

CODING ASSESSMENT – Applications Developer (PHP / .NET)

Part 1

Objective:

Develop a secure, scalable, and well-architected **web portal** using either **modern PHP (Framework)** or **.NET (ASP.NET Core)** with a relational database (MySQL or SQL Server). The portal should follow industry best practices in authentication, database design, and software architecture.

Technical Expectations (Instructions)

- Use **MVC architecture**.
 - Organize code in **services/repositories** for testability and separation of concerns.
 - Apply **dependency injection** (especially in .NET).
 - Implement proper **error handling** and **input validation**.
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Deliverables

- Source code (preferably sent as a **.zip** file)
 - SQL schema (with seed data)
 - README with setup instructions
 - Postman collection (if API endpoints are used)
 - Any tests or documentation
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Functional Requirements (Task)

1. User Authentication & Authorization

- Implement **secure login and signup** functionality using password hashing.
- Include **role-based access control** (admin/user distinction).
- Use modern security mechanisms:
 - CSRF protection
 - Input validation and sanitization
 - Secure session management

2. Dashboard

- Display a responsive dashboard after login.
- Show relevant user data and metrics (e.g., user role, sidebar to navigate to user management & project mgt. page).

3. User Management

- Admin users should be able to:
 - View paginated list of users
 - Search/filter users by name, email, role
 - Edit user information
 - Deactivate/reactivate user accounts

4. Logout

- Properly destroy sessions and redirect to login.

5. Project Management

- Allow creation of sample projects. (Project Title, Description, Assigned user, Task)
 - Include CRUD functionality for managing projects and assignments.
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Part 2

DATABASE ASSESSMENT – Advanced SQL and Modelling (Task)

Schema Provided:

- Employees (id, name, department_id, salary)
- Departments (id, name)
- Projects (id, project_name, employee_id)

Tasks:

1. **Retrieve a list of employees with their department names**
 2. **Find total salary expenditure per department**
 3. **List employees working on more than one project**
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Departments

id	name
1	Legal
2	IT
3	Finance

Employees

id	name	department_id	salary
1	Alice Johnson	1	60,000.00
2	Bob Smith	2	75,000.00
3	Charlie Daniels	2	80,000.00
4	Diana Ross	3	50,000.00
5	Ethan Ray	1	62,000.00
6	Fiona Lee	3	55,000.00

Projects

id	Project_name	Employee_id
1	CMS Upgrade	2
2	Data Migration	3
3	Budget Review	4
4	Internal Audit	4
5	Security Enhancement	3
6	Legal Case Automation	1
7	Compliance Tracker	1