Software Engineering Project - September’25

Sync’em

An AI-powered assistant app that helps HR and project managers efficiently allocate projects based on employee skills and availability, while providing a chatbot for employees for quick HR policy queries.

Team Members

1. AKBAR ALI | 23f1002997
2. DEON LEVON DMELLO | 21f3002473
3. D NARENDRAN | 22f3002698
4. SAMPRITI RAHA | 22f1000064
5. SAYAN BHOWMICK | 22f3001657
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8. TUMMALA NAVEEN | 22f3002759

MILESTONE 3

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Project Schedule

SPRINTS SCHEDULE			
Sprint No.	Task	Start Date	End Date
1	User Identification and Requirement Analysis	Sep 19, 2025	Sep 28, 2025
2	User Interface and Functionalities	29 Sep 2025	19 Oct 2025
3	Designing the frontend	20 Oct 2025	Nov 2, 2025
4	Creating Backend API Endpoints	03 Nov 2025	09 Nov 2025
5	Integrating the Frontend & Backend	10 Nov 2025	16 Nov 2025
6	Testing	17 Nov 2025	30 Nov 2025

Scrum Meeting

Details:

Scrum Meetings Schedules Every Wednesday and Saturday (9:00 PM onwards)
Additionally on Mondays, Sundays (as per requirement)

Mode:

Virtual

Attendees:

1. AKBAR ALI | 23f1002997
2. DEON LEVON DMELLO | 21f3002473
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About the Sprints

Sprint 1
User Identification and Requirement Analysis

This began with the team introduction and then we sat further in the second meeting and then selected the sector of our app and then in the next meat, We identified all user categories (HR Managers, Project Managers, Employees, ,admin etc) and define their roles and interactions within the system.
After the identification of all types of users of the app we then check for the requirements on our end that we see and the fuctionalities that we need to provide to our Users.
Finalize and submit the Milestone 1 Report, consolidating the user identification and requirement documentation.
Dates: 19 September 2025 – 28 September 2025

Sprint 2
User Interface and Functionalities

For better understanding of the sector as well as the requirements of our users each of us conducted various type of user's Intervies. Develop detailed user stories following the SMART framework to capture functional and non-functional requirements effectively.
Design the user journey using storyboards and low-fidelity wireframes to represent workflows for each user type. Implement usability guidelines to ensure clarity and consistency in navigation.Map user stories to interface components to define how functionalities (e.g., project allocation, HR chatbot, performance feedback) will appear in the system.
Complete and submit the Milestone 2 Report, including finalized wireframes and user flow diagrams.
Dates: 29 September 2025 – 19 October 2025

About the Sprints

Sprint 3
Designing the Frontend

This is a frontend code focused sprint. We develop the major frontend pages using Vue.js, ensuring modular and reusable component architecture. Implement responsive layouts for HR Manager, Employee, and Project Manager dashboards.
Set up project routing and redirections between pages such as Login, Dashboard, Allocation, Chatbot, and Reports.
Document the project schedule, sprint plan, scrum meeting calendar, and create a Gantt chart and Kanban board for task tracking.
Complete and submit the Milestone 3 Report with screenshots of UI pages and planning tools.
Dates: 20 October 2025 - 02 November 2025

Sprint 4
Creating Backend API Endpoints

We are using Flask for backend. This is a core backend oriented and focusses on Designing and implementing RESTful APIs using Flask for essential modules such as user authentication, project allocation, chatbot responses, and performance tracking.
Document all endpoints with detailed specifications, including parameters, methods, and sample JSON responses.
Prepare and submit the Milestone 4 Report, showcasing endpoint documentation and code integration readiness.
Dates: 3 November 2025 – 9 November 2025

About the Sprints

Sprint 5
Integrating the Frontend & Backend

This one has the connectivity of the backend and frontend. We first do unit testing here of individual components and then we connect the Vue.js frontend with Flask backend APIs to enable real-time data flow. Ensure synchronisation of authentication tokens, role-based dashboards, and chatbot interactions.

Resolve CORS and routing issues, verify form submissions, and validate data exchange between modules.

Conduct internal reviews and prepare for functional testing.

Dates: 10 November 2025 – 16 November 2025

Sprint 6
Testing

This is the basic testing based sprint here the whole coding part is done and the app is ready here We perform integration, and usability testing across all components to ensure functional correctness and performance.

Use test cases mapped to each user story to validate API reliability, UI responsiveness, and chatbot accuracy.

Document testing results and bug fixes, and prepare the Milestone 6 Report for submission.

Dates: 17 November 2025 – 30 November 2025

Scrum Meeting Details

Scrum Meeting Details conducted for Sprint 1

Started with a Sprint 1, the team held multiple scrum meetings to establish the project foundation and align on objectives. The initial meeting began with team introductions, discussion of individual roles, and brainstorming of potential project domains. After a collaborative evaluation of ideas, the team selected the HR and Project Allocation sector for the app, later titled "Sync'em."
In the subsequent meetings, the focus shifted toward identifying and defining all user categories – HR Managers, Project Managers, Employees, Department Leads, and Administrators – and analyzing their roles and interactions within the system. Each team member contributed by researching and documenting user requirements and expected functionalities.
The team then conducted a collective review to verify that the user identification covered every functional area of the application. Following this, members worked together to determine key functional and non-functional requirements, emphasizing usability, scalability, and security.

Scrum Meeting Details

Scrum Meeting Details conducted for Sprint 2

During Sprint 2, the team focused on translating the identified user requirements and stories into a structured user interface (UI) flow and defining key functional components of the application. The first scrum meeting for this sprint began with a review of the finalized requirements from Sprint 1. And we focused on the interviews for better understanding of the Sector.

Finally, the team collaborated to draft and refine user stories for all identified users, ensuring that they adhered to SMART guidelines (Specific, Measurable, Achievable, Relevant, and Time-bound).

Team members collaboratively mapped each user story to corresponding UI elements and screens. Based on this mapping, the team discussed and agreed upon a consistent navigation structure to ensure a smooth user journey for all user types – including HR Managers, Project Managers, and Employees.

In the following meeting, members presented their initial low-fidelity wireframes for critical modules such as login, dashboard, project allocation, chatbot, and performance reports. Feedback was collected through peer review, focusing on improving clarity, reducing redundancy, and ensuring alignment with usability principles and design heuristics.

Subsequent discussions focused on refining the application user flow, connecting different screens to represent real-world interactions, and ensuring that each functionality was linked to a specific user goal. The team also finalized color themes, layout consistency, and interaction logic to maintain a uniform design language across all pages.

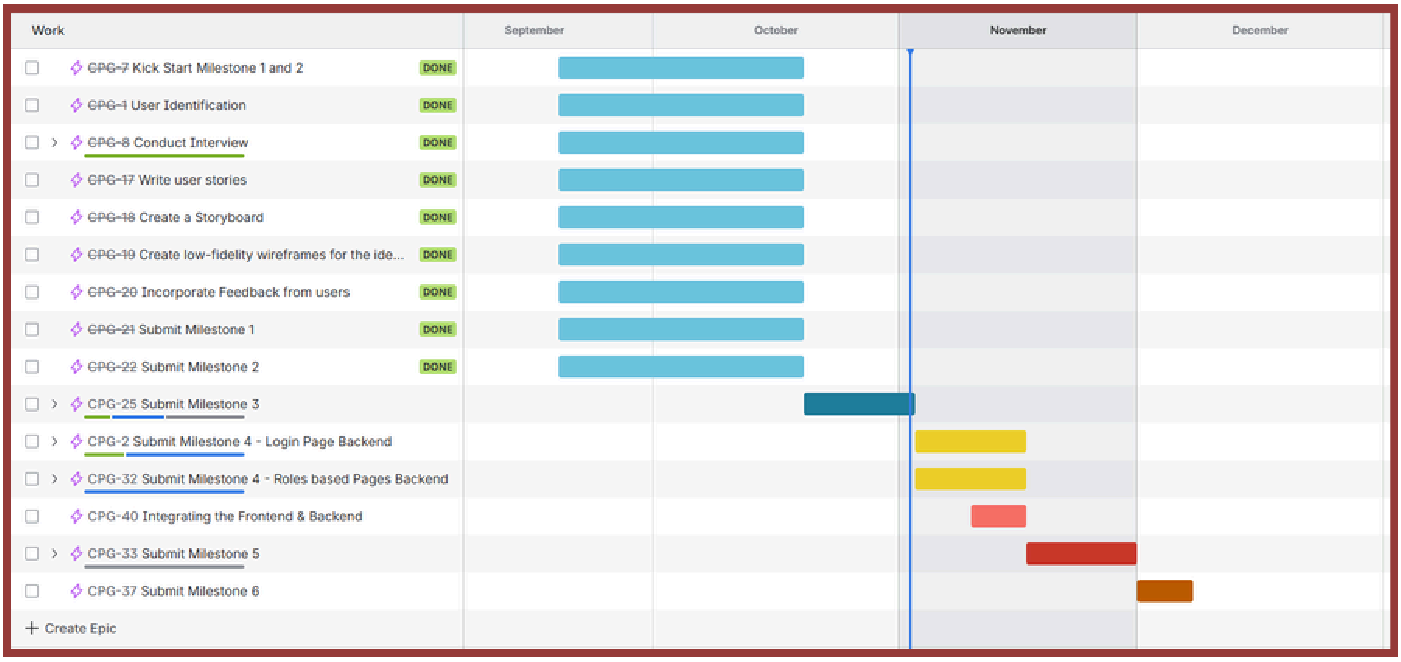
Scrum Meeting Details

Scrum Meeting Details conducted for Sprint 3

In Sprint 3, the team focused on designing and building the main frontend of the app using Vue.js. The first meeting began with a review of the wireframes from Sprint 2 and assigning pages to each member, such as the login page, dashboard, chatbot, and reports page.
In the next few meetings, everyone shared their progress, discussed layout consistency, and connected all pages using Vue Router for smooth navigation. The team also worked on making the design responsive and user-friendly across devices.
Towards the end of the sprint, the team finalized all pages, added placeholder data for testing, and prepared screenshots of the Gantt chart and Kanban board. The sprint concluded with compiling and submitting the Milestone 3 Report, completing the frontend design phase successfully.

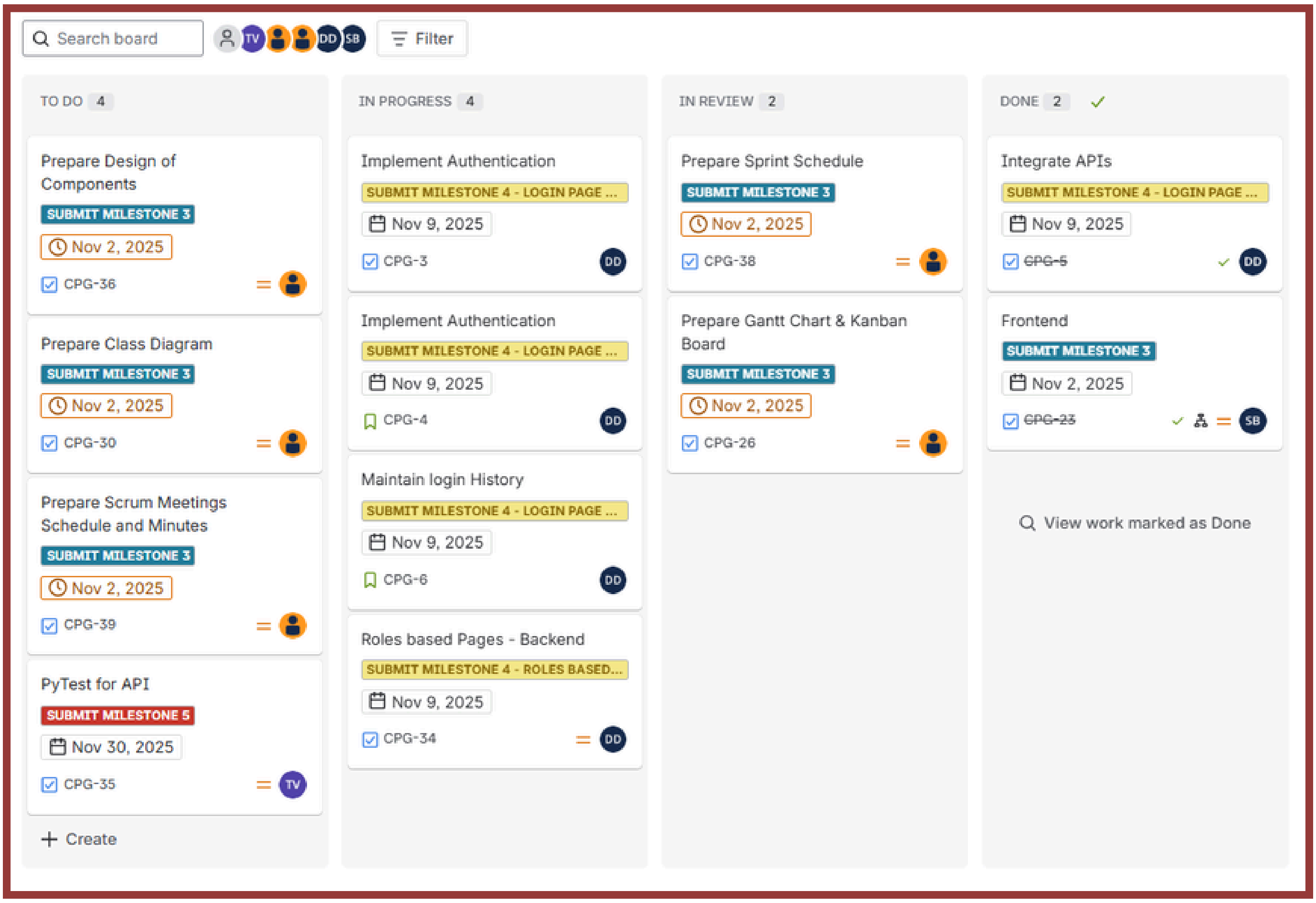
Project Scheduling Tools

Gnatt Chart



Project Scheduling Tools

Kanban Board



COMPONENT DESIGN

Admin Component

- Read employee directory list and filter results via search bar bound to searchQuery with computed filtering and input watcher.
- Update employee status by clicking Change Status and selecting a new value from the status dropdown for each employee item.
- Create a chat session by toggling the floating AI button to open the chat window for the current route.
- Create a user message with the send action, then auto-generate AI reply and auto-scroll the chat body.
- Read chat history by rendering messages array and close the dialogue to end the session.
- Read data on mount via fetchData stub and log actions for search and status changes.
- Read admin profile panel with placeholders for account details.
- Update credentials through a password change form placeholder.
- Create/rotate/delete API keys via management placeholder section.
- Create weekly backup schedule entries per day with type selector (full, incremental, differential) and date time picker.
- Update backup type and runtime by editing v-model fields for each item.
- Read current backup plan by listing configured items in the backup container.
- Save configuration to persist changes using saveConfig stub when wiring an API.
- Read live or historical logs via placeholder tail view.
- Filter or search logs when inputs are added in future iterations.
- Read system health summaries, including uptime and resource usage placeholders.
- Update status visuals when backing data sources are connected in future.
- Read current versions and update status in the updates panel.
- Trigger check for updates action when the control is wired to backend.
- Read and navigate between routes using the top navigation header and router-view outlet.
- Create global chat session available across pages, send user messages, and update conversation with simulated AI responses.
- Close chat to end session and retain layout-level state while switching routes.

COMPONENT DESIGN

HR Component

- Displays comprehensive workforce statistics, key HR metrics, and quick navigation panels for managing employees, projects, and policies from a unified dashboard interface.
- Reads and lists detailed employee records, supporting dynamic filtering, sorting, and real-time search bound to reactive inputs and computed properties for efficient performance tracking.
- Shows active and completed projects with live search, filtering, and progress indicators, enabling HR managers to oversee project timelines, team assignments, and managerial responsibilities.
- Renders official HR policy documents within an embedded PDF viewer, while the integrated “Ask HR” chatbot provides instant, interactive assistance for employee policy-related queries.
- Fetches, updates, and synchronizes data for employees, projects, and policies between the frontend components and backend APIs, handling all CRUD operations and ensuring real-time consistency.
- Creates and manages chat sessions for HR-related discussions, processes user messages, generates AI-driven responses, and maintains session history and conversational flow across views.
- Automates the generation of employee performance reviews, tracks evaluation progress, logs historical reviews, and updates performance metrics dynamically for HR analysis.
- Filters and refines tabular data across Employees and Projects views using reactive watchers and computed search bindings, ensuring seamless, real-time data exploration and quick accessibility.

COMPONENT DESIGN

Product Manager Component

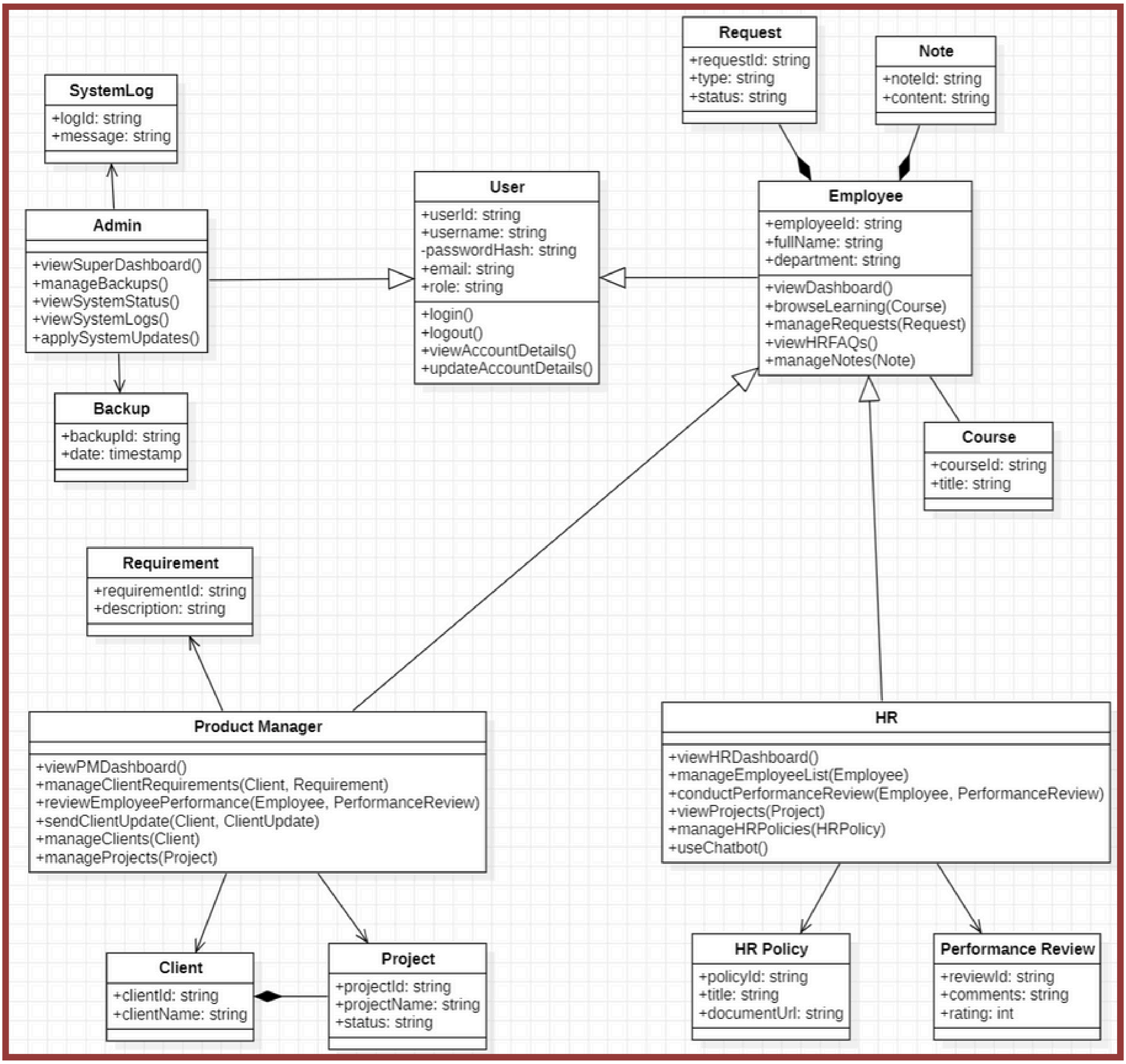
- Displays an organized overview of all clients through interactive cards, enabling product managers to access client-specific dashboards, review requirements, track progress, and manage updates from a single interface.
- Lists detailed client requirements in a structured format, supporting seamless navigation and quick access to individual requirement descriptions for efficient planning and prioritization.
- Presents project updates and client communications in a consolidated view, allowing managers to monitor progress, review milestones, and ensure transparent client engagement throughout the project lifecycle.
- Integrates an intelligent AI Agent that assists with requirement clarification, project updates, and performance insights – capable of responding contextually, maintaining conversation history, and supporting decision-making workflows across views.
- Visualizes key performance indicators through interactive line and pie charts, tracking employee or project trends over time to assess productivity, goal achievement, and overall delivery health.
- Synchronizes client, requirement, and performance data between frontend components and backend APIs, executing all CRUD operations and maintaining real-time consistency across sessions.
- Enhances productivity with reactive data binding and computed properties for instant filtering, search, and sorting within client, update, and performance views.
- Provides a cohesive, role-specific dashboard for product managers to efficiently manage clients, track outcomes, and leverage AI-driven insights for improved coordination and strategic alignment.

COMPONENT DESIGN

Employee Component

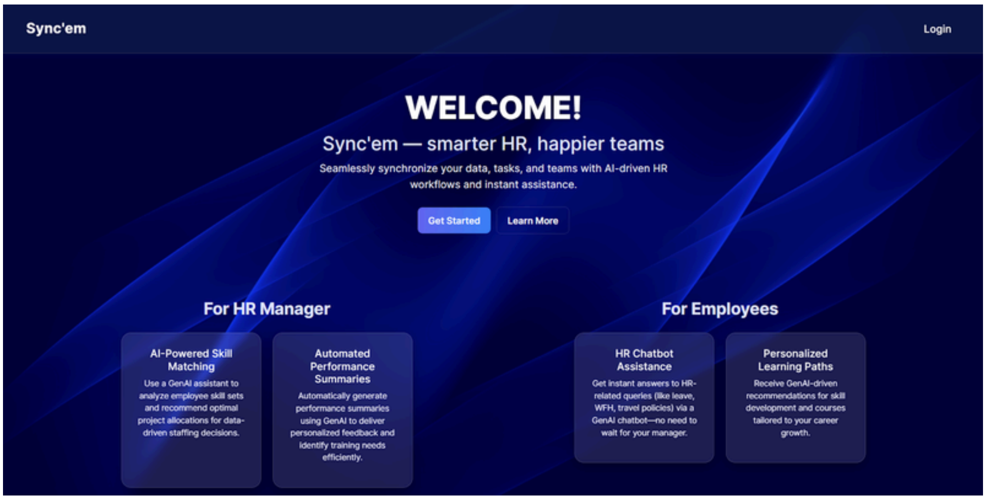
- Allows users to perform CRUD operation on different request types like leave, reimbursement, and transfer.
- Lets users search and filter requests dynamically using a reactive search bar with computed properties.
- Opens and edits request forms within the same page through Vue Router’s nested routes and router-view.
- Provides smooth navigation to each form using dynamic router links for quick access.
- Includes a quick notes feature to create, read, update, and delete personal notes or reminders.
- Shows confirmation prompts for deleting notes and alerts for saving updates.
- Displays user account details like name, email, phone, role, and department.
- Allows users to edit personal info while keeping restricted fields like department and role locked.
- Supports resetting form changes using backed-up data for safe reversion.
- Automatically generates avatar initials and editable fields using computed properties.
- Lets users toggle preferences such as email notifications and two-factor authentication.
- Provides save and reset actions via placeholder methods for future backend integration.
- Uses a modular structure with each view (Requests, Notes, Account) handling its own CRUD logic and state.
- Ensures live updates and reactivity across the UI with computed properties and watchers.
- Prepares the app for backend features like authentication, data storage, and API-based CRUD operations.
- Creates a unified, interactive interface that combines user management, request handling, and note-taking.

CLASS DIAGRAM

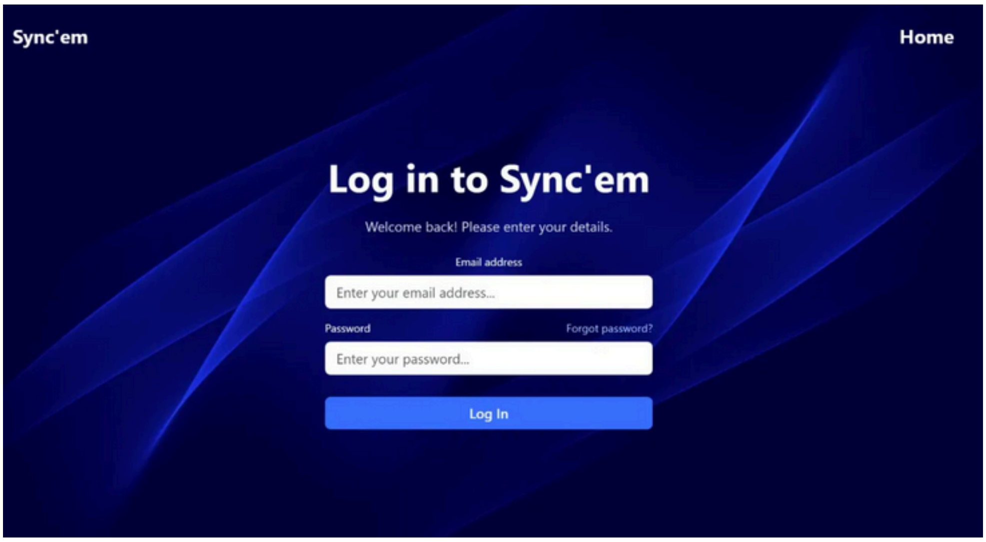


UI PAGES

Landing & Login Page



The Landing Page is the first page users see when they visit Sync'em.
It introduces the platform's purpose – an AI-powered assistant that helps HR and Project Managers allocate projects efficiently and supports employees with quick HR-related assistance.
The page highlights the core features of the system, such as Project Allocation, HR Chatbot, and Performance Insights, along with brief descriptions and visuals for each.

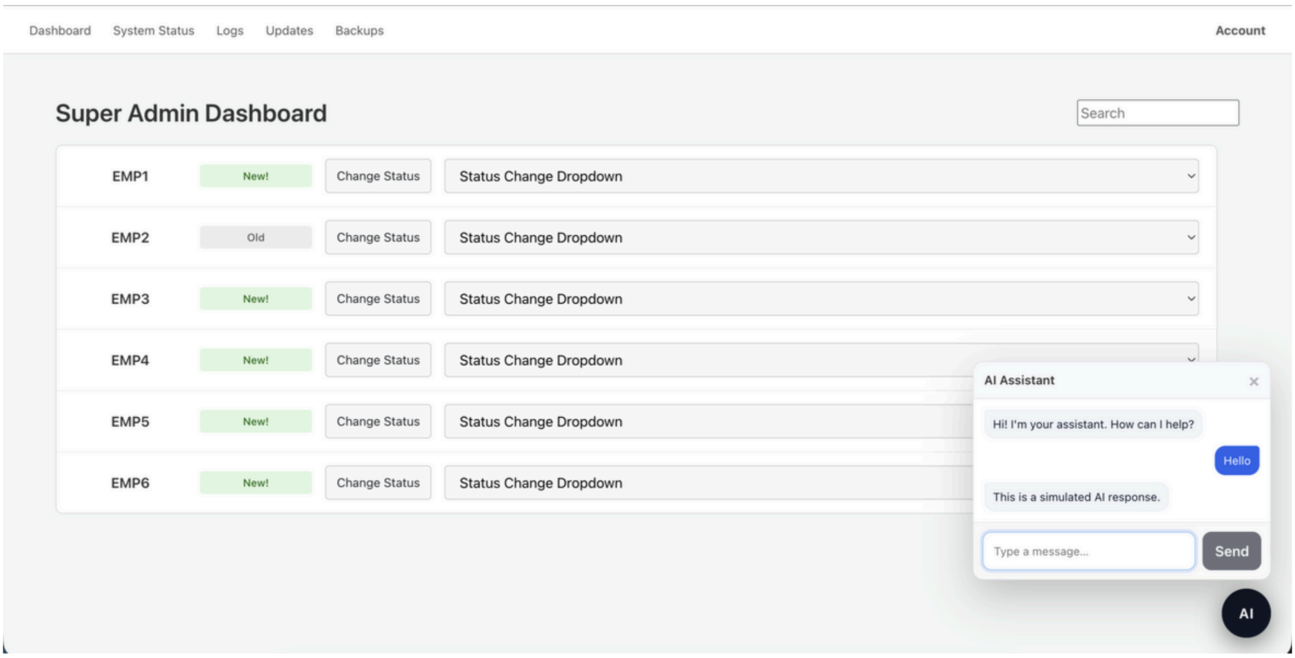


The Login Page serves as the secure entry point for all users – Admins, HR Managers, Project Managers, and Employees.
It verifies credentials through the authentication module and redirects users to their respective dashboards based on their assigned roles.

UI PAGES

Admin Pages

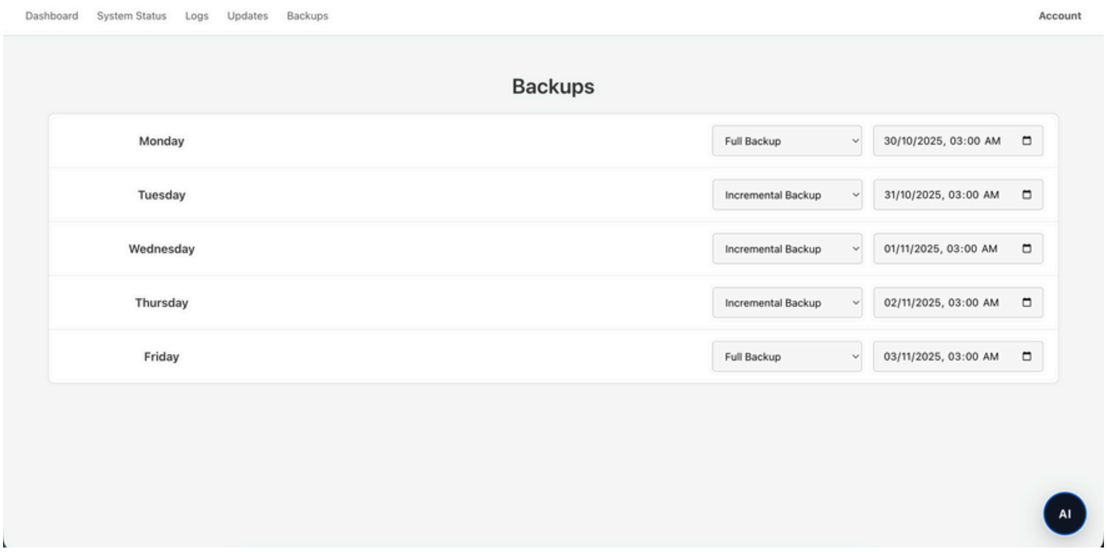
Dashboard



The Admin Dashboard serves as the central control panel for managing the overall system.
It provides a high-level overview of platform activity, including user registrations, project allocations, and chatbot interactions. The admin can view and manage all users (HR managers, project managers, and employees), monitor data flow, and oversee system performance.

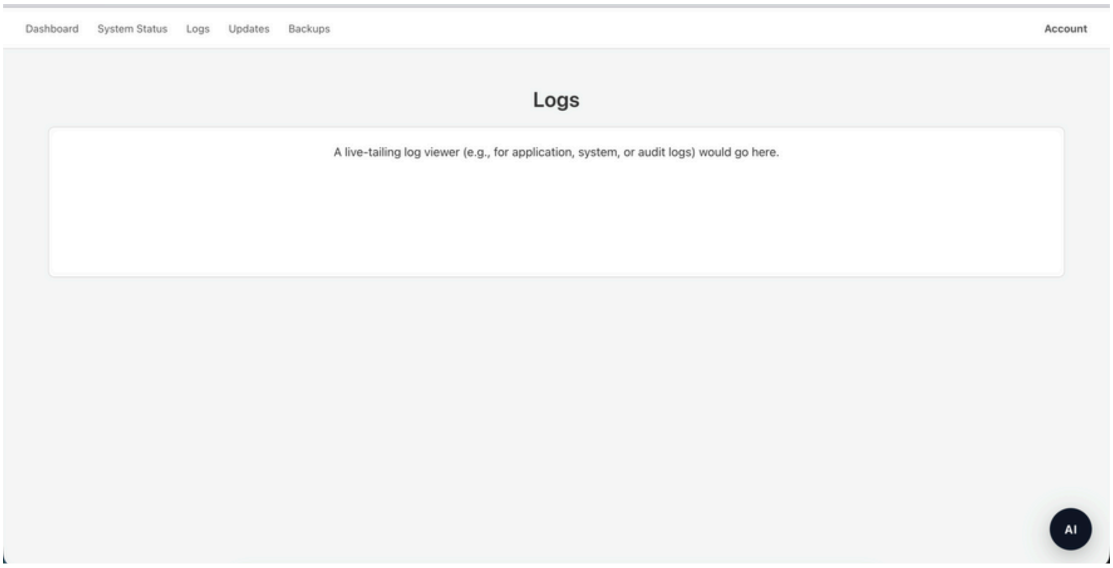
UI PAGES

Back Up



For dealing with the case of any type of failure of the the system the admin is facilicated to keep the the backup of the data of the company.

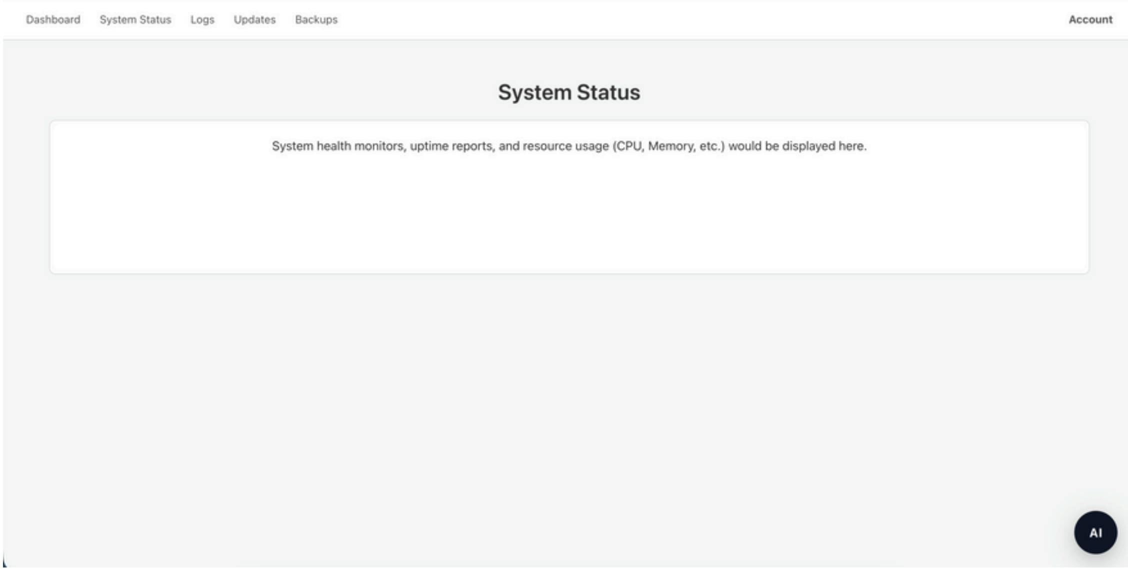
Logs



Admin also have an access of the Logs of the app . This page helps admin with the activities going on in the software what is the flow of tasks going on.

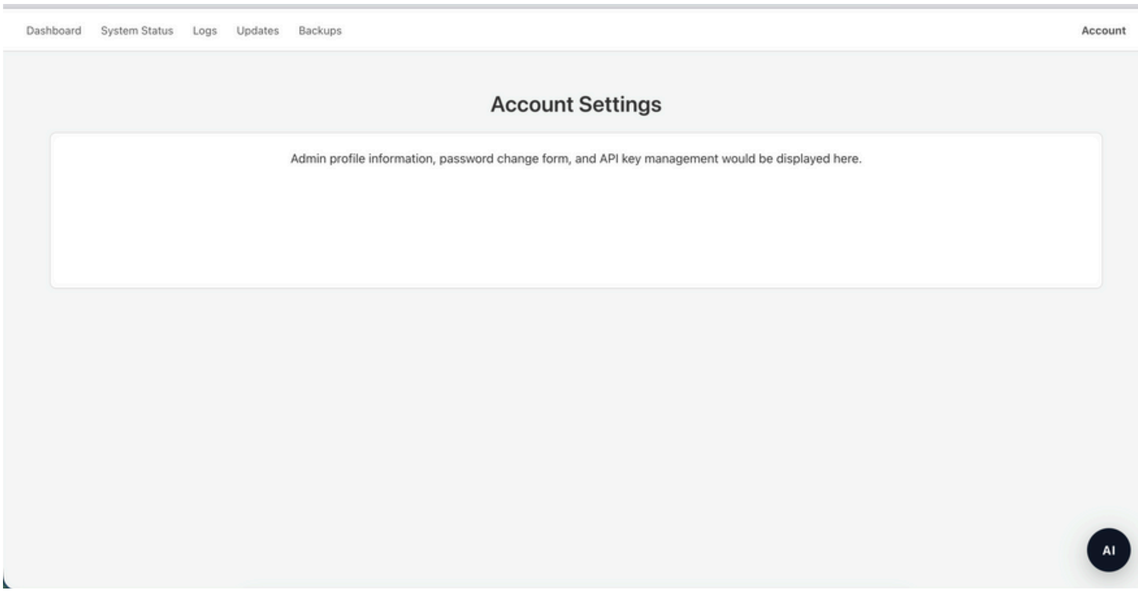
UI PAGES

System Status



Visual reports showing allocation statistics and chatbot usage trends. This page helps the user with the quick understandings and the overview as this visually represents all tasks. Track all major actions across the platform for transparency.

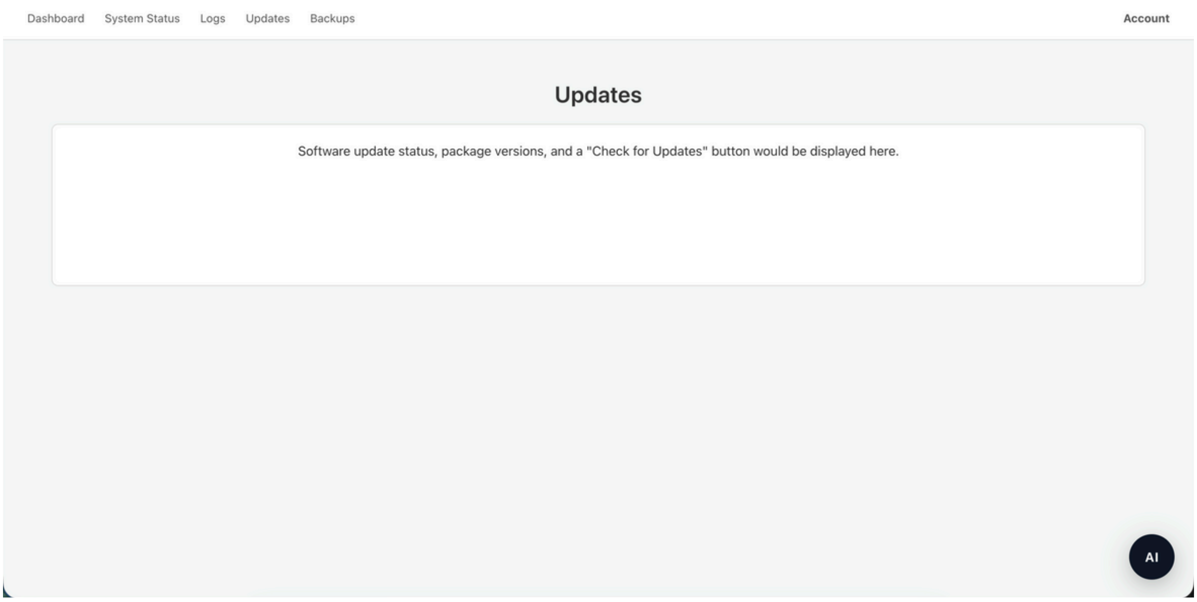
Account settings



Manage permissions and ensure data security. Secrets like Profile info, API Keys and Passwords are also managed here.

UI PAGES

Updates

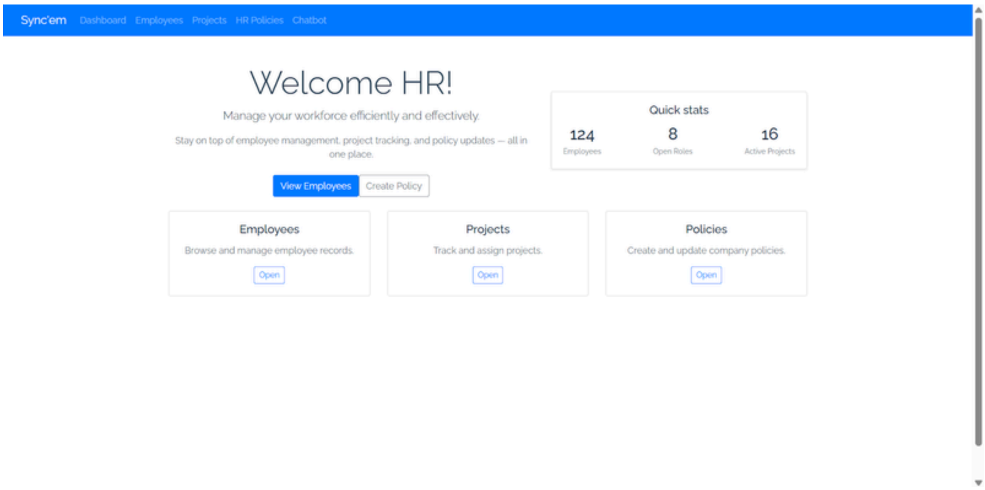


This page provides the admin with all the further updates of the System Software.
Here admin can also check that if the system that he is using is already upto date or not

UI PAGES

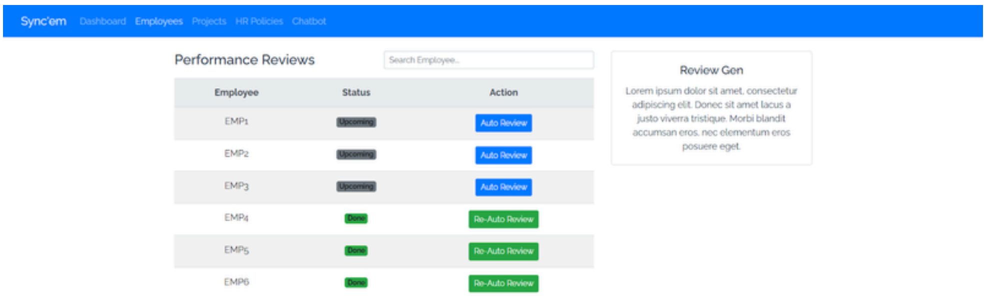
HR Page

Dashboard



The HR Dashboard provides HR Managers with tools to manage employees, monitor workloads, and oversee performance.
It acts as the main interface for HR-related operations, integrating both data management and GenAI assistance.

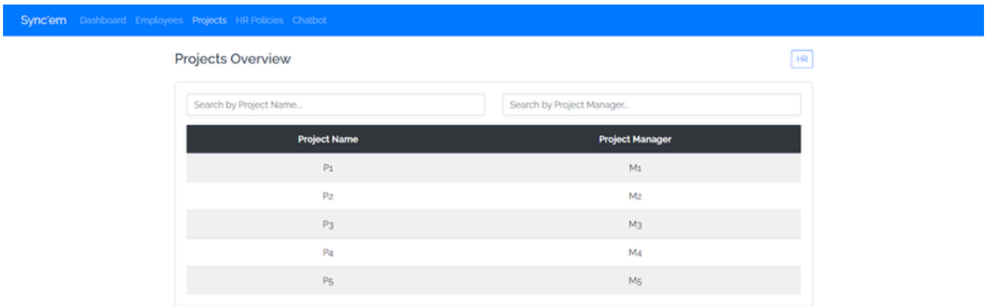
Performance Review



At this page HR can manage the employees and also see the status of their performance. Schedules and records periodic feedback and review sessions. And the review part can also be done via Gen AI.

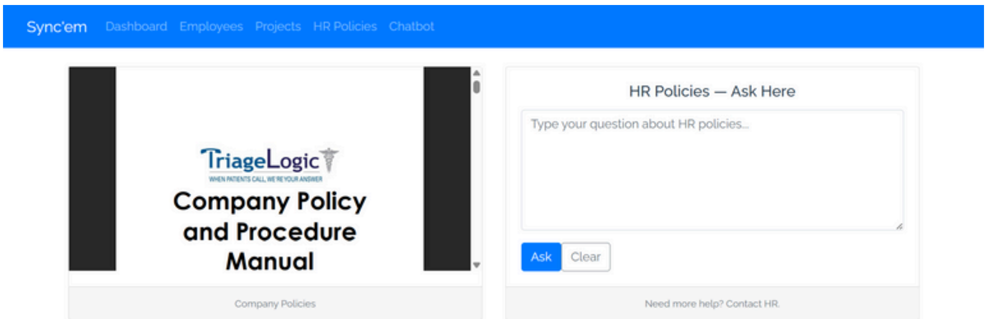
UI PAGES

Projects Overview



This page is dedicated for the Overview of the projects the which are allotted and the management of those projects. Also this page helpd HR by automating assignment of project manager to projects using GenAI-based recommendations.

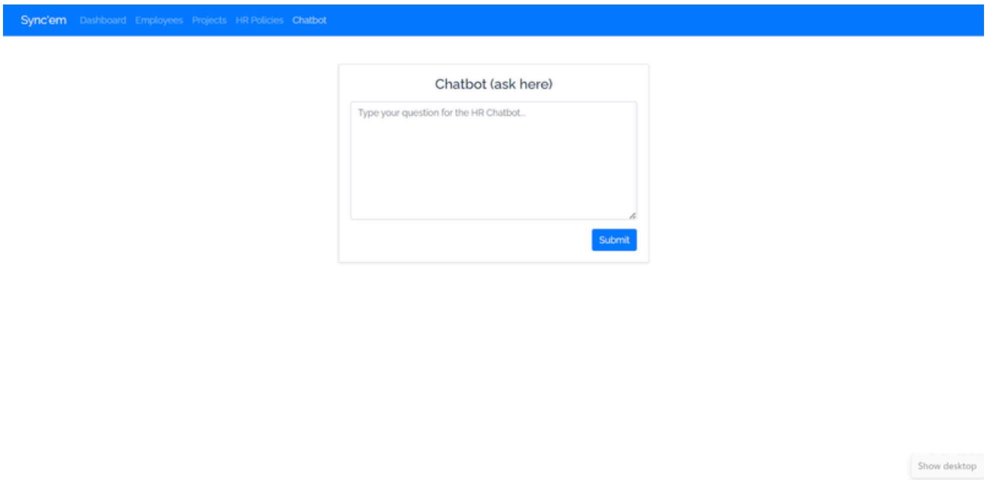
HR Policy



This page is dedicated for helping the HR with the HR Policies. In here we have all the details regarding the company details and policies, procedures manuals and rest all the policies that are required.
Also we have provided a chatbot which will saves time of finding the relevant policy using GenAI-based recommendations.

UI PAGES

Chatbot

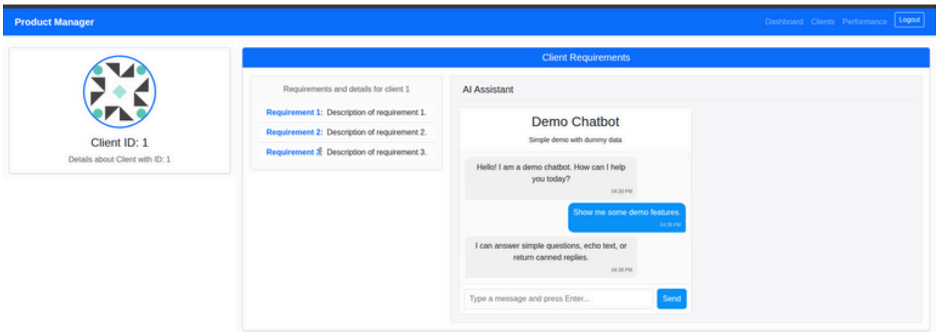


This page provides an interactive HR Chatbot interface where questions can be asked related to HR policies or procedures, instantly resolving HR queries without human intervention. It reduces HR workload, improves employee engagement, and serves as a centralized hub for quick information retrieval on company policies and procedures.

UI PAGES

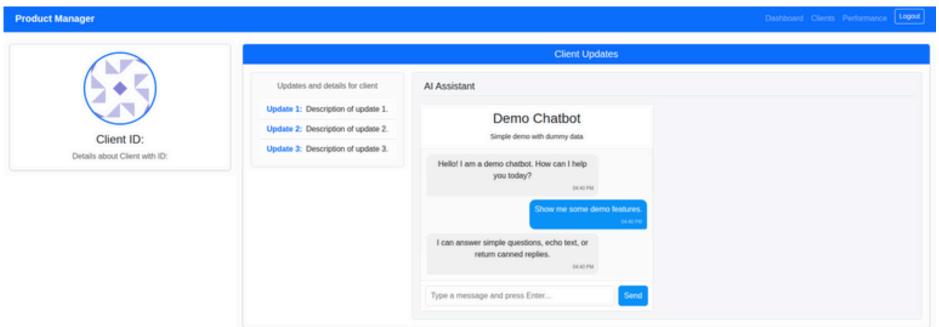
Project Manager Page

Client Requirements



This page tells the project manager about the client requirements. As well as it provides with the GenAI enhancement of the requirements.

Client Updates



This page automatically sends clients detailed milestone updates through agents, helping product managers track progress efficiently.

UI PAGES

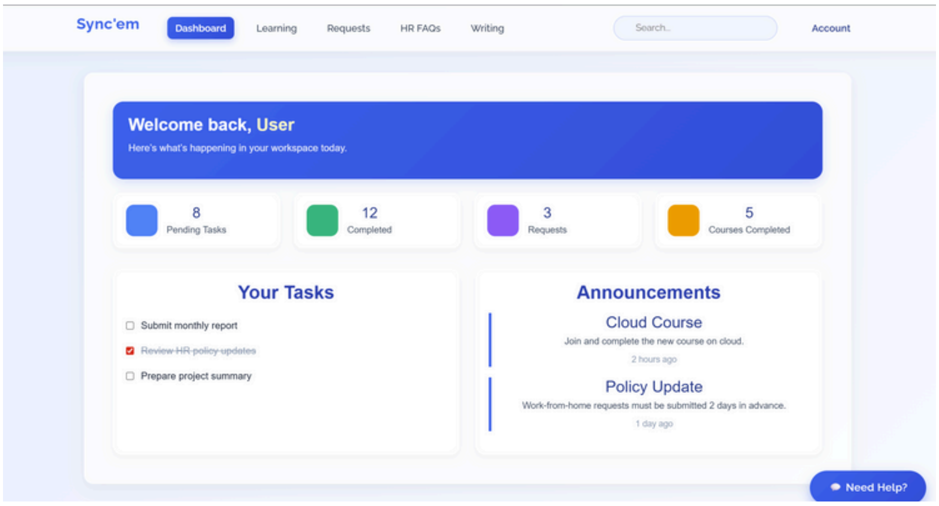
Performance Review

This page uses AI agents to automatically generate and track employee performance reviews, providing mangers with real-time insights and progress analytics.

UI PAGES

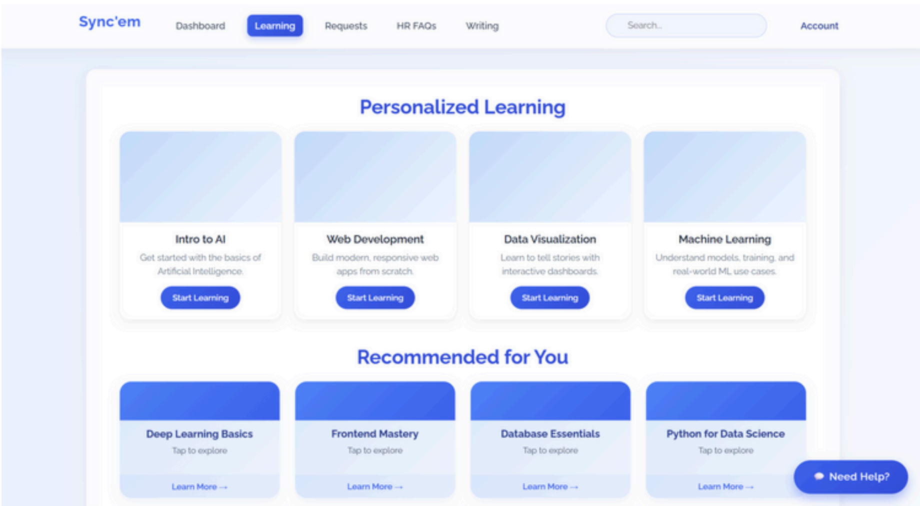
Employee Pages

Dashboard



The User Dashboard is designed for employees to view their assigned projects, performance reports, and HR-related updates in one place. It provides a personalized workspace for every employee, enhancing engagement and transparency.

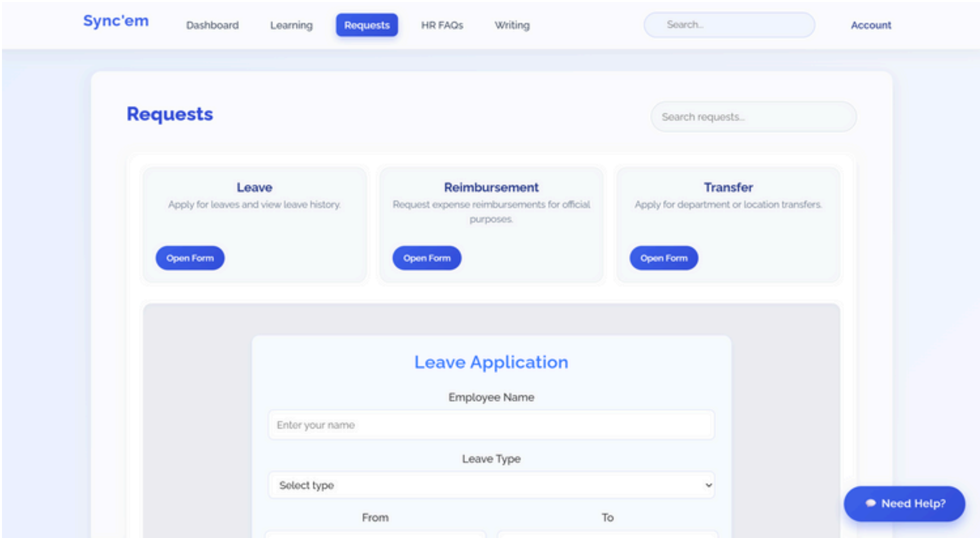
Personalised Learning



This page is dedicated for the improvements of the employees. Here they can learn new things via courses provided.
This page also suggests personalized courses based on GenAI analysis.

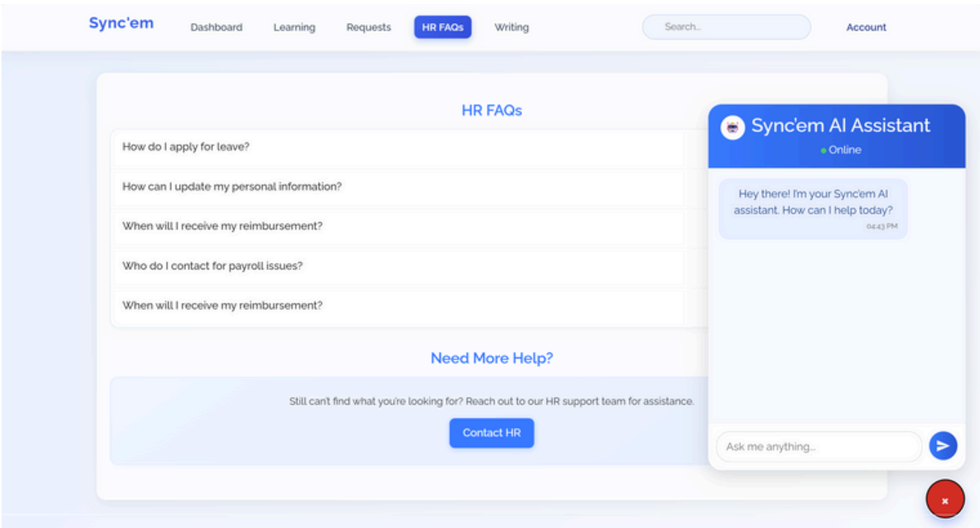
UI PAGES

Requests



This page is focused for routine interactions of the HR with the employee. Here the employee is facilitated with all sorts of requests and requirements. Also suggests personalized requests based on GenAI analysis.

HR FAQs



All the Frequent question and their answers are listed at this page and we also provide a chat bot for further assistance that personalizes the answers based on the person via GenAI

Frontend Source Code

Link

Frontend code