

GLA University, Uttar Pradesh
DSA Code Challenge (Data Structure Algorithm
36 Real-Time Java Hands-On Projects

Web-Based Applications

1. Enterprise Resource Planning (ERP) System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Integrate diverse business processes to optimize organizational efficiency.

Abstract: A modular ERP system combining finance, HR, supply chain, and inventory into one platform.

Outcome: Centralized business process management improving efficiency and consistency.

Activities: Define workflows, design DB schema, develop RESTful services, create UIs, integrate modules, implement RBAC, testing.

2. Customer Relationship Management (CRM) System

Database: MongoDB or MySQL

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Enhance customer engagement and sales process management.

Abstract: CRM to manage customer data, sales pipelines, marketing campaigns with analytics.

Outcome: Increased customer retention and optimized sales cycles.

Activities: Data modeling, API development, campaign automation, analytic dashboard, user security.

3. Human Resource Management System (HRMS)

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Automate employee management including payroll and recruitment.

Abstract: HRMS managing employee records, payroll, recruitment, performance, and leave management.

Outcome: Streamlined HR workflows and compliance.

Activities: Develop employee modules, secure authentication, payroll processing, UI for managers/employees.

4. Project Management Tool

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Improve project planning and resource allocation.

Abstract: Tool for managing projects, tasks, timelines, and resources collaboratively.

Outcome: Enhanced project transparency and delivery timelines.

Activities: Task scheduling, Gantt charts, notifications, resource tracking.

5. Business Intelligence Dashboard

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Provide business insights via integrated data visualization.

Abstract: Dashboard aggregating and visualizing data for decision-making.

Outcome: Data-driven strategic planning.

Activities: Data ETL, visualization widgets, filter options, refresh mechanisms.

6. Supply Chain Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Optimize procurement and inventory management.

Abstract: System managing inventory, procurement, and logistics.

Outcome: Reduced costs and improved supply accuracy.

Activities: Track orders/inventory, supplier communication, dashboards.

7. E-Learning Management System

Database: MongoDB or MySQL

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Facilitate scalable employee training.

Abstract: Platform for training content, progress tracking, and assessments.

Outcome: Effective and trackable learning.

Activities: Course builder, quizzes, video hosting integration.

8. Document Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Secure, collaborative document management.

Abstract: Store and track documents with version control.

Outcome: Organized and secure document handling.

Activities: Upload/download, version management, access controls.

9. Incident Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Efficient IT incident handling.

Abstract: Ticketing system from creation through resolution.

Outcome: Faster incident resolution.

Activities: Ticket workflows, assignment, reporting

10. Sales Order Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Streamline order processing and billing.

Abstract: Manage sales orders, invoicing, and inventory updates.

Outcome: Efficient sales fulfillment.

Activities: Order processing, invoicing, stock updates.

11. Time and Attendance Tracking System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Manage employee attendance and leave.

Abstract: Track working hours, leaves, and generate reports.

Outcome: Accurate attendance records.

Activities: Attendance logging: Implement features for employees to clock in and out.

12. Customer Support Portal

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Enable customer self-service and support tracking.

Abstract: Portal for ticket submission, FAQs, and status updates.

Outcome: Increased customer satisfaction

Activities: Ticket UI, FAQ management, ticket tracking.

13. Performance Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Track and improve employee performance.

Abstract: Set goals, conduct reviews, and monitor progress.

Outcome: Enhanced employee development.

Activities: Goal setting, review cycles, reporting.

14. Financial Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Automate budgeting and expense management.

Abstract: Track budgets, expenses, and generate reports.

Outcome: Transparent financial processes.

Activities: Expense tracking, budget control, report generation.

15. Vendor Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Oversee vendor contracts and performance.

Abstract: Manage vendors, contracts, evaluations.

Outcome: Strong vendor relations.

Activities: Contract tracking, performance metrics.

16. Corporate Intranet Portal

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Central hub for company communications/resources.

Abstract: Internal news, documents, collaboration tools.

Outcome: Better employee engagement.

Activities: Newsfeeds, docs, chat integration.

17. Compliance Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Ensure compliance adherence.

Abstract: Track regulations, audits, reporting.

Outcome: Reduced compliance risk.

Activities: Audit trails, alerts, documentation.

18. Marketing Automation Platform

Database: MongoDB or MySQL

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Automate and analyze marketing efforts.

Abstract: Campaign creation, scheduling, analytics.

Outcome: Efficient campaign management.

Activities: Email marketing, social media integrations.

19. Asset Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Manage company hardware/software assets.

Abstract: Track asset lifecycle and maintenance.

Outcome: Optimized asset usage.

Activities: Asset registry, maintenance logs.

20. Online Booking System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Facilitate appointment/resource scheduling.

Abstract: Platform for booking and calendar sync.

Outcome: Streamlined scheduling.

Activities: Booking UI, calendar integration.

21. Knowledge Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Preserve and share organizational knowledge.

Abstract: Document repository with tagging and search.

Outcome: Improved knowledge access.

Activities: Document upload, search features.

22. Risk Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Identify and mitigate business risks.

Abstract: Risk tracking, assessments, mitigation.

Outcome: Proactive risk control.

Activities: Risk register, assessment tools.

23. Corporate Social Responsibility (CSR) Platform

Database: MongoDB or MySQL

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Manage CSR projects and reporting.

Abstract: Track initiatives, participant coordination.

Outcome: Transparent CSR efforts.

Activities: Project tracking, reporting dashboards.

24. Employee Onboarding System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Simplify new hire onboarding.

Abstract: Manage trainings, paperwork, progress.

Outcome: Efficient onboarding.

Activities: Workflow automation, document submissions.

25. Inventory Forecasting System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Optimize stock based on demand predictions.

Abstract: Use historical data for inventory forecasting.

Outcome: Reduced stockouts and overstock.

Activities: Data collection, predictive modeling.

26. Event Management System

Database: MySQL MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Plan and manage corporate events.

Abstract: Registration, scheduling, attendee tracking.

Outcome: Smooth event execution.

Activities: Event creation, ticketing, attendance reports.

27. Feedback and Survey Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Collect feedback for continuous improvement.

Abstract: Survey creation, distribution, analytics.

Outcome: Actionable insights.

Activities: Survey design, data analysis.

28. Corporate Wellness Program Portal

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Promote employee health and wellness.

Abstract: Wellness challenges, tracking, resources.

Outcome: Improved employee well-being.

Activities: Challenge management, progress tracking.

29. Data Privacy Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Manage data privacy compliance.

Abstract: Consent management, data access requests.

Outcome: Compliance with data privacy laws.

Activities: Consent tracking, audit logs.

30. Internal Chat and Collaboration Tool

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Enhance internal communications.

Abstract: Secure messaging, file sharing, collaborations.

Outcome: Improved teamwork.

Activities: Real-time chat, notifications, file uploads.

31. Business Process Automation Tool

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Automate repetitive workflows.

Abstract: Workflow automation with integration capabilities.

Outcome: Increased operational efficiency.

Activities: Process design, automation scripting.

32. Customer Loyalty Program Management

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Boost customer retention and reward loyalty.

Abstract: Loyalty points tracking, rewards management.

Outcome: Increased customer engagement.

Activities: Points system, reward redemption.

33. Travel and Expense Management System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Simplify employee travel and expense reporting.

Abstract: Manage travel requests, approvals, expense claims.

Outcome: Controlled spending and compliance.

Activities: Travel request workflows, expense tracking.

34. Corporate Training and Certification System

Database: MongoDB or MYSQL

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Track employee training and certifications.

Abstract: Manage training materials, track courses and certifications.

Outcome: Compliance and employee development.

Activities: Course management, certification expiry alerts.

35. API Management Platform

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Centralize API control and monitoring.

Abstract: API gateway, monitoring, security, and documentation.

Outcome: Secure and efficient API usage.

Activities: Gateway setup, security implementation, rate limiting, documentation.

36. Employee Recognition and Rewards System

Database: MySQL or MongoDB

Backend Language: Java

Frontend: HTML, CSS, JavaScript

Motive: Boost employee morale through recognition.

Abstract: Platform for awarding achievements, points, and rewards.

Outcome: Increased motivation and positive workplace culture.

Activities: Data modeling, UI for recognition/rewards, notifications, admin dashboard, testing.