawyear where specialization = Civil Law.

**$\pi_{specialization} (\sigma_{specialization = "Civil Law"} (lawyear))$  ;**

4. Find out app\_id and app\_status from appointment table where app\_status=completed.

**$\pi_{app\_id, app\_status} (\sigma_{app\_status = "completed"} (appointment))$  ;**

5. Project the user\_name, email from users table.

**$\pi_{user\_name, email} (users)$  ;**