COCONSULT

By INFINITY GROUP

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CoConsult

General Introduction:

In today's fast-paced business environment, effective management is crucial for success. CoConsult understands the unique needs of Digital Service Companies, Consulting Firms, and Engineering Companies, and we're proud to introduce our comprehensive management system designed specifically for your industry.

General Project Context:

Study of the Existing System:

In this preliminary examination, we explore examples of established ERP systems that cater to similar business needs across various industries. These examples, such as SAP S/4HANA, Microsoft Dynamics 365, Oracle ERP Cloud, Workday, and NetSuite, provide insights into both the advantages and disadvantages of existing solutions.

1. **SAP S/4HANA:**

   - **Advantages:**

     - Comprehensive suite covering various business functions.

     - Advanced analytics and reporting capabilities.

   - **Disadvantages:**

     - High implementation costs and resource requirements.

     - Complex customization may require specialized expertise.

2. **Workday:**

   - **Advantages:**

     - User-friendly interface.

- Cloud-based, offering flexibility and scalability.
    - **Disadvantages:**
        - May not be as feature-rich for certain industries.
        - Continuous updates may disrupt existing processes.
3. **NetSuite:**
    - **Advantages:**
        - Cloud-based ERP with a unified suite.
        - Strong financial management capabilities.
    - **Disadvantages:**
        - Cost can be a concern for smaller businesses.
        - Customization may require technical expertise.

Critique of the Existing System:

Aspect	SAP S/4HANA	Workday	NetSuite
Scope and Functionality	Comprehensive suite covering various functions	User-friendly interface with cloud flexibility	Cloud-based ERP with strong financial features
Analytics and Reporting	Advanced analytics and reporting capabilities	Standard reporting with potential limitations	Strong financial reporting capabilities
Implementation and Customization	High implementation costs and complexity	Cloud-based flexibility with potential updates	Cost and technical challenges for customization
Industry Suitability	Suitable for various industries with complex needs	May lack certain industry-specific features	Strong in financial management
Cost Considerations	High implementation costs and ongoing expenses	Subscription-based model with potential updates	Cost concerns for smaller businesses
Updates and Maintenance	Requires careful management of updates	Updates may disrupt existing processes	Managed updates with potential customization

CoConsult should carefully weigh the pros and cons of SAP S/4HANA, Workday, and NetSuite in relation to its management system. While SAP S/4HANA offers robust features, its high costs and customization complexities may be prohibitive for smaller

firms. Workday's user-friendly interface and cloud flexibility are appealing, but it may lack industry-specific features and face update disruptions. NetSuite's strong financial capabilities are beneficial, yet cost and technical hurdles could be challenging for smaller businesses. CoConsult must assess these factors against its industry needs, resources, and long-term objectives to make an informed ERP selection. Exploring additional options may also provide a more comprehensive evaluation.

Problem Statement:

Effectively managing the ambitious scope of the ERP project necessitates a strategic approach to prioritization, aiming to avoid resource constraints and feature overload. In this context, project managers need to conduct a thorough analysis of user needs and project objectives, engaging stakeholders to identify essential functionalities. This involves understanding the operational priorities and specific challenges faced by digital service companies, consulting firms, and engineering entities.

How can project managers establish an iterative process of user and stakeholder consultation, fostering a continuous understanding of evolving needs and enabling a phased implementation that aligns with shifting user expectations and project goals, all while promoting creativity and innovation in the development process?

Proposed Solution:

The proposed ERP project solution strategically manages its ambitious scope by prioritizing essential functionalities, preventing resource constraints, and accommodating evolving user needs through iterative consultation. It fosters innovation to address challenges faced by digital service companies, consulting firms, and engineering entities. Functional requirements cover user management, recruitment, HR activities, commercial management, CRM functionalities, and consultant tracking. Non-functional aspects like security and usability are meticulously addressed. Leveraging insights from existing ERP systems, the project offers tailored functionalities across industries. Task repartition among team members ensures a cohesive approach. Through careful planning and collaboration, the solution aims to enhance organizational efficiency and competitiveness.

Choice of Development Methodology:

Flexibility: Agile allows for flexibility and adaptability throughout the development process. Given that the management system may have evolving requirements or may need to accommodate changes based on user feedback, Agile provides the framework to incorporate these changes seamlessly.

Collaboration: CoConsult's management system involves multiple stakeholders and modules covering various aspects such as recruitment, HR, CRM, project management, and consultant activities. Agile fosters collaboration between cross-functional teams, ensuring that all stakeholders are involved throughout the development process.

Iterative Development: Agile promotes iterative development with regular feedback loops. This means that features can be delivered incrementally, allowing for early validation and adjustments based on user feedback. This iterative approach aligns well with the goal of delivering a functional and user-friendly management system.

Transparent Communication: Agile methodologies emphasize transparency and communication within the team. This transparency ensures that everyone involved in the project is aware of its progress, challenges, and goals, promoting a shared understanding and alignment of objectives.

Given these factors, Agile would provide the flexibility, collaboration, and iterative development needed to deliver a successful management system for CoConsult. Within Agile, we may also consider incorporating elements of the Scrum framework, such as time-boxed iterations (sprints) and regular ceremonies (Sprint Planning, Daily Stand-ups, Sprint Review, Sprint Retrospective), to provide a more structured approach to the development process. Additionally, utilizing Agile principles such as customer collaboration, responding to change, and delivering working software can help ensure the success of the project.

Analysis and Specification of Requirements

Needs Analysis:

Certainly! Conducting a needs analysis is a crucial step in understanding the requirements and objectives of CoConsult's management system. Here's a structured approach to performing a needs analysis:

- **Identify Stakeholders:**
    - Determine the key stakeholders involved in the project, such as management, users, IT staff, and external clients.
    - Understand their roles, responsibilities, and perspectives regarding the management system.
- **Gather Requirements:**
    - Conduct interviews, surveys, and workshops with stakeholders to gather requirements.
    - Identify the specific functionalities and features needed in the management system.

- Prioritize requirements based on importance and urgency.
- **Define Objectives:**
    - Clarify the overall objectives and goals of implementing the management system.
    - Align objectives with the strategic goals of CoConsult, such as improving efficiency, enhancing communication, or optimizing resource management.
- **Assess Current Processes:**
    - Evaluate existing processes and workflows related to recruitment, HR management, CRM, project management, and consultant activities.
    - Identify pain points, inefficiencies, and areas for improvement.
    - Determine how the management system can address these challenges and streamline processes.
- **Consider Industry Standards and Best Practices:**
    - Research industry standards and best practices related to management systems in the consulting and engineering sectors.
    - Identify common features and functionalities that are essential for similar organizations.
    - Incorporate relevant standards and practices into the requirements of CoConsult's management system.
- **Understand User Needs:**
    - Analyze user personas and user journeys to understand the needs, preferences, and behaviors of different user groups.
    - Consider usability, accessibility, and user experience requirements to ensure the management system meets the needs of all users.
- **Assess Technical Considerations:**
    - Evaluate technical requirements, such as scalability, security, integration with existing systems, and compatibility with different devices and browsers.
    - Consider the infrastructure and technology stack needed to support the management system.
- **Document Findings:**
    - Document the findings of the needs analysis, including requirements, objectives, pain points, user needs, and technical considerations.
    - Create a comprehensive needs analysis report to serve as a reference for the development team and stakeholders.

By following this structured approach to needs analysis, CoConsult can gain valuable insights into the requirements and objectives of its management system, ensuring that the final solution effectively addresses the needs of the organization and its stakeholders.

Actors:

Role	Description
Admin	Responsible for overseeing the overall administration and management of the organization.
Consultant	Provides expert advice and guidance on specific projects or areas of expertise.
HR Manager	Manages human resources activities including recruitment, employee relations, and training.
CRM Manager	Oversees customer relationship management strategies and systems to maintain customer loyalty.
Project Manager	Plans, executes, and oversees projects from initiation to completion within specified constraints.
Employee	Individual working within the organization to fulfill specific job responsibilities.
Postulant	A person who applies for a job or position within an organization.

Functional Requirements:

User and Profile Management:

    User Accounts:

- o As an admin, I create, edit, and deactivate user accounts for all types of users (HR, Sales, Project Managers, Consultants).
- o As an admin or HR, I define user roles and permissions for access control based on functionalities.
- o As an admin I implement single sign-on (SSO) integration with existing corporate systems.

    Profiles:

- o As an admin I should allow users to update their own profile information.
- o As an admin I should integrate with HR module for employee data synchronization.

2. Recruitment and HR Activity:

    Application Management:

- o As a hr, I can post job openings with detailed descriptions and requirements.
- o As a user, I receive and manage applications electronically.

Employee Profiles:

- o As a hr, I can maintain complete employee profiles with personal details, job history, skills, achievements, and salary information.

- o As a hr, I can track employee's presence and consult their performance.

Leave and Absence Tracking:

- o As an employee, I canrequest and manage leaves (vacation, sick leave, etc.) via the platform.

- o As a manager, I can approve or deny leave requests electronically.

Performance Tracking:

- o As an admin I should, Implement a performance evaluation system with customizable templates and goals.

3. Commercial Management & CRM:

Prospects and Clients Tracking:

- o As a CRM manager or team, I can create and manage prospect profiles with contact information, sales stages, and communication history.

- o As a CRM manager or team, I can segment clients based on industry, project types, and other criteria.

- o As a CRM manager I can manage the CRM team.

Commercial Opportunities Management.

Contract Management:

- o As a CRM manager or team, I can create and manage contracts with clients electronically.

- o As a CRM manager or team, I can track contract milestones and expiration dates.

Quote Creation, Invoice Tracking, and Payment Monitoring:

- o As a CRM manager or team, I can generate professional quotes based on client requirements and project specifications.

- o As a customer, I can issue invoices electronically and track payment status.

- As a CRM manager or team, I can generate reports on sales performance, revenue, and profitability.

4. Consultant Activity (Time, Expenses & Absences):

Time Recording:

- As an admin I should allow consultants to track their time spent on different projects and tasks.
- As an admin I should integrate with project management tools for accurate time logging.
- As a consultant I can generate reports on individual and team productivity.

Expense Entry and Tracking:

- As an admin I should allow consultants to submit expense reports with receipts and categories.
- As an admin I should implement approval workflows for expense claims.
- As a hr I can track and manage consultant budgets.

Absence Tracking:

- As an admin I should allow consultants to request and manage absences (sick leave, vacation, etc.) via the platform.
- As an admin I should Integrate absence data with project calendars and resource planning.

5. Instant Messaging:

- As an admin I should implement a secure and reliable instant messaging system for internal communication.
- As an admin I should integrate with user profiles and project teams for enhanced collaboration.
- As an admin I should enable file sharing and group chat functionality.

Non-functional Requirements:

1. **Security**:

   - **User Authentication**: Implement robust role-based user authentication for HR managers, employees, and candidates.

   - **Encryption of Sensitive Data**: Sensitive information such as financial data, personally identifiable information (PII), and performance evaluations must be encrypted during transmission and storage.

   - **Role-Based Access Control**: Use role-based access controls to limit access to sensitive functionalities such as salary management, performance evaluations, and personal data.

   - **Regular Security Audits**: Schedule regular security audits and penetration testing to identify and rectify potential vulnerabilities.

2. **Usability**:

   - **Intuitive User Interface**: Design a user-friendly and intuitive interface to facilitate navigation and use of the platform by HR managers, employees, and candidates.

   - **Multilingual Support and Accessibility**: Incorporate multilingual features and accessibility options (screen reader compatibility, etc.) to cater to the needs of international and diverse users.

3. **Maintainability**:

   - **Comprehensive Documentation**: Provide comprehensive documentation for HR developers and administrators, including inline code comments and detailed usage guides.

   - **Modular Design**: Implement a modular design of the HR platform to facilitate maintenance, updates, and addition of new features without disrupting the entire system.

   - **Use of Git**: Utilize a version control system such as Git to manage source code changes, facilitate collaboration among developers, and ensure traceability of changes made.

Requirements Specification

General Use Case Diagram:

Analysis Class diagram:
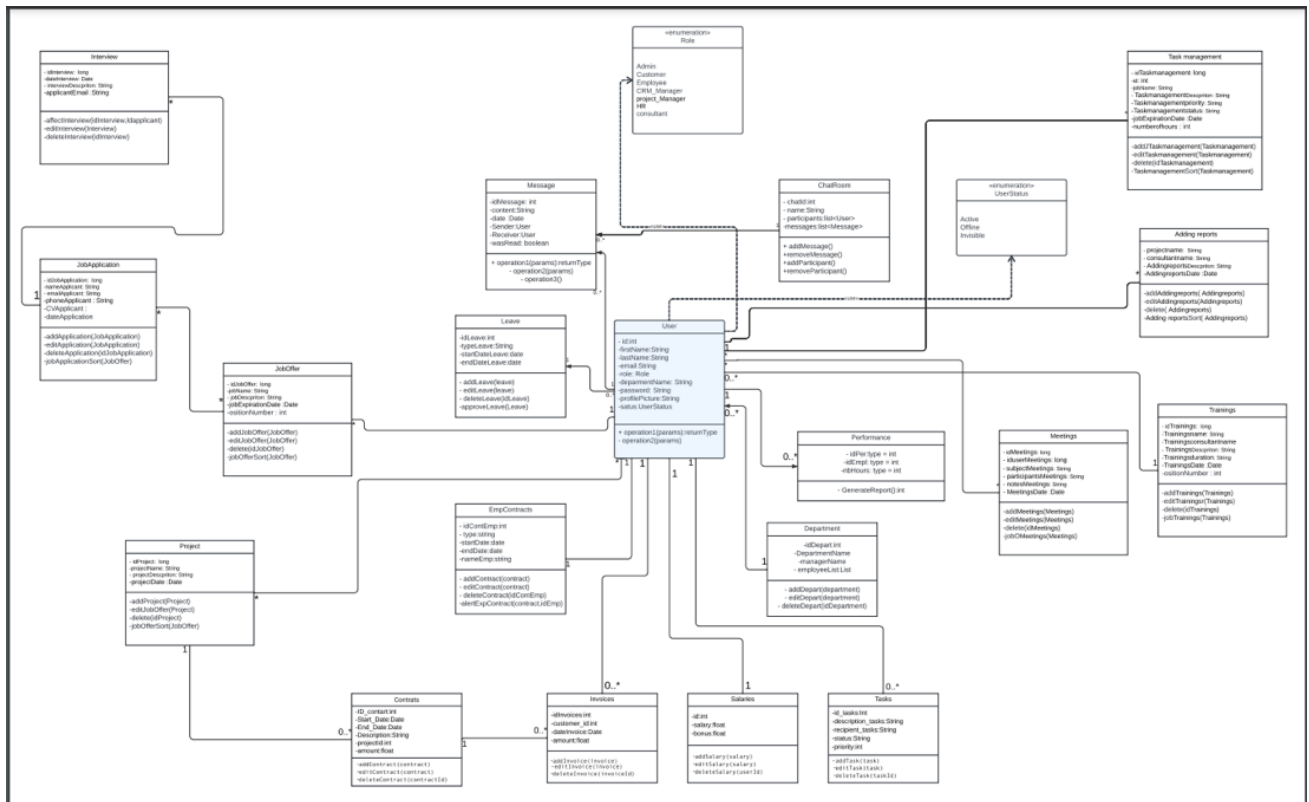
Product Backlog:

Priority	ID	Title	Description	Estimation	Owner
High	1	User Account Management	As an admin, I create, edit, and deactivate user accounts for different user roles (HR, Employee, Project Managers, Consultants).	3 days	Alaeddine Ben Mahmoud
High	2	User Roles & Permissions	As an admin or HR, I define user roles and assign permissions for access control based on functionalities.	2 days	Alaeddine Ben Mahmoud
High	3	Single Sign-On (SSO) Integration	As an admin, implement SSO integration with existing corporate systems.	5 days	Alaeddine Ben Mahmoud
Medium	4	User Profile Management	As an admin,I allow users to update their own profile information.	1 day	Alaeddine Ben Mahmoud
High	5	Instant Messaging	Implement secure instant messaging system for internal communication.	3 days	Alaeddine Ben Mahmoud
High	6	User Profiles & Project Team Integration	Enable easy messaging based on user profiles and project teams.	1 day	Alaeddine Ben Mahmoud
High	7	Group Chat Functionality	Allow group chats for teams, departments, or projects.	2 days	Alaeddine Ben Mahmoud
High	8	Chat History	Store and access past chat conversations.	2 days	Alaeddine Ben Mahmoud
High	9	Job Opening Management	As an HR, I post job openings with detailed descriptions and requirements.	2 days	Houssem Meguebli
High	10	Application Management	As a HR, I receive and manage applications online.	3 days	Houssem Meguebli

| Medium	11	Project Management Integration	As an Project manager, I integrate with project management tools for accurate time logging.	2 days	Houssem Meguebli
High	12	Project Allocation	As an Project manager, I assign and track team members across projects based on skills and availability.	2 days	Houssem Meguebli
Medium	13	HR Data Synchronization	As an admin, I integrate with HR module for employee data synchronization.	2 days	Jouini Sarra
Medium	14	Employee Profile Management	As an HR, I maintain complete employee profiles with personal details, job history, skills, achievements, and salary information.	4 days	Jouini Sarra
Medium	15	Performance and presence	As an HR, I track employee's presence and consult their performance	2 days	Jouini Sarra
High	16	Leave Request Management	As an employee, I request and manage leaves via the platform.	2 days	Jouini Sarra
High	17	Leave Approval Workflow	As a manager, I approve or deny leave requests electronically.	1 day	Jouini Sarra
Medium	18	Performance Evaluation System	As an admin, I implement a performance evaluation system with customizable templates and goals.	5 days	Jouini Sarra
High	19	Organizational Chart Visualization	As an admin, I implement an organizational chart visualization for each department	3 days	Jouini Sarra
High	20	Prospect & Client Management	As a CRM manager or team, I create and manage prospect profiles with contact information, sales stages, and	4 days	Hassan Jlassi

			communication history.		
Medium	21	Client Segmentation	As a CRM manager or team, I segment clients based on industry, project types, and other criteria.	2 days	Hassan Jlassi
High	22	CRM Team Management	As a CRM manager, I manage the CRM team.	1 day	Hassan Jlassi
Medium	23	Opportunity Management	As a CRM manager or team, I manage commercial opportunities.	3 days	Hassan Jlassi
High	24	Contract Management	As a CRM manager or team, I create and manage contracts with clients electronically.	4 days	Hassan Jlassi
Medium	25	Contract Milestone Tracking	As a CRM manager or team, I track contract milestones and expiration dates.	2 days	Hassan Jlassi
High	26	Quote Generation & Invoice Tracking	As a CRM manager or team, I generate professional quotes and track invoices electronically.	4 days	Hassan Jlassi
Medium	27	Payment Monitoring	As a customer, I issue invoices and track payment status.	2 days	Hassan Jlassi
Medium	28	Sales Performance Reporting	As a CRM manager or team, I generate reports on sales performance, revenue, and profitability.	3 days	Hassan Jlassi
High	29	Consultant Time Recording	As an admin, I allow consultants to track time spent on projects and tasks.	4 days	Houssemeddine Henchir
Medium	30	Consultant Productivity Reports	As a consultant, I generate reports on individual and team productivity.	1 day	Houssemeddine Henchir
High	31	Skills Matching Algorithm	As a consultant, I Develop an algorithm that matches consultant skills with project requirements based on various factors (experience, certifications, etc.).	5 days	Houssemeddine Henchir

High	32	Resource Allocation Optimization	As a consultant, I Implement algorithms to optimize resource allocation across projects, considering consultant availability, skills, workload, and cost.	7 days	Houssemeddine Henchir
High	33	Automated Task Assignment	As a consultant, I Develop logic to automatically assign tasks to consultants based on skills, availability, workload, and project requirements.	5 days	Houssemeddine Henchir
Medium	34	Knowledge Management System (Advanced)	As a consultant, I Build a robust knowledge repository with features like document version control, collaboration tools, and AI-powered search.	10 days	Houssemeddine Henchir
Medium	35	Calendar Integration (Advanced)	As a consultant, I Integrate with advanced calendar services like Google Calendar for two-way synchronization, conflict detection, and automatic scheduling.	3 days	Houssemeddine Henchir
High	36	Performance Analytics (Advanced)	As a consultant, I Implement advanced analytics and visualizations to track consultant performance across various metrics (completion rates, client feedback, project impact).	7 days	Houssemeddine Henchir
High	37	Training Management (Advanced)	As a consultant, I Develop functionalities for personalized learning paths, skills gap analysis, and competency-based training modules.	7 days	Houssemeddine Henchir

|					
High	38	Feedback Mechanism (Advanced)	As a consultant, I Create a multi-dimensional feedback system with 360-degree feedback, self-assessment tools, and gamification elements for continuous improvement.	8 days	Houssemeddine Henchir
Medium	39	Consultant Portfolio Management	As a consultant, I Allow consultants to build and manage their online portfolios showcasing skills, experience, and project achievements.	3 days	Houssemeddine Henchir

Overall Application Architecture:

Physical Architecture:
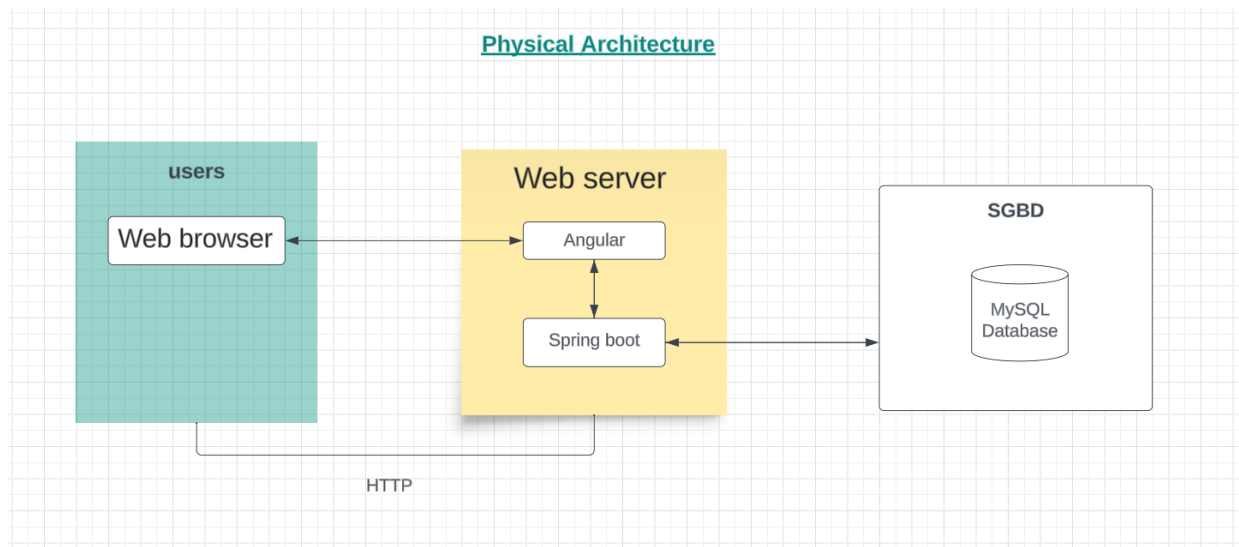
Logical Architecture:
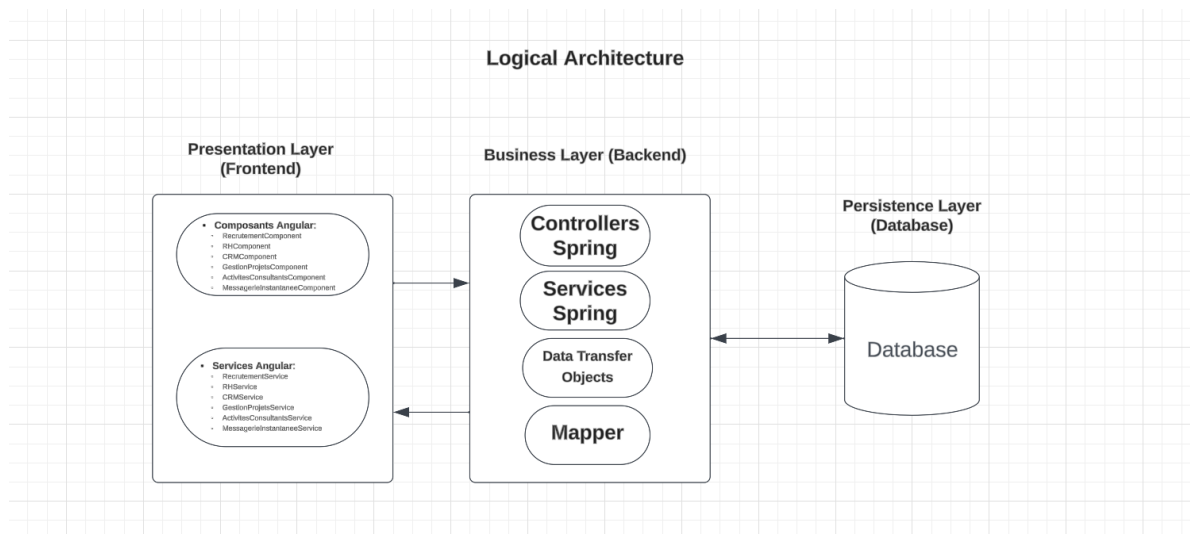
1. Presentation Layer (Frontend - Angular):

- Angular components for each module (Recruitment, HR, CRM, Project Management, Consultant Activities, Instant Messaging).
- Angular services to communicate with the business layer.

2. Business Layer (Backend - Spring Boot):

- Spring controllers to handle HTTP requests and service calls.
- Spring services for the business logic of each module.
- DTOs (Data Transfer Objects) transfer data between frontend and backend layers.
- Mapper to map database entities to DTOs.

3. Persistence Layer (Database):

- Relational database (MySQL) to store data.
- Tables for each business entity (users, recruitment, HR, clients, projects, consultant activities, etc.).
- ORM (Object-Relational Mapping) to interact with the database from the Spring Boot application.

Marketing Strategy:

Logo:

Slogan:

"Your partner in progress"

Flyer:

Color code:

- Secondary Color: #FFFFFF (White)
- Accent Color: #057077(Green)
- Primary Color: #FFA500 (Orange)

Mockups:

Task repartition:

Ala's tasks:

- User management:
  - ✓ Presence tracking (id, date, hour, number of hours)
  - ✓ User data (id, username, password, email, phone, department, role, profile picture, position, status)
  - ✓ Enumeration (HR, employee, consultant, admin, customer, CRM manager, project manager)

- Authentication
- Sign up
- Messenger functionality:
  - ✓ Communication in groups (department) Private messaging messaging all users Ability to share messages and files
  - ✓ Message (id, content, date, receiver, sender, wasRead)
  - ✓ ChatRoom (ChatId , name, participants, messages)

Advanced Functionalities:

1/Role-Based Access Control (RBAC): Utilize JWT claims to enforce role-based access control, allowing users with different roles to access different parts of the application.

2/Token Refresh Mechanism: Implement a token refresh mechanism to automatically renew JWT tokens before they expire, providing a seamless user experience without requiring users to reauthenticate frequently.

3/Single Sign-On (SSO): Implement JWT-based single sign-on functionality to allow users to access multiple related applications with a single authentication process.

4/Token Encryption: Encrypt JWT tokens to protect sensitive information contained within them, ensuring confidentiality and integrity of token data.

5/Multi-factor Authentication (MFA): Integrate multi-factor authentication mechanisms such as SMS OTP, email verification, or biometric authentication in conjunction with JWT for enhanced security.

Task repartition:

Angular:

Route Guards: Use Angular route guards to protect routes based on the user's authentication status and role, preventing unauthorized access to protected routes and resources.

1/Group Chat:

- Angular: Provides UI components for creating and managing group chat rooms.
- Spring Boot: Implements RESTful APIs to handle CRUD operations for group chat rooms.

2/File Sharing:

- Angular: Integrates file selection and display functionalities within the chat interface.
- Spring Boot: Extends RESTful APIs to handle file upload/download operations securely.

3/Read Receipts:

- Angular: Visualizes message read status within the chat interface.
- Spring Boot: Tracks message read status and updates message metadata accordingly.

4/Typing Indicator:

- Angular: Displays typing indicators in real-time to other users within the chat interface.
- Spring Boot: Configures WebSockets to detect user typing events and propagate them to other users.

5/End-to-End Encryption:

- Angular: Integrates client-side encryption for securing messages before transmission.
- Spring Boot: Handles message encryption/decryption using cryptographic libraries to ensure end-to-end security.

6/Message Search:

- Angular: Provides UI for entering search criteria and displaying search results.
- Spring Boot: Implements search functionality in RESTful APIs to retrieve messages based on search criteria.

7/Push Notification:

- Angular: Manages client-side device registration for push notifications.

- Spring Boot: Integrates with push notification services (e.g., FCM, APNs) to send notifications to registered devices based on trigger events.

Houssemeddine's tasks:

- Consultant management
  - ✓ Adding reports (project name, date, consultant name, description)
  - ✓ Task management (idTaskmanagement, id, description, priority, status, number of hours)
  - ✓ Calendar
- Meetings (id, user id, date, subject, participants, notes)
- Trainings (id, name, duration, date, description, consultant name)

Advanced Functionalities:

1/ Skills Matching:

- Spring Boot: Develops algorithms to match consultants' skills with project requirements.
- Angular: Provides a user-friendly interface for project managers to input project details and view matched consultants based on their skills and expertise.

2/ Resource Allocation Optimization:

- Spring Boot: Implements algorithms to optimize resource allocation based on project requirements, consultant availability, and workload.
- Angular: Displays resource allocation suggestions and allows project managers to adjust allocations through an intuitive interface.

3/ Automated Task Assignment:

- Spring Boot: Develops logic to automatically assign tasks to consultants based on their skills, availability, and workload.
- Angular: Provides a dashboard for consultants to view their assigned tasks and prioritize them accordingly.

4/ Knowledge Management System:

- Spring Boot: Builds a knowledge repository to store project-related documents, reports, and best practices.
- Angular: Develops a searchable interface for consultants to access relevant project information, share insights, and collaborate effectively.

5/ Calendar Integration:

- Spring Boot: Integrates with calendar services (e.g., Google Calendar) to synchronize meeting and training schedules.

- Angular: Displays synchronized calendars within the application, allowing consultants to manage their schedules efficiently.

6/ Performance Analytics:

- Spring Boot: Collects and processes data on consultant performance, including task completion rates and client feedback.
- Angular: Presents visualizations and analytics dashboards to track and analyze consultant performance over time.

7/ Training Management:

- Spring Boot: Implements functionalities for scheduling, tracking, and evaluating consultant training sessions.
- Angular: Provides an interface for consultants to browse available training programs, register for sessions, and access training materials.

8/ Feedback Mechanism:

- Spring Boot: Develops a feedback system to collect input from project managers, clients, and team members regarding consultants' performance.
- Angular: Integrates feedback forms and rating mechanisms into the application, enabling stakeholders to provide constructive feedback in real-time.

Hassan's tasks:

- Payments
- CRM management:
  - ✓ Contracts (id, start date, end date, description, project id, amount)
  - ✓ Invoices (id, customer id, date, amount)
  - ✓ Tasks (id, description, recipient, status, priority)
- Salaries (user id, salary, bonus)

Advanced Functionalities:

Angular Part (Frontend) CRM Management:

Contracts:

- Implementation of automatic contract renewal functionality.
- Automatic calculation of remaining amounts to be paid based on contract duration and payments already made.

Invoices:

- Generation of customized PDF invoices with client-specific details.

- Integration of an automatic reminder system for unpaid invoices.

Tasks:

- Implementation of a real-time notification system for task status updates.
- Implementation of a task scheduling algorithm based on workload and priorities.

Salaries:

- Management of paid leaves, overtime hours, and bonuses.
- Integration of a paycheck validation system by employees before issuance.

Spring Boot Part (Backend) CRM Management:

Contracts:

- Logic for automatic contract renewal, fine management, and remaining amount calculation.

Invoices:

- API for PDF invoice generation and payment tracking.
- Mechanism for managing unpaid invoice reminders and notifications.

Tasks:

- API for task management, including scheduling, notification, and linkage to contracts or invoices.

Salaries:

- Mechanism for paycheck validation by employees before issuance.

Sarra's tasks:

- Performance management:
  - ✓ Performance data (id, employee id, number of hours)
- Contract management:
  - ✓ Contracts (id, type, start date, end date, salary, department id)
- Department management:
  - ✓ Departments (id, manager name, employee list)
- Leave management:
  - ✓ Leaves (id, type, start date, end date)

Advanced Functionalities:

1/Generate performance reports:

- Spring Boot: Employs Java libraries to fetch and process performance data from the database.
- Angular: Leverages its dynamic front-end capabilities to present the generated performance reports to users in a visually appealing and interactive manner.

2/Alert for Contract Expiry:

- Spring Boot: Implements a scheduled task or event listener to monitor contract expiry dates in the database.
- Angular: Provides a user-friendly interface for stakeholders to manage and view contract expiry alerts. Through Angular, stakeholders can receive and interact with notifications regarding upcoming contract expirations.

3/Organizational Chart Visualization with Spring Boot and Angular:

- Spring Boot: Define a data model representing departments, teams, and employees. Develop a Spring Boot REST API to expose this data.
- Angular: Use Angular's HttpClient service to fetch department, team, and employee data from the Spring Boot API.

4/Implement leave approval workflow:

- Spring Boot: Orchestrates the workflow for leave approval by managing the status of leave requests in the database.
- Angular: Provides a user interface for designated personnel to review and act on leave requests.

Houssem's tasks:

- Recruitment management:
  - ✓ Job offer (id, job name, description, expiration date, number of positions, number of applicants)
  - ✓ Job application (id, name, email, phone, CV, date)
  - ✓ Interviews (id, date, description, applicant email)
- Project management:
  - ✓ Projects (id, name, details, date, employee list)

Advanced Functionalities:

1/Automated CV Analysis:

- Spring Boot: Utilizes Java libraries to extract and analyze data from CVs.
- Angular: Displays key skills and relevant information extracted from CVs in the user interface.

2/Advanced Interview Management:

- Spring Boot: Creates RESTful APIs to schedule, organize, and record interview details.
- Angular: Provides an interactive user interface to display interview schedules, send reminders, and provide interview feedback.

3/Integration of Video Conferencing Systems:

- Spring Boot: Integrates with third-party video conferencing services via APIs.
- Angular: Develops components to initiate and manage virtual meetings directly from the user interface.

4/Advanced Project Management:

- Spring Boot: Develops services to manage project planning, collaboration, and tracking.
- Angular: Creates a user interface to display tasks, deadlines, team members, and project dashboards.