

Knowledge Repository & Interactive Skill- building Portal

AN INTERNSHIP REPORT

Submitted by

Sivamani Yadav Yeti [RA2111030010073]

Under the Guidance of

Dr.A.PRAVEENA

Associate Professor, Department of Networking and Communications

in partial fulfillment of the requirements for the degree of

BACHELOR OF TECHNOLOGY
in
COMPUTER SCIENCE ENGINEERING
with specialization in CYBER SECURITY



DEPARTMENT OF NETWORKING AND COMMUNICATIONS
SCHOOL OF COMPUTING
COLLEGE OF ENGINEERING AND TECHNOLOGY SRM
INSTITUTE OF SCIENCE AND TECHNOLOGY
KATTANKULATHUR- 603203

MAY 2025



Department of Networking and Communications
SRM Institute of Science & Technology
Own Work Declaration Form

This sheet must be filled in (each box ticked to show that the condition has been met). It must be signed and dated along with your student registration number and included with all assignments you submit – work will not be marked unless this is done.

To be completed by the student for all

assessments Degree/ Course : B.TECH / CSE

Student Name : Sivamani Yadav Yeti

Registration Number : RA2111030010073

Title of Work : KRISP

I hereby certify that this assessment compiles with the University' s Rules and Regulations relating to Academic misconduct and plagiarism, as listed in the University Website, Regulations, and the Education Committee guidelines.

I confirm that all the work contained in this assessment is our own except where indicated, and that we have met the following conditions:

Clearly referenced / listed all sources as appropriate

Referenced and put in inverted commas all quoted text (from books, web, etc)

Given the sources of all pictures, data etc. that are not my own

Not made any use of the report(s) or essay(s) of any other student(s) either past or present

Acknowledged in appropriate places any help that I have received from others

(e.g.fellow students, technicians, statisticians, external sources)

Compiled with any other plagiarism criteria specified in the Course handbook /University website

We understand that any false claim for this work will be penalized in accordance with the University policies and regulations.

DECLARATION:

We are aware of and understand the University' s policy on Academic misconduct and plagiarism and we certify that this assessment is our own work, except where indicated by referring, and that we have followed the good academic practices noted above.

RA2111030010073

Sivamani Yadav Yeti

ACKNOWLEDGEMENT

We express our humble gratitude to Dr. C. Muthamizhchelvan, Vice-Chancellor, SRM Institute of Science and Technology, for the facilities extended for the project work and his continued support.

We extend our sincere thanks to Dean-CET, SRM Institute of Science and Technology, Dr.T.V. Gopal, for his invaluable support.

We wish to thank Dr. Revathi Venkataraman, Professor & Chairperson, School of Computing, SRM Institute of Science and Technology, for her support throughout the project work.

We are incredibly grateful to our Head of the Department, Dr. Annapurani K, Professor and Head, Department of Networking and Communications, School of Computing, SRM Institute of Science and Technology, for her suggestions and encouragement at all the stages of the project work.

We want to convey our thanks to our Project Coordinator, Dr. G. Suseela, Associate Professor, Panel Head, Dr.A.Praveena , Associate Professor and panel Dr. Meenakshi K, Assistant Professor, Dr.Logeshwari, Assistant Professor, Department of Networking and Communications, School of Computing, SRM Institute of Science and Technology, for their inputs during the project reviews and support.

We register our immeasurable thanks to our Faculty Advisor, Dr. Balaji Srikaanth P, Department of Networking and Communications, School of Computing, SRM Institute of Science and Technology, for leading and helping us to complete our course.

Our inexpressible respect and thanks to our guide, Dr. G. Suseela, Associate Professor, Department of Networking and Communications, SRM Institute of Science and Technology, for providing us with an opportunity to pursue our project under her mentorship. She provided us with the freedom and support to explore the research topics of our interest. Her passion for solving problems and making a difference in the world has

always been inspiring.

We sincerely thank the Networking and Communications Department staff and students, SRM Institute of Science and Technology, for their help during our project. Finally, we would like to thank parents, family members, and friends for their unconditional love, constant support, and encouragement.

Sivamani Yadav Yeti [RA2111030010073]



SRM INSTITUTE OF SCIENCE AND TECHNOLOGY KATTANKULATHUR - 603 203

BONAFIDE CERTIFICATE

Certified that 18CSP111L project report titled “ KRISP” is the bonafide work of “ Sivamani Yadav Yeti [RA2111030010073]” who carried out the project work under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SIGNATURE

Dr. A. Praveena

SUPERVISOR

Associate Professor

Department of
Networking and
Communications

Internal Examiner

SIGNATURE

Dr. ANNAPURANI K.

HEAD OF THE DEPARTMENT

Professor

Department of Networking and
Communications

External Examiner

December 16, 2024

Vunadi Reddy

F2,tower-4 tatha buildings,backside of minimatrix appatment,alle nagar,potheri chengalpattu, 603203

LETTER FOR INTERNSHIP

Dear Vunadi Reddy,

Congratulations! With reference to your application and subsequent interview(s) you had with us, we are pleased to offer you internship with Incedo starting **January 8, 2025** as per the below terms and conditions

Designation: Intern

Location of Training: Chennai

Department: Delivery Function

Duration: 8th Jan 2025 - 8th July 2025

Stipend: INR 15,000 per month

1. Please note this is the internship confirmation letter, internship completion letter will be issued only after successful completion of the training.
2. This internship is convertible into an employment with the company subject to the terms mentioned in your appointment letter and submission of below self-attested documents.

- Educational documents: 10th, 12th, Graduation Degree, Post-Graduation Degree (if applicable) ● Address proof: Passport/Driving license/ Voter ID card/Aadhaar card
- PAN card copy (Mandatory)
- Aadhaar card copy (Mandatory)
- Work experience letter of previous organizations (if applicable)
- One (1) coloured photograph (passport size, with white background) ● Resume

3. We understand that your final semester results are still awaited. Please note, that management reserves the right to terminate your employment with or without notice in case your final results are not as per our expectations.
4. The Company may, at its sole and absolute discretion, conduct background checks prior to or after joining or at any time in future, to check but not limited to your identity, the address provided by you, your education background and past work experience, past antecedents, drug tests and/or any other test or verification. You expressly consent to the Company conducting above checks. You are required to furnish the documents listed in the "Appointment Letter", "Background Verification Form" or any other document as may be required. If the Company, is not satisfied, in its sole and absolute subjective discretion, with the outcome of the aforesaid checks, the Company may (I) Reserve the right to withdraw the Offer made to you without any notice and Compensation (II) Or may treat your appointment as null and void ab-initio (III) Or it may take such other appropriate action as may be advised.
5. Attending and completing all trainings scheduled for your post your joining, and qualifying the assessment is a critical requirement for the employment. If the Company, is not satisfied, in its sole and absolute discretion, with the outcome of the aforesaid assessment, the Company (i) Reserves the right to withdraw the Offer made to you without any notice and compensation ; OR (ii) may treat your appointment as null and void ab-initio; OR (iii) may take such other appropriate action as may be advised.
6. In case, you decide to leave Incedo during your internship period under any circumstances, we recommend providing an advance notice of 4 weeks for a smooth transition.
7. You shall always comply with the Company's policies/guidelines. Management reserves the rights to amend or modify the existing policies/guidelines as required, at its sole discretion, any time during the year, with or without notice.

Wishing you a good learning experience at Incedo!

FOR INCEDO TECHNOLOGY SOLUTIONS LIMITED

A handwritten signature in black ink, appearing to read "Esha Gulati".

(ESHA GULATI) AUTHORIZED
SIGNATORY HUMAN
RESOURCES

ABSTRACT

KRISP outlines the detailed technical design of the system, covering module-level functionalities, data flow, and system architecture. It provides a structured approach to implementing features like role-based dashboards, training progress tracking, and analytics generation. This document serves as a reference for developers, architects, and testers to ensure a scalable, secure, and efficient system.

Insight360 is an intelligent, dynamic dashboard platform designed to enhance organizational efficiency, transparency, and collaboration through robust role-based access control (RBAC). It caters to four primary roles within an enterprise—Admin, Manager, Module Buddy, and Employee—each with clearly defined permissions and tailored access to features and data relevant to their responsibilities. The platform delivers a personalized experience for each user by dynamically rendering dashboards, insights, and actionable tools specific to their role, ensuring both usability and security.

The Admin has complete control over system configurations, user management, and access policies. Managers can track team performance, assign tasks, and analyze key metrics in real time. Module Buddies are empowered to provide support and guidance within specific functional modules, acting as bridges between employees and management. Employees can view their tasks, submit reports, interact with their teams, and receive updates—all within a simplified interface. Built using modern web technologies, Insight360 supports seamless integration with backend services and databases, ensuring data consistency and real-time synchronization. The architecture emphasizes modularity, scalability, and security, making it adaptable to growing organizational needs. With advanced analytics, intuitive UI/UX, and a centralized control system, Insight360 empowers stakeholders at every level to make informed decisions, improve productivity, and foster a culture of accountability and transparency within the organi

TABLE OF CONTENTS

ABSTRACT		vi
LIST OF FIGURES		xii
LIST OF ACRONYMS AND ABBREVIATIONS		xiv
CHAPTER NO.	TITLE	PAGE NO.
1	INTRODUCTION	1
	1.1 Overview	1
	1.2 Objectives Of The System	1
	1.3 Scope Of The Project	2
	1.4 Technologies Used	2
	1.4.1 Backend Technologies	2
	1.4.2 Frontend Technologies	3
	1.4.3 Database and Infrastructure	3
2	LITERATURE SURVEY	4
	2.1 Existing Skill Building Portal Systems	4
	2.2 Challenges in Project KRISP	6
	2.3 Proposed System	7
3	SYSTEM REQUIREMENTS	8
	3.1 Functional Requirements	8
	3.2 Software Requirements	8
	3.3 Hardware Requirements	9
4	SYSTEM ARCHITECTURE AND DESIGN	10
	4.1 System Overview	10
	4.2 Class Diagram	11
	4.3 Sequence Diagram	16
	4.4 Data Flow Diagram	17
	4.4.1.Admin Module	17

	4.4.2 Manager Module	19
	4.4.3 Module Buddy	21
	4.4.4 User Module	23
5	METHODOLOGY AND IMPLEMENTATION	25
5.1	User Roles and Functionalities	25
5.1.1	Admin Module	25
5.1.2	Manager Module	25
5.1.3	Buddy Module	26
5.1.4	User Module	27
5.2	Admin Dashboard	27
5.3	Manager Dashboard	30
5.4	Buddy Dashboard	32
5.5	User Dashboard	34
6	CONCLUSION AND FUTURE ENHANCEMENTS	36
6.1	Conclusion	36
6.2	Future Scope	37
	REFERENCES	38
	BIBILIOGRAPHY	39
APPENDIX A	PLAGIARISM REPORT	40

LIST OF FIGURES

FIG NO.	FIGURE NAME	PAGE NO.
4.2	Class Diagram Of Krisp-Insight	11
4.3	Sequence Diagram Of Krisp-Insight	16
4.4.1	Data Flow Diagram of Admin	19
4.4.2	Data Flow Diagram of Manager	12
4.4.3	Data Flow Diagram of Module Buddy	21
4.4.4	Data Flow Diagram of User	23
5.2	Admin Dashboard	27
5.2.1	Add User	28
5.2.2	Assign Roles	28
5.2.3	Create Training Kits	29
5.2.4	View Training Kits	29
5.3	Manager Dashboard	30
5.3.1	Track Progress	30
5.3.2	Approve Training Kits	31
5.3.3	Performance Reports	31
5.4	Buddy Dashboard	32
5.4.1	Assign Training Kits	32
5.4.2	Training Status	33
5.4.3	Improvement Plan	33
5.4.4	Post Rating	34
5.5	User Dashboard	34
5.5.1	View Assigned Training Kits	35
5.5.2	View Improvement Plan	35

LIST OF ACRONYMS AND ABBREVIATIONS

RBAC	Role-Based Access Control
REST	Representational State Transfer
UI/UX	User Interface/User Experience
API	Application Programming Interface
CRUD	Create, Read, Update, Delete
JPA	Java Persistence API
SQL	Structured Query Language
ORM	Object-Relational Mapping
JSON	JavaScript Object Notation

CHAPTER 1

INTRODUCTION

1.1 Overview

KRISP-**Insight** is an intelligent, dynamic dashboard platform designed to enhance organizational efficiency, transparency, and collaboration through robust Role-Based Access Control (RBAC). It serves four primary user roles—**Admin**, **Manager**, **Module Buddy**, and **Employee**—providing each with a personalized and secure interface that caters specifically to their responsibilities. By leveraging real-time analytics, modular architecture, and seamless integration capabilities, Insight360 empowers enterprises to make data-driven decisions, optimize workflows, and foster accountability at every level.

1.2 Objectives Of The System

The main objectives of Insight360 are to:

- Provide a personalized and secure dashboard experience for each user based on their role.
- Enhance organizational transparency and collaboration by clearly defining role-specific responsibilities and access.
- Allow real-time performance tracking, feedback management, and training oversight across departments.
- Enable centralized control and monitoring of users, tasks, and system usage.
- Improve decision-making through robust reporting and analytics tools.
- Ensure scalability, modularity, and security to support the growing needs of modern enterprises.

1.3 Scope Of The Project:

The project encompasses the development and deployment of a full-stack web application that includes:

- Secure authentication through Okta or Azure Active Directory.
- Dynamic, role-based dashboards for Admins, Managers, Module Buddies, and Employees.
- Functional modules for user and role management, training content management, feedback processing, and performance analytics.
- Responsive UI/UX with Material UI for a consistent user experience across devices.
- Integration with a PostgreSQL database for centralized data storage.
- Real-time synchronization between frontend and backend services.

The system is intended for use within enterprises seeking a digital platform to streamline training, mentorship, performance tracking, and communication among teams.

1.4 Technologies Used:

1.4.1 Backend Technologies

- **Spring Boot** (Java) – For creating RESTful APIs and handling business logic.
- **Spring Security** – For implementing authentication and RBAC.
- **JWT (JSON Web Tokens)** – For session handling and secure communication.
- **Integration with Okta/Azure AD** – For enterprise-grade authentication and user management.
- **PostgreSQL** – For robust and secure relational data storage.
- **Lombok, JPA/Hibernate** – For simplified model and data access layer development.

1.4.2 Frontend Technologies

- **React.js** – For building dynamic, component-based UIs.
- **Material UI (MUI)** – For a consistent and responsive design framework.
- **Axios** – For HTTP requests between frontend and backend.
- **Framer Motion, Styled-components, React-Awesome-Reveal** – For UI animations and transitions.
- **React Router** – For role-based navigation and route protection.

1.4.3 Database and Infrastructure

- . **PostgreSQL** – Centralized database for users, roles, training modules, performance data, and feedback.
- . **Spring Data JPA** – ORM for database interaction.
- . **Docker** (optional) – For containerizing the application.
- . **Cloud Deployment Platforms** – Such as AWS, Azure, or Heroku, for hosting backend and frontend services.

CHAPTER 2

LITERATURE SURVEY

2.1 Existing Skill Building Portal Systems:

Kiran J. et al. presents in the paper “SkillSync: AI-Driven Learning Pathways for Enterprise Upskilling” a platform that dynamically recommends personalized learning paths for employees based on skill gaps and career goals. The system uses a hybrid recommendation engine combining collaborative filtering with domain ontologies to recommend modules. SkillSync integrates with existing LMS platforms and showed significant improvement in course completion rates across enterprise pilot deployments. [1]

Priya Sharma et al. in “Upskill360: Leveraging Analytics to Drive Corporate Learning Outcomes” discuss a data-driven platform that uses real-time analytics to track learner progress, engagement, and learning outcomes. Upskill360 supports microlearning and content curation based on job roles and provides dashboards for both learners and managers. Results from enterprise case studies demonstrate enhanced training effectiveness and reduced skill gaps through personalized content delivery. [2]

Anand Patel et al. explores in “SkillWise: Intelligent Mentor-Mentee Matching and Learning Progress Tracking” a corporate platform that pairs employees with mentors based on skill development needs and learning

history. SkillWise uses AI to suggest mentors, track mentorship goals, and assess training outcomes. The platform integrates feedback mechanisms and performance dashboards to foster accountability and continuous improvement. [3]

Divya Rao et al. introduce “LearnEdge: A Role-Centric Training System for Enterprise Learning Management” which emphasizes role-based access to training content and personalized dashboards. LearnEdge ensures that each user type—admin, team lead, or employee—has a tailored view and permissions. Their microservice-based backend enhances modularity, and case studies confirm better user adoption and performance tracking. [4]

Ramesh K. and team in “SkillForge: Gamified Learning Platform for Workforce Development” present a gamified training system that promotes continuous learning through leaderboards, badges, and milestone tracking. SkillForge includes a social learning module and analytics features for HR teams. The gamification layer was found to improve learning engagement by over 30% in pilot programs. [5]

Neha Bansal et al. discuss in “EduChain: Blockchain-Based Learning Credential Verification System” a secure platform for tracking and verifying employee training and certifications using blockchain. EduChain ensures tamper-proof credentials and allows external verifiers to validate training history. It enhances trust and transparency in skill certifications for regulated industries. [6]

2.2 Challenges in Project KRISP:

Despite the modern tech stack and modular design of KRISP Insight, several implementation challenges persist. These include:

- **Complex Role Management:** Ensuring secure and accurate Role-Based Access Control (RBAC) across Admin, Manager, Module Buddy, and Employee dashboards can be error-prone, especially during onboarding or role updates.
- **Scalability of Training Modules:** As training content grows, maintaining consistency, version control, and efficient approval workflows becomes increasingly challenging.
- **Feedback Integration:** Collecting, storing, and linking feedback from users and buddies to specific training or mentorship sessions in real time demands seamless backend coordination.
- **Analytics Accuracy:** Generating real-time, actionable analytics for various stakeholders (Admins, Managers, Buddies) requires optimized query handling and visualization performance.
- **Security and Compliance:** Integrating secure identity providers (Okta, Azure AD) while meeting enterprise security standards and ensuring encrypted transactions is a crucial, ongoing challenge.
- **UI/UX Consistency:** Dynamically rendering role-specific dashboards while maintaining responsive and intuitive design for all device sizes involves careful frontend management.
- **Data Synchronization:** Ensuring that all training, performance, feedback, and role-related data are consistent and updated in real time in the PostgreSQL database can lead to synchronization bottlenecks.

2.3 Proposed System:

The proposed KRISP Insight system is a role-driven enterprise learning and analytics platform that seamlessly integrates training, mentorship, and feedback mechanisms. Key highlights include:

- **Role-Based Dashboards:**

Tailored dashboards for Admins, Managers, Module Buddies, and Employees with customized modules and access permissions.

- **Secure Authentication:**

Integration with enterprise-grade identity providers like Okta or Azure AD ensures secure and standardized user authentication.

- **Modular Training Management:**

Centralized creation, review, and approval of training content, linked with specific roles and departments.

- **Mentorship and Feedback Loop:**

Module Buddies can assign goals, track mentee progress, and submit structured feedback tied to sessions and performance metrics.

- **Advanced Analytics:**

Real-time reporting and KPI tracking via interactive dashboards allow Admins and Managers to monitor engagement, completion rates, and team performance.

- **Material UI Frontend:**

Clean, responsive, and interactive user interface using Material UI components for consistency and usability.

CHAPTER 3

SYSTEM REQUIREMENTS

3.1 Functional Requirements

The software requirement specification can produce at the culmination of the analysis task. The function and performance allocated to software as part of system engineering are refined by established a complete information description, a detailed functional description, a representation of system behavior, and indication of performance and design constrain, appropriate validate criteria, and other information pertinent to requirements.

3.2 Software Requirements

Operating system: Windows 11
(64-bit).

Coding Language: Java 11

IDE: Spring Tool Suite (STS) 4

Application Server: Apache Tomcat 10.1.39

Database management tool: MySQLWorkbench

8.0.41 Build Tool: Maven 3.9.9

3.3 Hardware Requirements

Processor: Intel Core i5

Hard Disk: Minimum

500 GB

RAM : 16GB

CHAPTER 4

SYSTEM ARCHITECTURE AND DESIGN

4.1 System Overview

The Insight Dashboard is an advanced, data-driven analytics solution designed to provide a 360-degree view of employee learning and development activities within an organization. It plays a pivotal role in transforming raw training and performance data into actionable insights for various stakeholders—including Admins, Managers, and Module Buddies—to foster a culture of continuous improvement and targeted upskilling.

Key capabilities of the dashboard include:

- **Training Progress Tracking:** Visual dashboards display real-time progress on assigned training kits, module completion percentages, and time spent on learning activities.
- **Performance Monitoring:** Managers can assess individual and team performance, spot trends, and identify top and underperforming employees using scorecards, KPIs, and comparison charts.
- **Mentorship Effectiveness Analysis:** Module Buddies and Admins can view mentorship outcomes based on mentee progress, feedback loops, and mentor engagement.
- **Role-Based Access Control:** The interface adapts to each user role, offering tailored insights and permissions—Admins see platform-wide analytics, Managers get team-specific reports, and Buddies track assigned users.
- **Engagement Metrics:** Track learner interaction levels, content usage rates, feedback submission frequency, and more, to gauge engagement and course relevance.
- **Feedback and Reporting:** The dashboard integrates user feedback to identify gaps and improve content delivery, with options to generate downloadable reports for audits or reviews

4.2 Class diagram

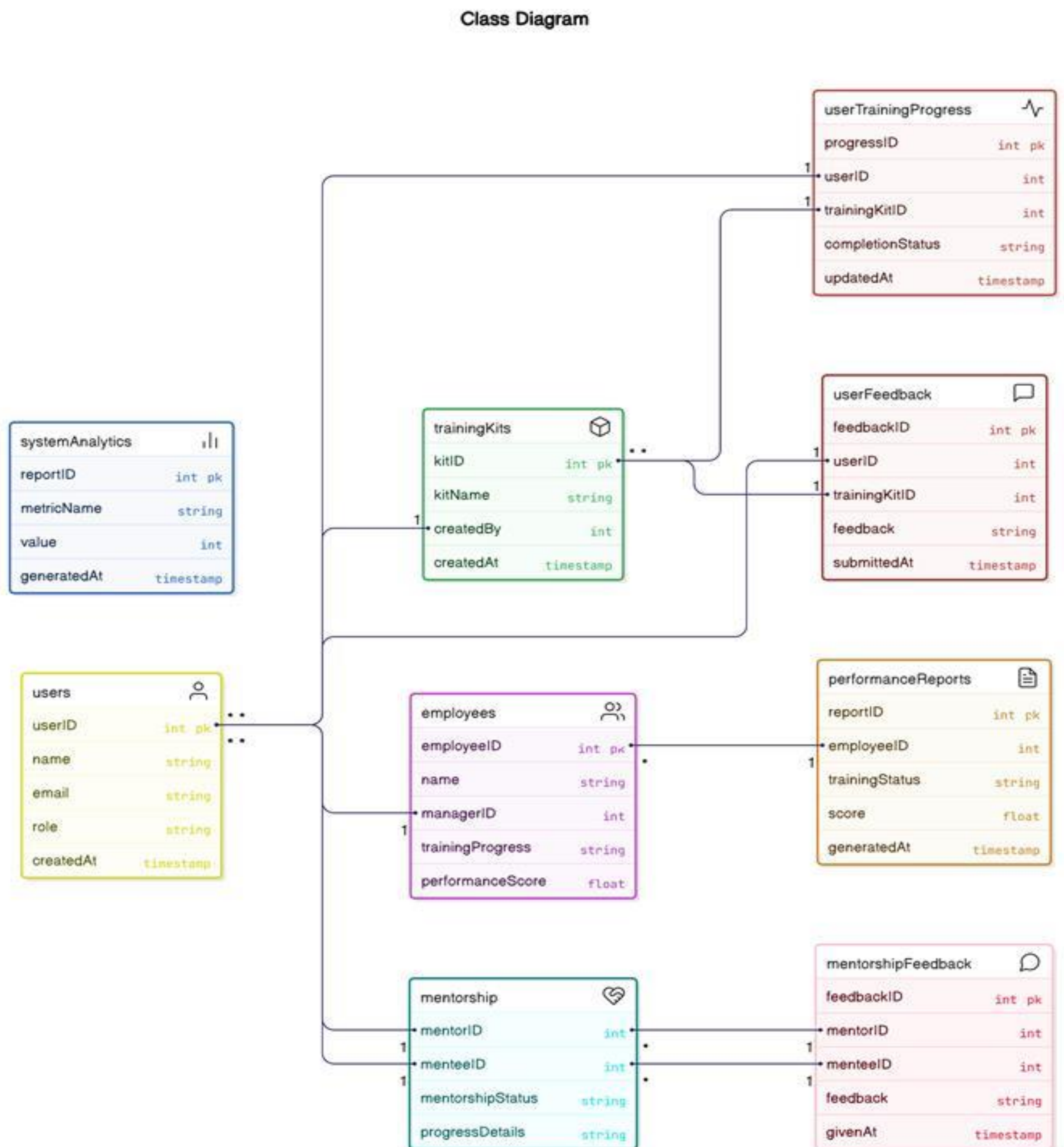


Fig 4.1 Class Diagram of KRISP-Insight

Fig 4.1 follows a structured design with interconnected entities.

Core Entities and Relationships

1. Users

Represents all users in the system.

Fields:

- userID (PK): Unique identifier.
- name, email: User details.
- role: Defines user type (Admin, Manager, Buddy, etc.).
- createdAt: Timestamp of account creation.

Relations:

- One-to-one/many relation with employees (each user might be linked to an employee profile).
- Linked to training progress, feedback, mentorship indirectly via IDs.

2. Employees

Captures the organizational role and progress metrics of an employee.

Fields:

- employeeID (PK), name
- managerID: Refers to another employee (manager).
- trainingProgress: Summary status (e.g., “Completed 80%”).

Relations:

- Linked to performance Reports
- Mapped to mentorship (as mentees).

3. Training Kits

Represents different learning kits/modules.

Fields:

- kitID (PK), kitName, createdBy, createdAt

Relations:

- One-to-many with userTrainingProgress, userFeedback

4. User Training Progress

Tracks each user's interaction with training kits.

Fields:

- progressID (PK)
- userID, trainingKitID
- completionStatus (e.g., In Progress, Completed)
- updatedAt: Last update time.

Relations:

- Many-to-one from users and training kits.

5. User Feedback

Collects feedback for specific training kits from users.

Fields:

- feedbackID (PK), userID, trainingKitID
- feedback: Text content
- submittedAt: Timestamp

6. Performance Reports

Stores reports on employee training outcomes.

Fields:

- reportID (PK), employeeID
- trainingStatus, score, generatedAt

Relations:

- Many-to-one to employees

7. System Analytics

General metrics/logs tracked by the system (platform-wide).

Fields:

- reportID (PK), metricName, value, generatedAt

Example: Daily login count, module completion rates, feedback trends.

8. Mentorship

Tracks pairing between mentors and mentees.

Fields:

- mentorID, menteeID: References to employees
- mentorshipStatus (e.g., Active, Completed)
- progressDetails: Notes or summaries of mentorship progress

9. Mentorship Feedback

Stores feedback from mentees or mentors.

Fields:

- feedbackID (PK), mentorID, menteeID
- feedback: Written notes
- givenAt: Date of submission

Key Architectural Features

- **Relational Integrity:** Proper foreign key relationships between users, employees, trainings, and mentorship.
- **Role-Based Access Control:** Enforced via the role field in users and the linked dashboard.
- **Modular Tracking:** Training, performance, and mentorship are separated but integrated.
- **Analytics Ready:** System Analytics and Performance Reports allow dashboard-level aggregation.

4.3 Sequence diagram

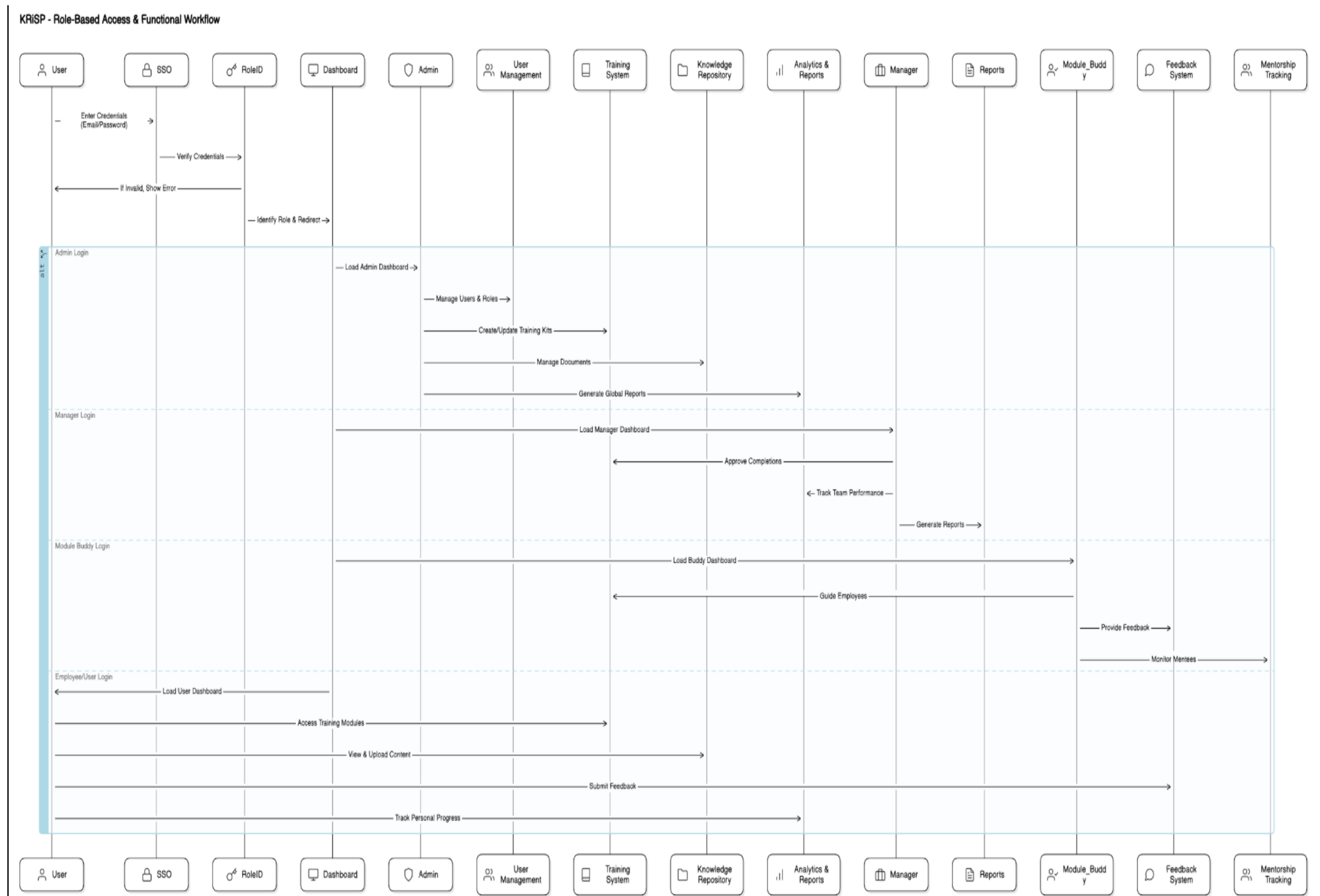


Fig 4.3 Sequence Diagram Of KRISP-Insight

Fig 4.3 represents the interactions between different actors such as User, Admin, Manager, Buddy. The KRISP Role-Based Access & Functional Workflow diagram outlines the end-to-end system flow starting from user login via SSO or credentials, followed by role identification and redirection to respective dashboards. Admins gain access to manage users and roles, create or update training kits, upload documents, and generate global reports. Managers are redirected to a dedicated dashboard where they can track team performance, approve training completions, and generate performance reports. Module Buddies are provided with tools to guide employees,

monitor mentees, and offer structured feedback. Regular employees or users are redirected to their dashboard where they can access assigned training modules, upload content, submit feedback, and track their learning progress. Each role-specific dashboard enables streamlined operations tailored to their responsibilities. The workflow ensures secure authentication, appropriate access control, and seamless functionality across the system. The architecture promotes accountability, transparency, and efficiency in performance tracking and mentorship. It serves as the backbone of the organization’s learning and development ecosystem.

4.4 Data Flow Diagram

4.4.1 Admin Module

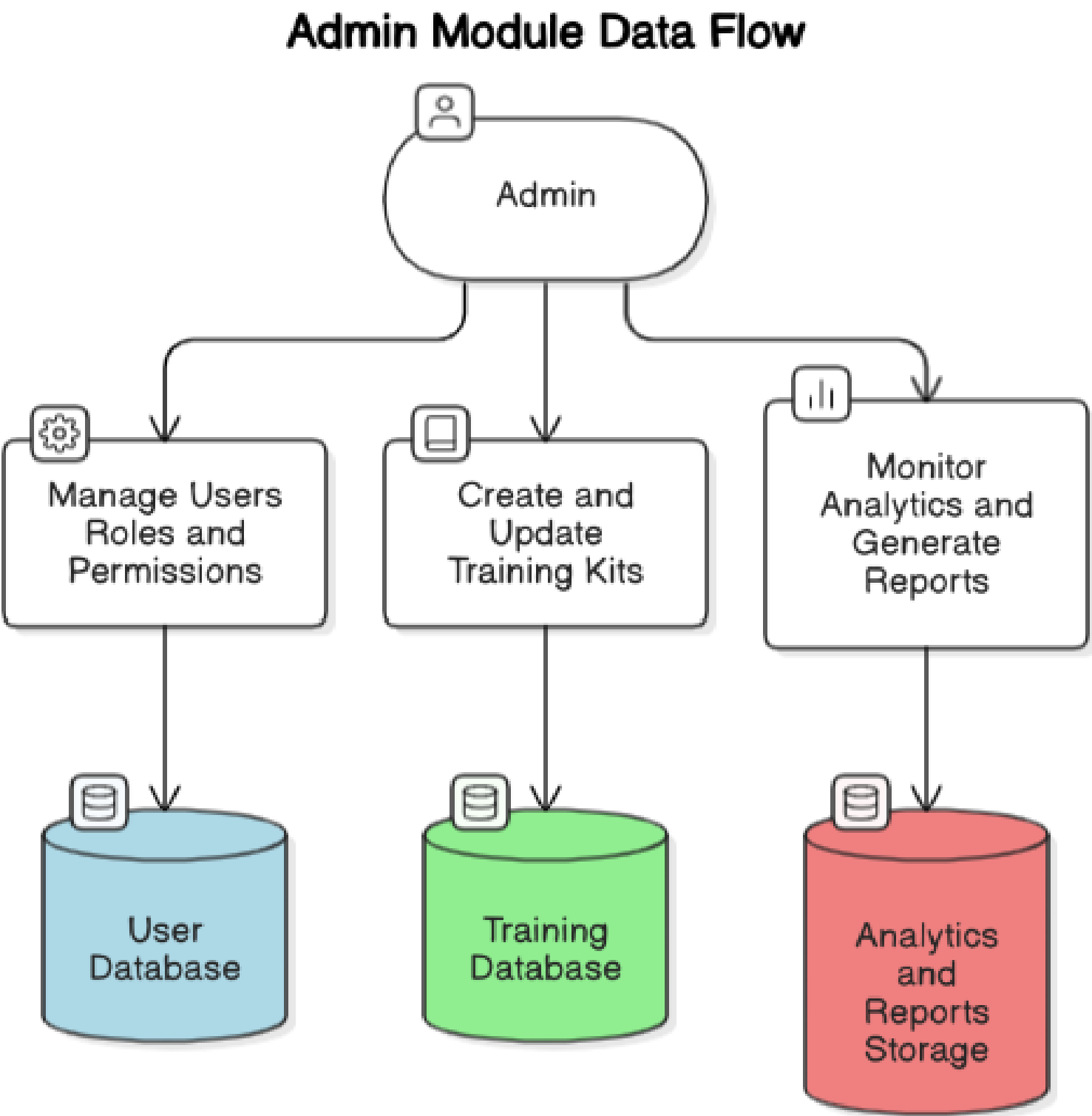


Fig 4.4.1 Data Flow Diagram of Admin Module

Fig 4.4.1 Data Flow Diagram (DFD) for Admin describes, entities, processes, data stores

Entities:

- Admin (Main user)
- System Users (Employees, managers, module buddies)
- Training System (Manages training kits)

Processes:

1. Manage Users, Roles & Permissions
2. Create & Update Training Kits
3. Monitor Analytics & Generate Reports

Data Stores:

- User Database (Stores user details and roles)
- Training Database (Holds training kits)
- Analytics & Reports Storage (Stores generated reports)

DFD Representation (Text Format):

(Admin) → [Manage Users, Roles & Permissions] → (User Database)
(Admin) → [Create & Update Training Kits] → (Training Database)
(Admin) → [Monitor Analytics & Generate Reports] → (Analytics & Reports Storage)

4.4.2 Manager Module

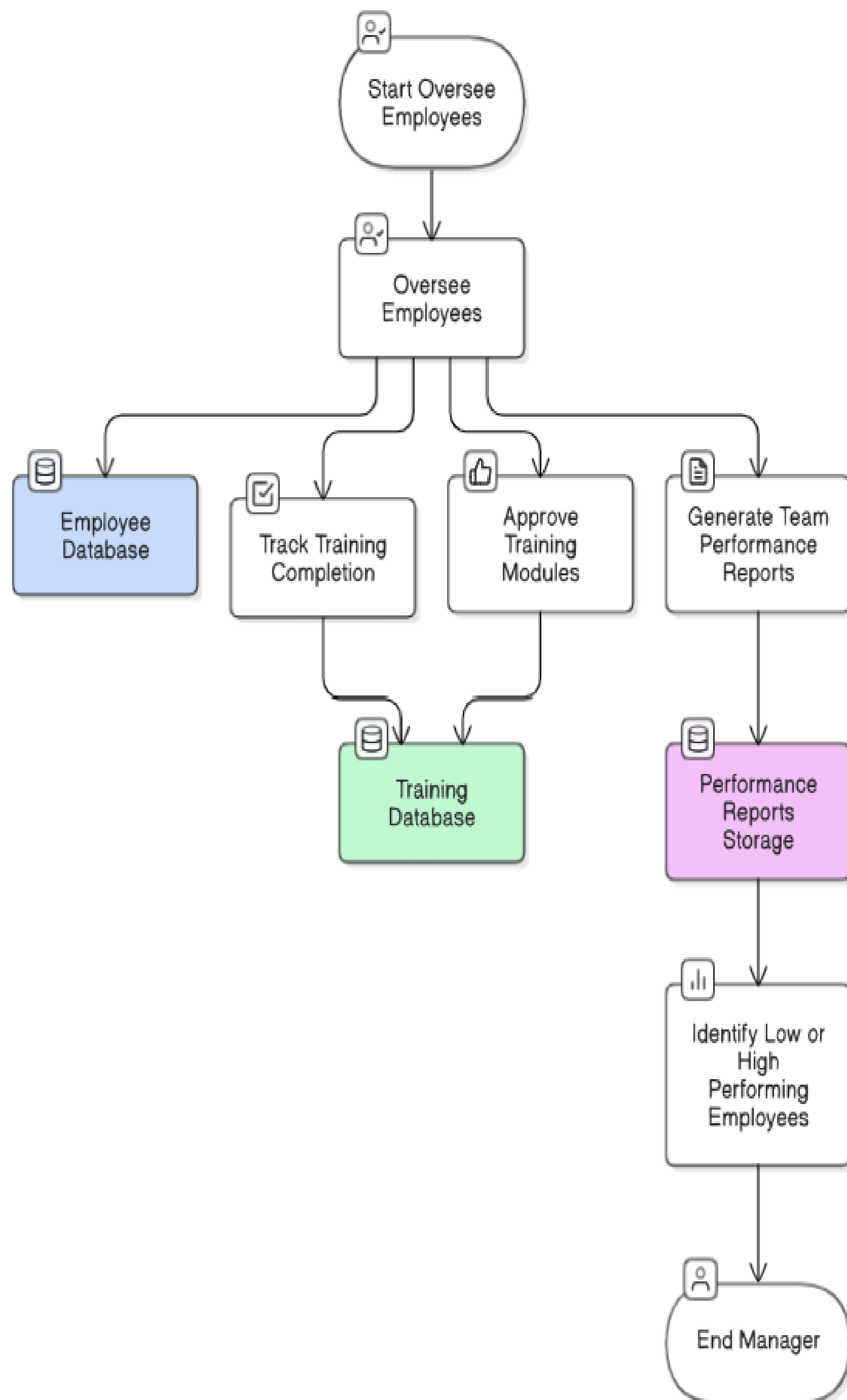


Fig 4.4.2 Data Flow Diagram of Manager Module

Fig 4.4.2 Data Flow Diagram (DFD) for Manager describes, entities, processes, data stores

External Entities:

Manager (User who oversees employees)

Employees (Individuals being tracked)

Training System (Source of training data)

Processes:

(P1) Oversee Employees

(P2) Track Training Completion

(P3) Approve Training Modules

(P4) Generate Team Performance Reports

(P5) Identify Low/High-Performing Employees

Data Stores:

(D1) Employee Database

(D2) Training Database

(D3) Performance Reports Storage

Data Representation text format:

(Manager) → [P1: Oversee Employees] → (D1: Employee Database)

(Manager) → [P2: Track Training Completion] → (D2: Training Database)

(Manager) → [P3: Approve Training Modules] → (D2: Training Database)

(Manager) → [P4: Generate Team Performance Reports] → (D3: Performance Reports Storage)

(D3: Performance Reports Storage) → [P5: Identify Low/High-Performing Employees] → (Manager)

4.4.3 Module Buddy

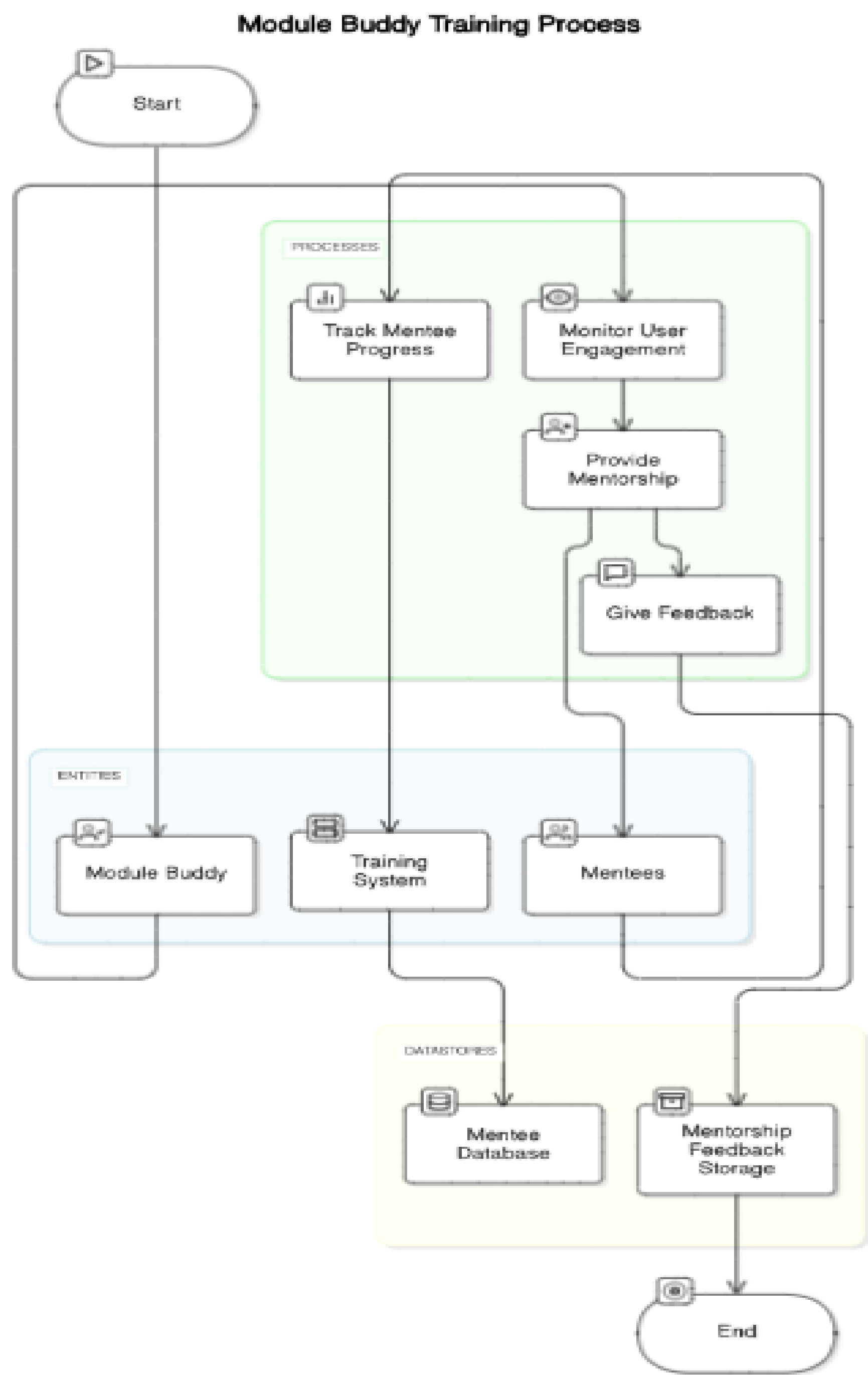


Fig 4.4.3 Data Flow Diagram Of Module Buddy

Fig 4.4.3 Data Flow Diagram (DFD) for Module Buddy, entities, processes, data stores

Entities:

- Module Buddy (Mentor user)
- Mentees (Users receiving training)
- Training System (Tracks progress)

Processes:

1. Monitor User Engagement
2. Provide Mentorship
3. Track Mentee Progress
4. Give Feedback

Data Stores:

- Mentee Database (Stores mentee details & progress)
- Mentorship Feedback Storage (Stores mentorship feedback)

Data Representation Text Format:

(Module Buddy) → [Monitor User Engagement] → (Mentee Database)

(Module Buddy) → [Provide Mentorship] → (Mentee Database)

(Module Buddy) → [Track Mentee Progress] → (Mentee Database)

(Module Buddy) → [Give Feedback] → (Mentorship Feedback Storage)

4.4.4 User Module

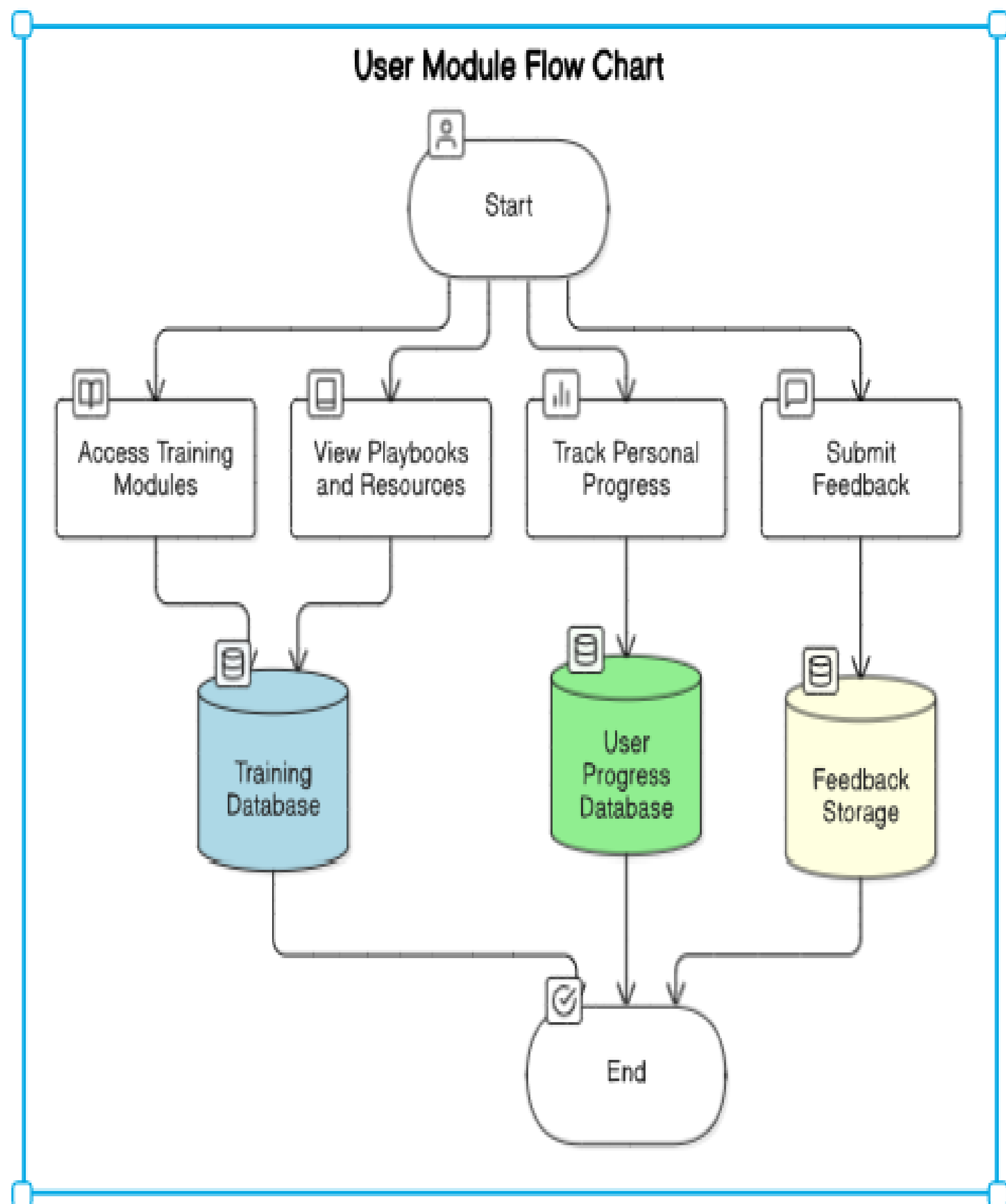


Fig 4.4.4 Data Flow Diagram Of User Module

Fig 4.4.4 Data Flow Diagram (DFD) for User describes, entities, processes, data store

Entities:

- User (Trainee)
- Training System
- Module Buddy (Mentor)

Processes:

1. Access Training Modules
2. View Playbooks & Resources
3. Track Personal Progress
4. Submit Feedback

Data Stores:

- **Training Database** (Stores training materials)
- **User Progress Database** (Tracks progress)
- **Feedback Storage** (Stores user feedback)

DFD Representation (Text Format):

(User) → [Access Training Modules] → (Training Database)
(User) → [View Playbooks & Resources] → (Training Database)
(User) → [Track Personal Progress] → (User Progress Database)
(User) → [Submit Feedback] → (Feedback Storage)

CHAPTER 5

METHODOLOGY AND IMPLEMENTATION

5.1 User Roles and Functionalities

5.1.1 Admin Module:

Purpose:

The Admin module manages users, training content, and system configurations. It provides access control and ensures smooth system operation.

Responsibilities:

- Manage users, roles, and permissions.
- Create and update training kits.
- Monitor system-wide analytics and generate reports.
- Oversee security settings and data integrity.
- Assign training modules to different roles.

Dependencies:

- User Module (to assign roles and permissions).
- Training Database (to manage training kits).
- Analytics & Reporting Module (to generate insights).
- Security & Access Control Module (to enforce permissions).

5.1.2 Manager Module

Purpose:

The Manager module allows managers to oversee employees' training progress and analyze team performance.

Responsibilities:

- Oversee employees' training progress.
- Approve or reject training modules.
- Track training completion and compliance.
- Generate team performance reports.
- Identify struggling or high-performing employees.

Dependencies:

- User Module (to track employees' training status).
- Training Database (to verify module completion).
- Analytics & Reporting Module (to generate insights on performance).
- Notification & Communication Module (to send reminders and alerts).

5.1.3. Module Buddy (Mentor) Module

Purpose:

The Module Buddy module allows mentors to support trainees by monitoring engagement and providing personalized guidance.

Responsibilities:

- Track mentee engagement with training modules.
- Provide mentorship and guidance.
- Give feedback on user performance.
- Assess effectiveness of training programs.

Dependencies:

- User Module (to access mentee data).
- Training Database (to monitor module progress).

5.1.4. User Module (Trainee/Employee)

Purpose:

The User module provides employees access to training materials, assessments, and progress tracking.

Responsibilities:

- Access and complete assigned training modules.
- View playbooks and learning resources.
- Track personal progress and assessment scores.

Dependencies:

- Training Database (to retrieve assigned training modules).
- User Progress Database (to track learning progress).
- Feedback Storage (to store feedback on training sessions).

5.2 Admin Dashboard



Fig 5.2 Admin Dashboard

5.2.1 User Management

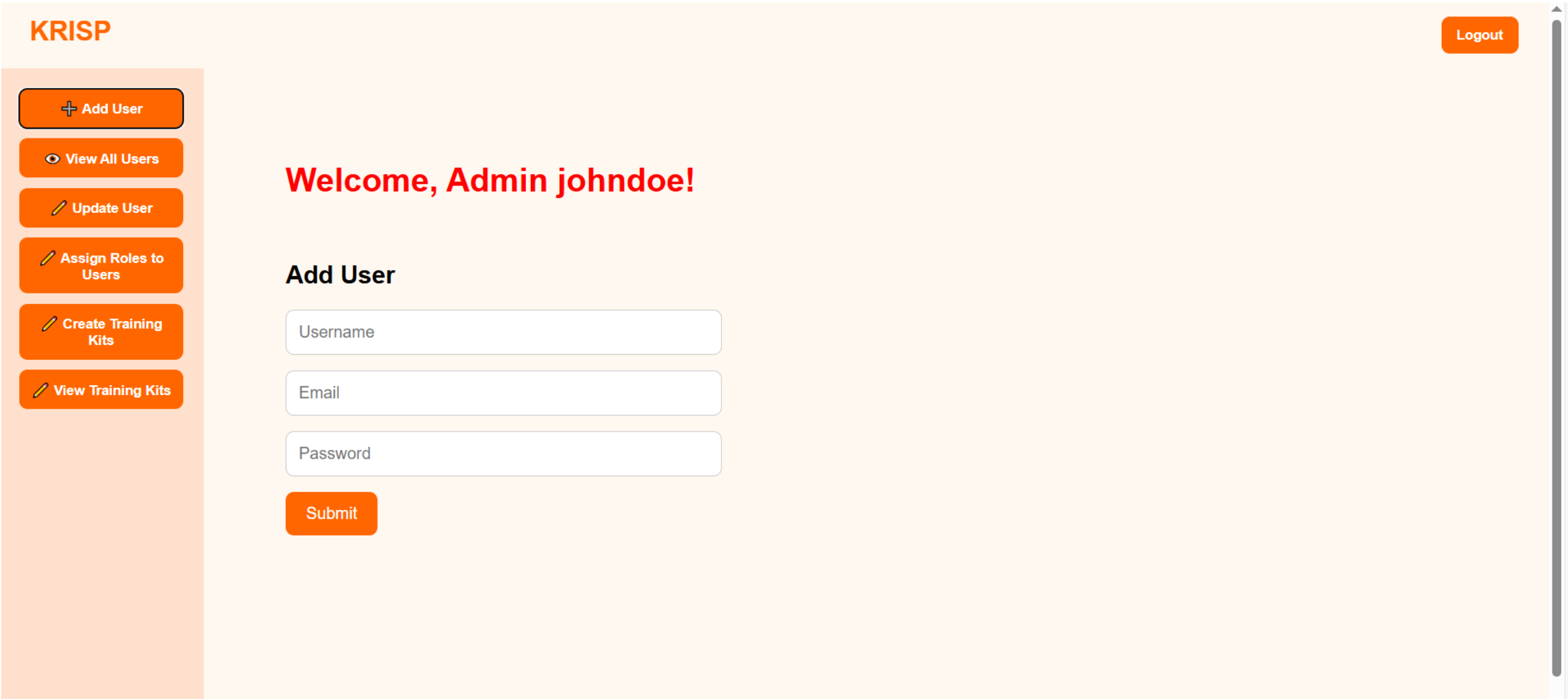


Fig 5.2.1 Add User

5.2.2 Assign Roles to Users

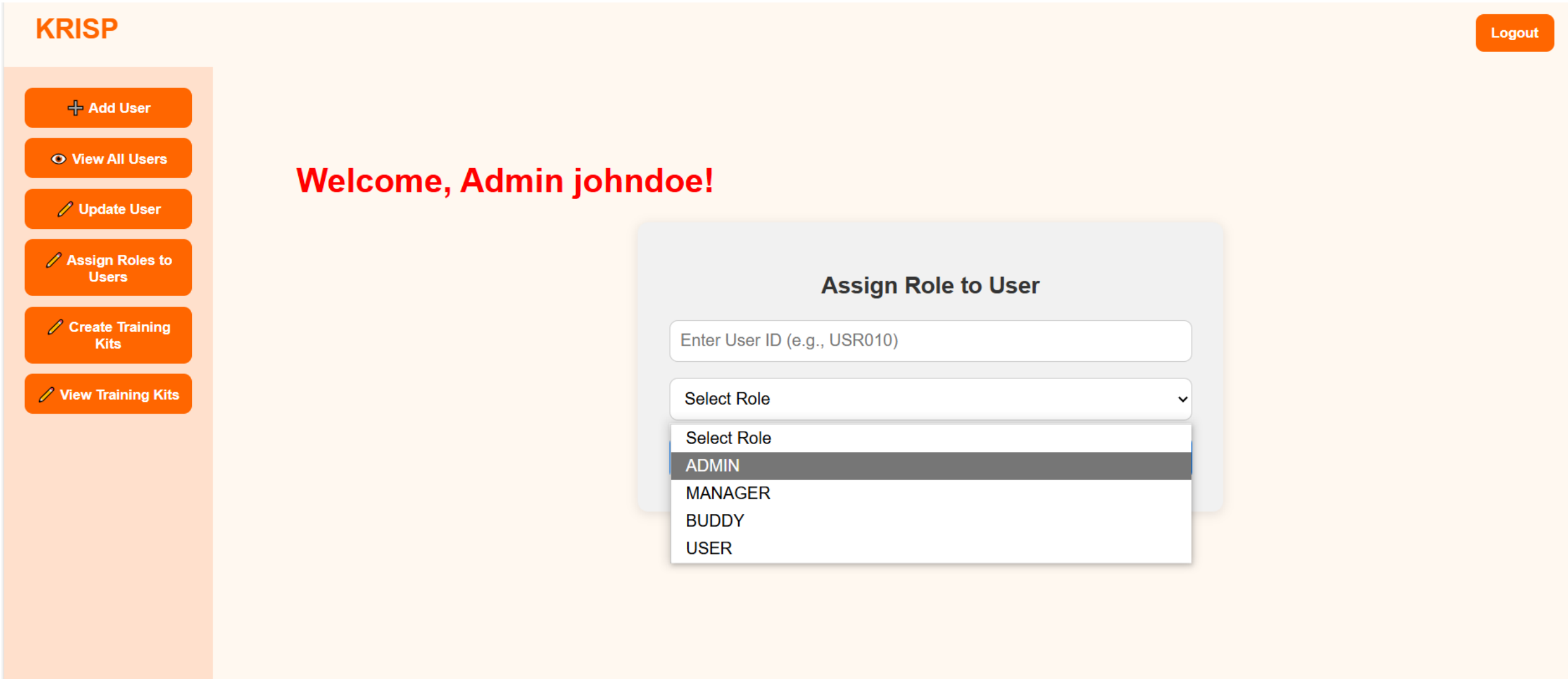


Fig 5.2.3 Assign roles

5.2.3 Create Training Kits

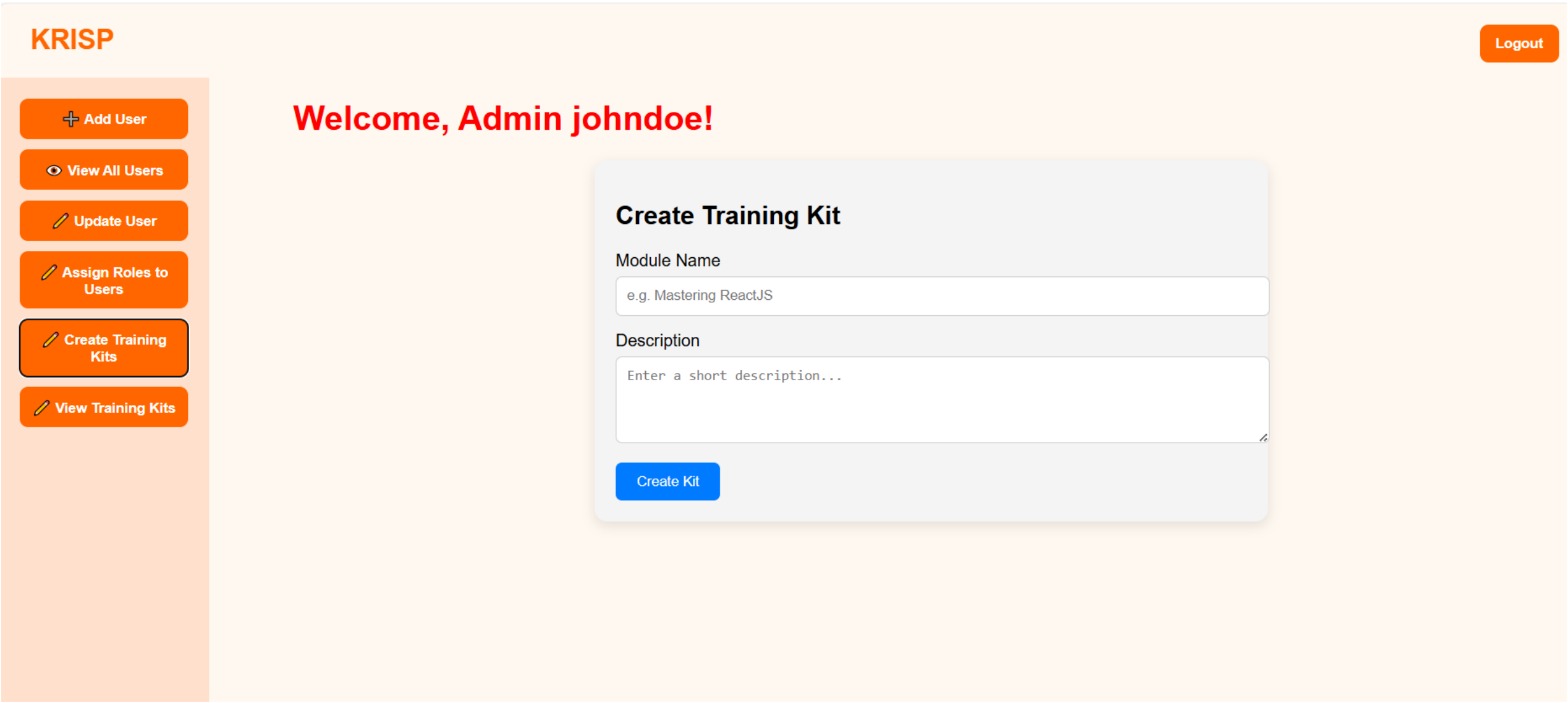


Fig 5.2.3 Create Training Kits

5.2.4 View Training Kits



Fig 5.2.4 View Training Kits

5.3 Manager Dashboard

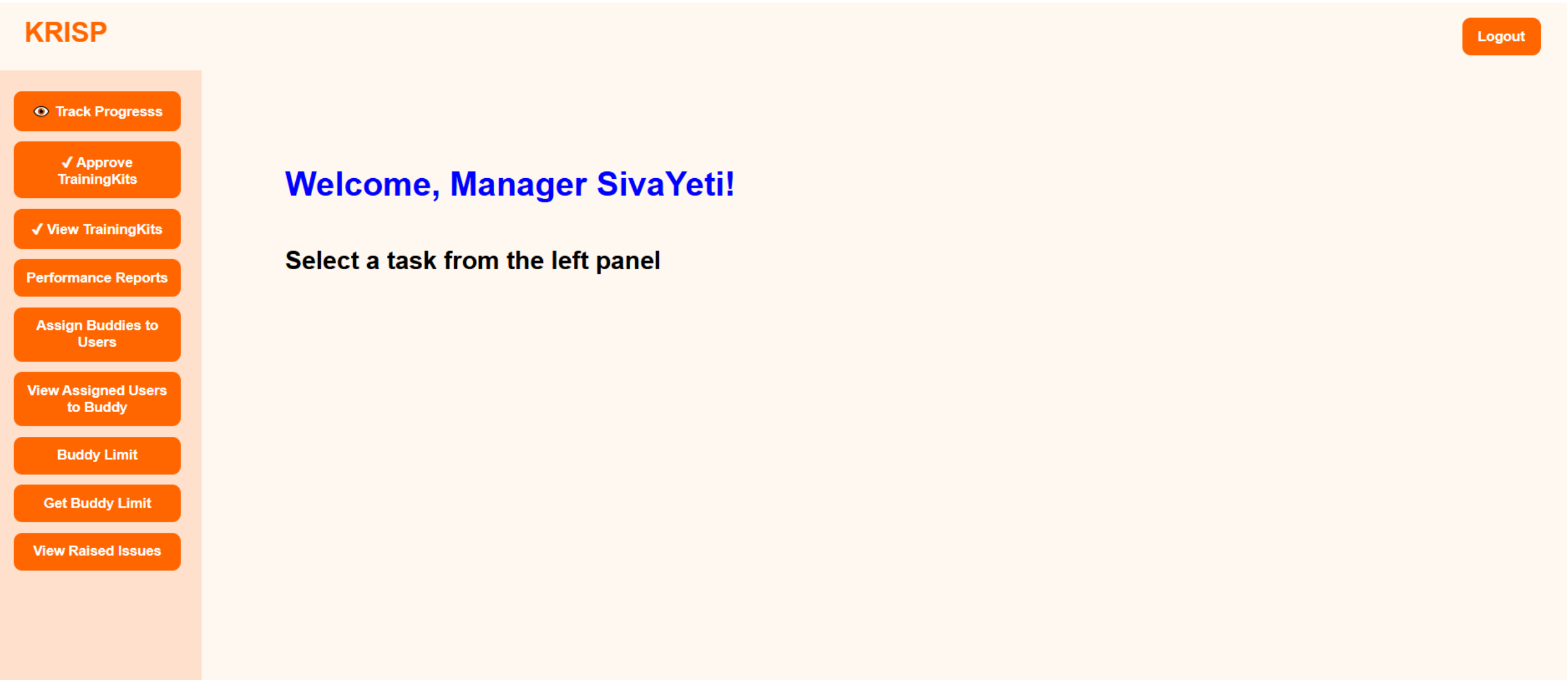


Fig 5.3 Manager Dashboard

5.3.1 Track Progress

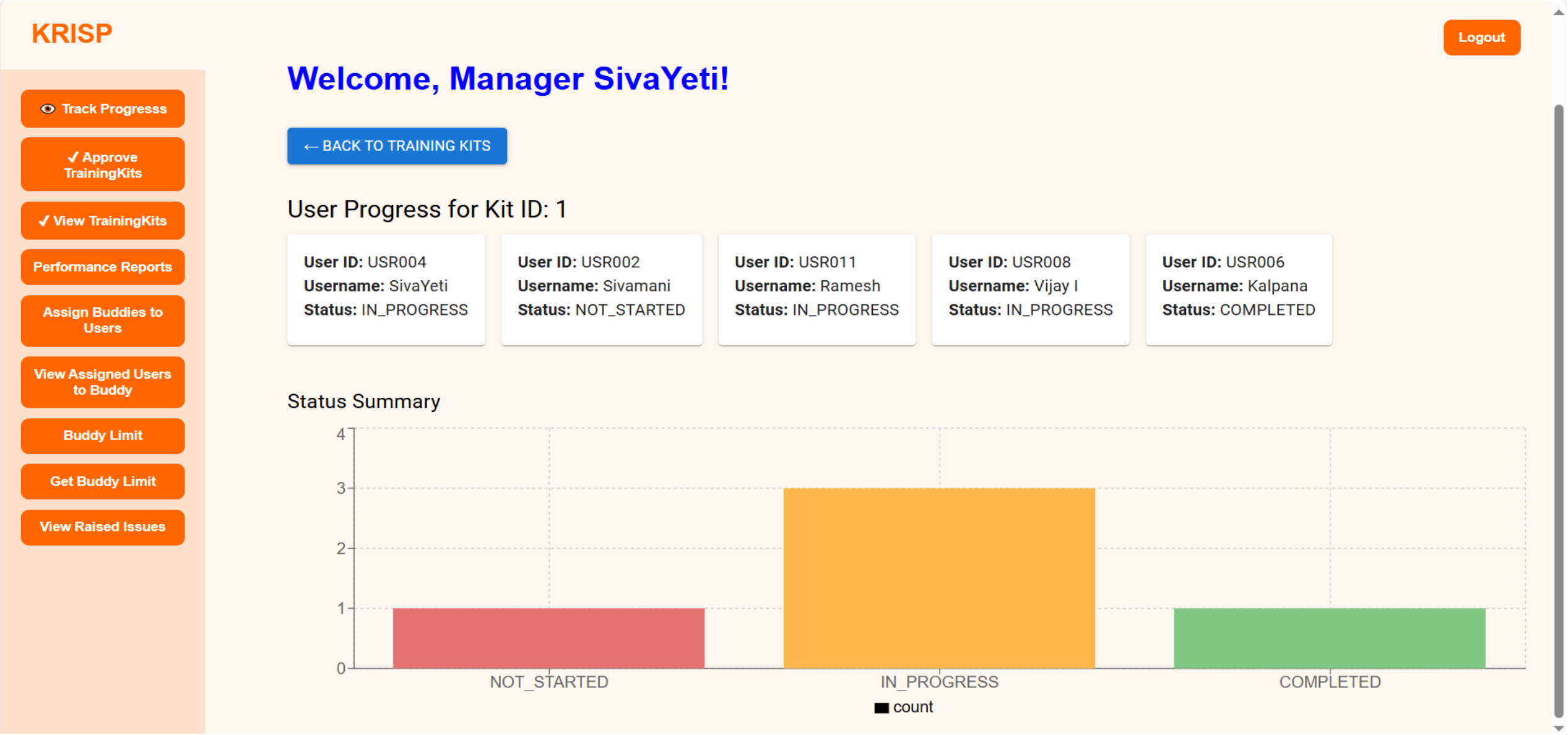


Fig 5.3.1 Track Progress

5.3.2 Approve Training Kits

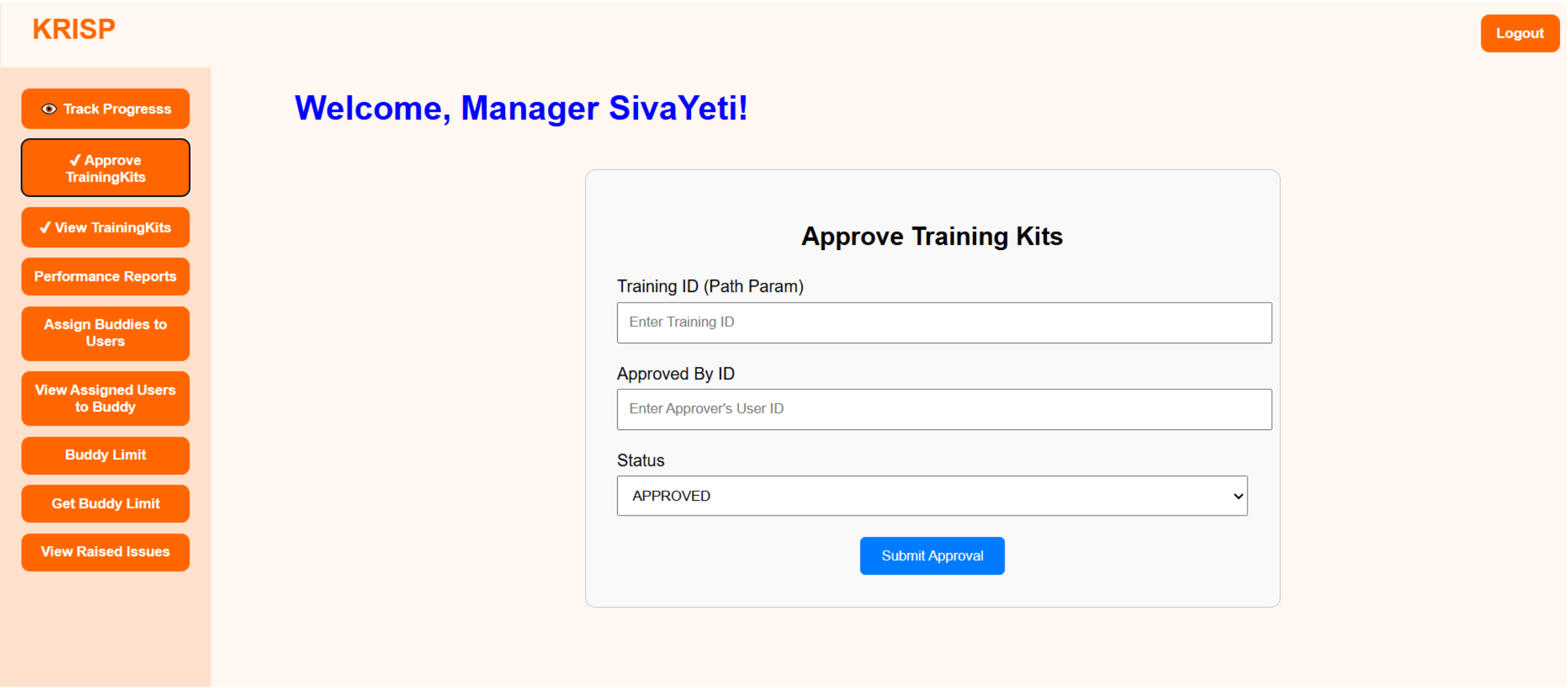


Fig 5.3.2 Approve Training Kits

5.3.3 Performance Reports

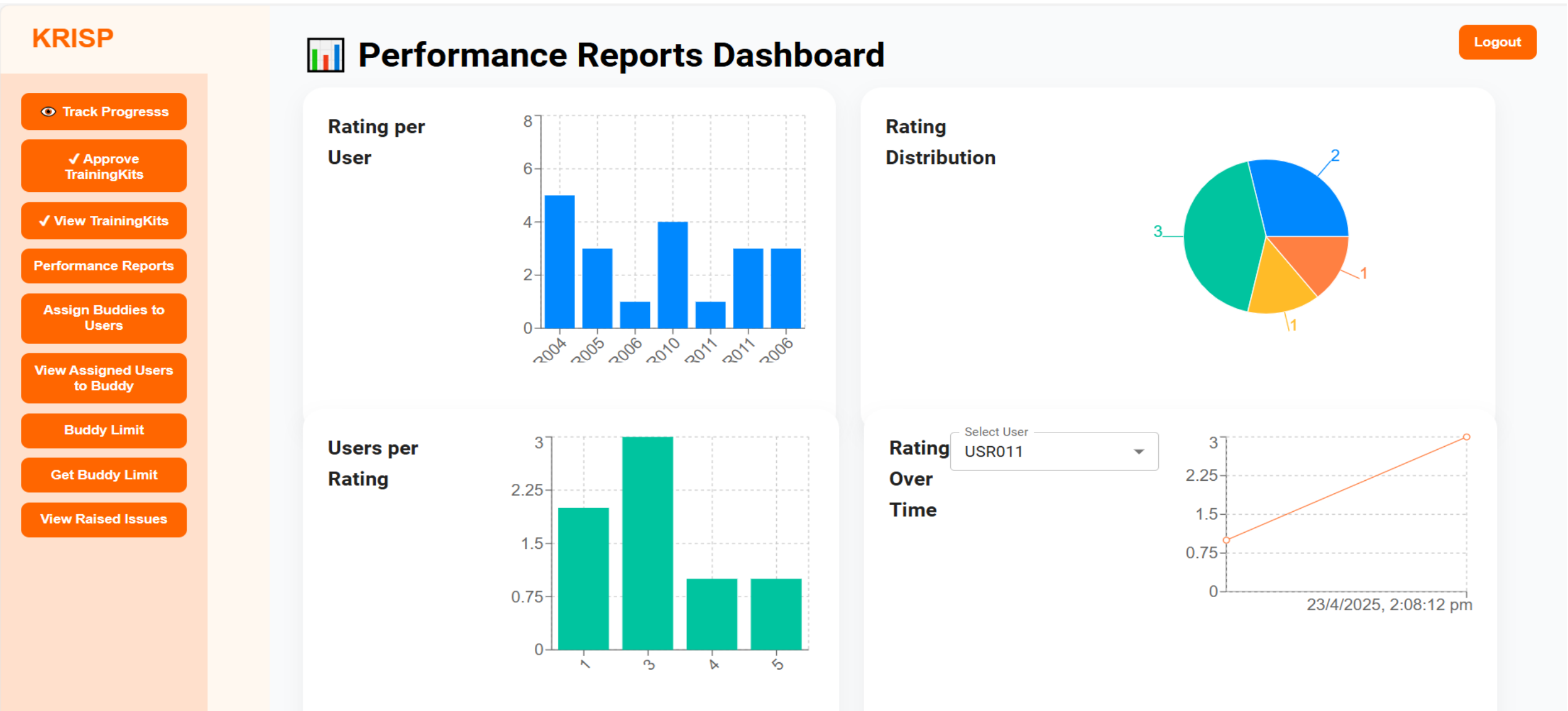


Fig 5.3.3 Performance Reports

5.4 Buddy Dashboard

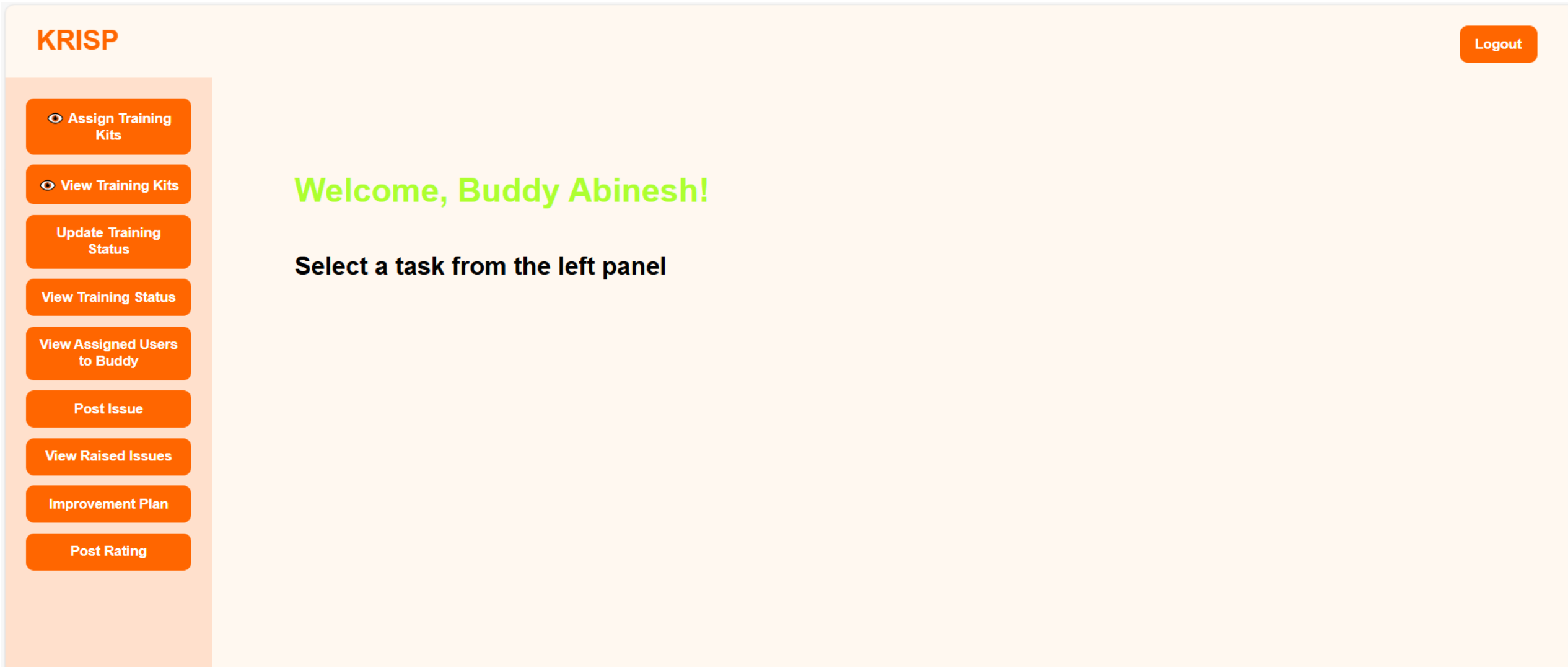


Fig 5.4 Buddy Dashboard

5.4.1 Assign Training Kits

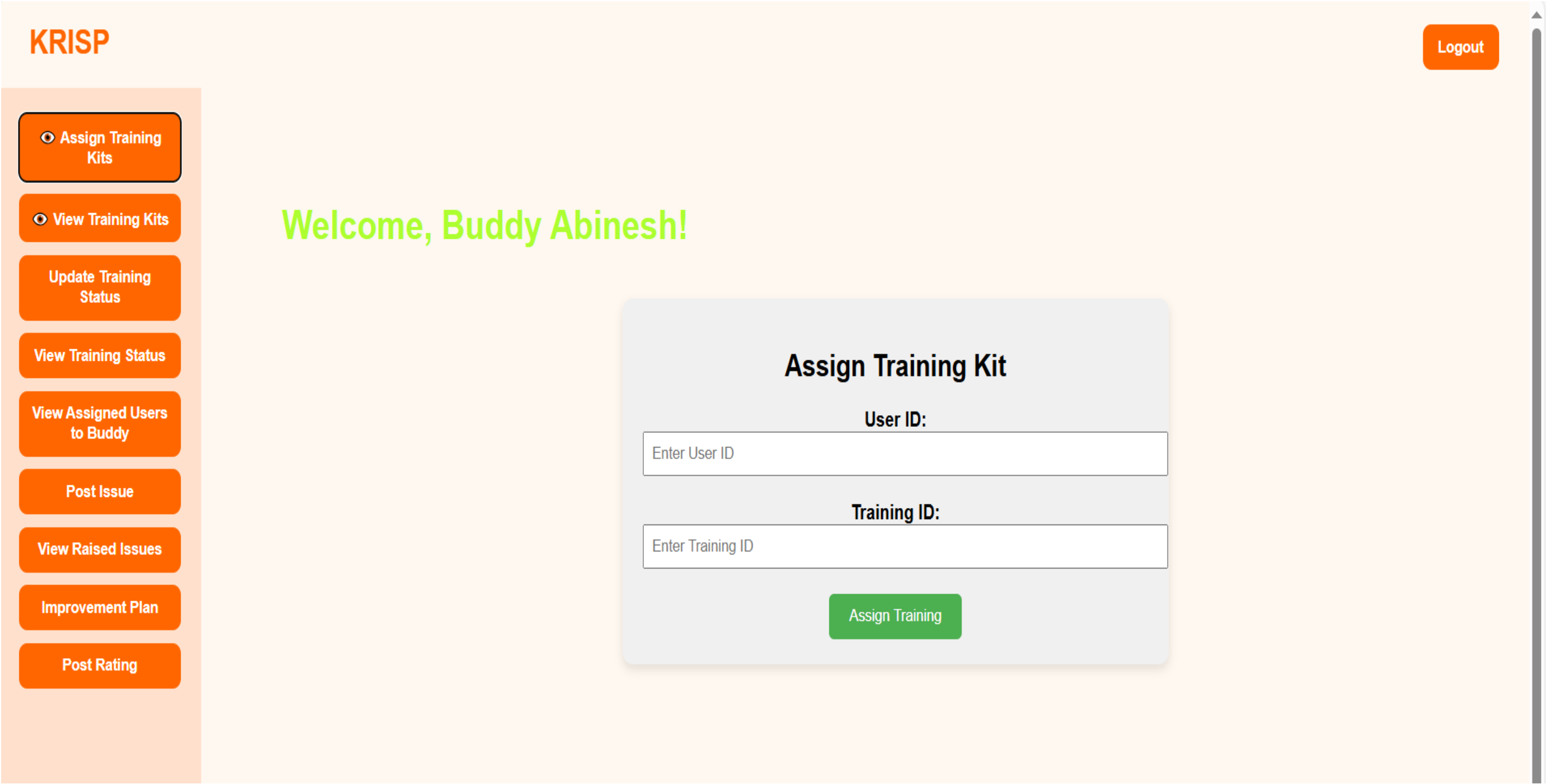


Fig 5.4 .1 Assign Training Kits

5.4.2 View Training Status

KRISP

Assign Training Kits

View Training Kits

Update Training Status

View Training Status

View Assigned Users to Buddy

Post Issue

View Raised Issues

Improvement Plan

Post Rating

Welcome, Buddy Abinesh!

Training Status Overview

Assignment ID	User ID	User Name	Training Kit ID	Module Name	Status
2	USR006	Kalpna	2	Java Basics	IN_PROGRESS
1	USR004	SivaYeti	1	Advanced Spring Boot	IN_PROGRESS
6	USR010	rashi	5	DevOps Essentials	NOT_STARTED
9	USR002	Sivamani	1	Advanced Spring Boot	NOT_STARTED
8	USR011	Ramesh	1	Advanced Spring Boot	IN_PROGRESS
7	USR011	Ramesh	4	Mastering ReactJS	IN_PROGRESS
3	USR005	RAM	3	Machine Learning Basics	IN_PROGRESS
4	USR008	Vijay I	1	Advanced Spring Boot	IN_PROGRESS
5	USR006	Kalpna	1	Advanced Spring Boot	COMPLETED

Fig 5.4.2 Training Status

5.4.3 Improvement Plan

KRISP

Assign Training Kits

View Training Kits

Update Training Status

View Training Status

View Assigned Users to Buddy

Post Issue

View Raised Issues

Improvement Plan

Post Rating

Welcome, Buddy Abinesh!

Submit Improvement Plan

User ID

e.g., USR007

Buddy ID

e.g., USR003

Improvement Plan

Write the plan here...

Submit Plan

Fig 5.4.3 Improvement Plan

5.4.4 Post Rating

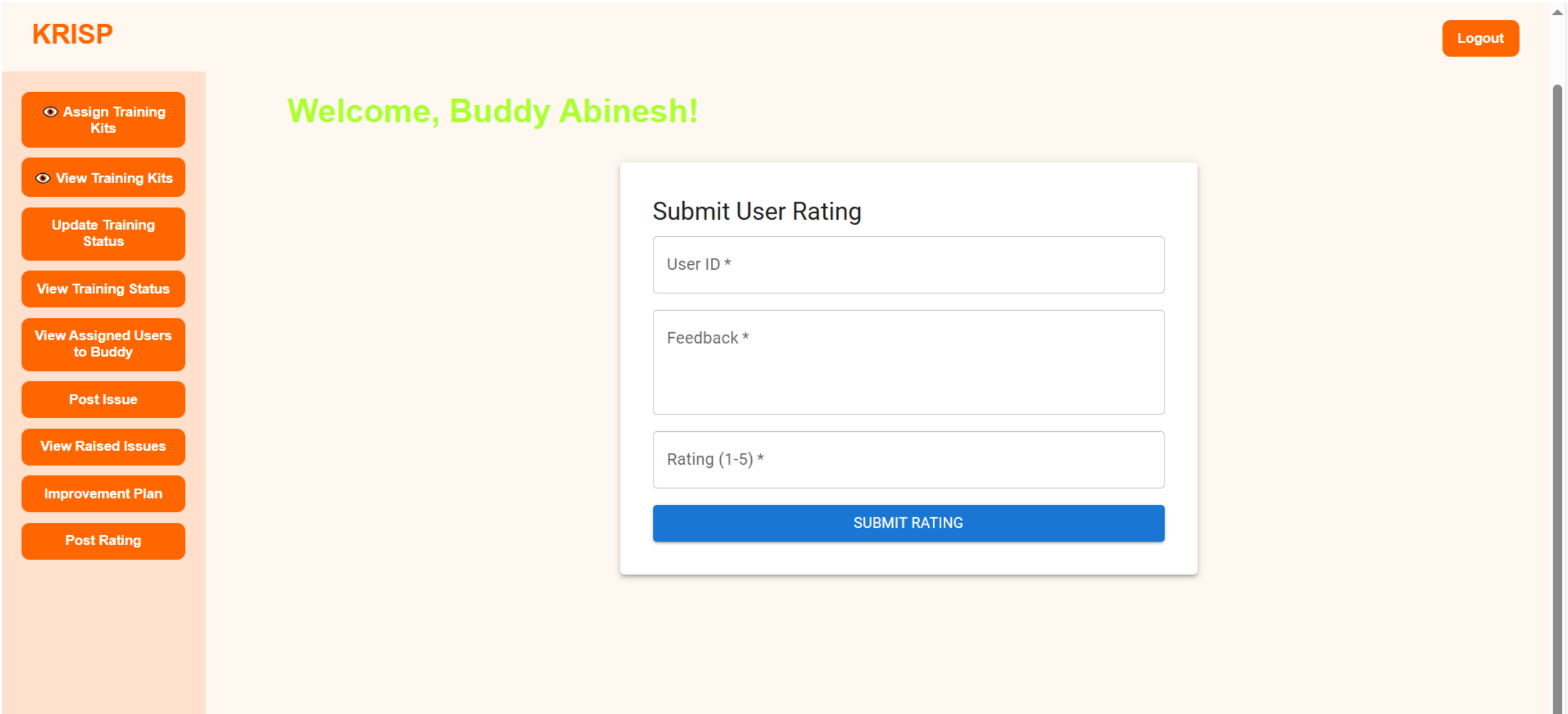


Fig 5.4.4 Post Rating

5.5 User Dashboard

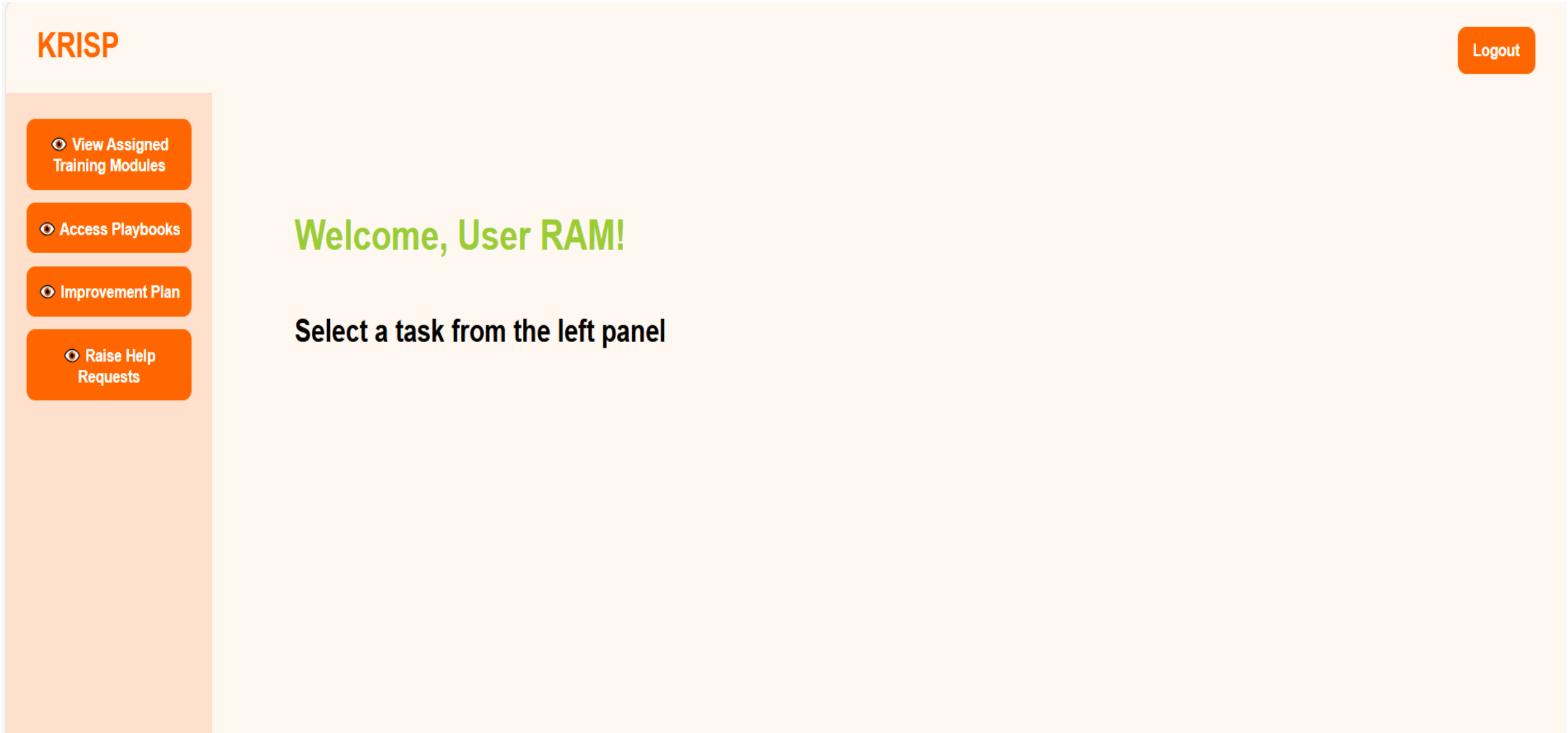


Fig 5.5 User Dashboard

5.5.1 View Assigned Training Kits

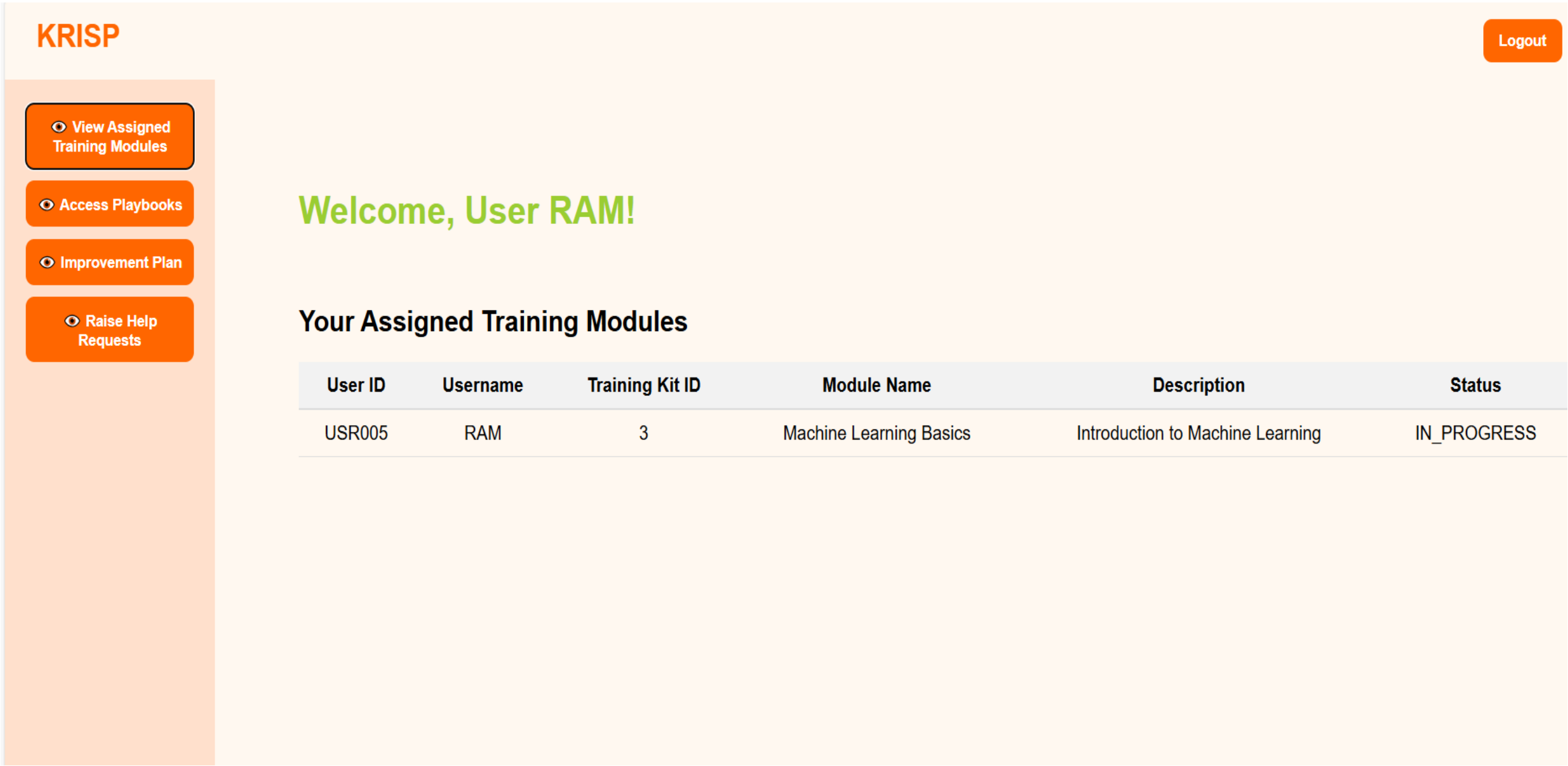


Fig 5.5.1 View Assigned Training Kit

5.5.2 View Improvement Plan

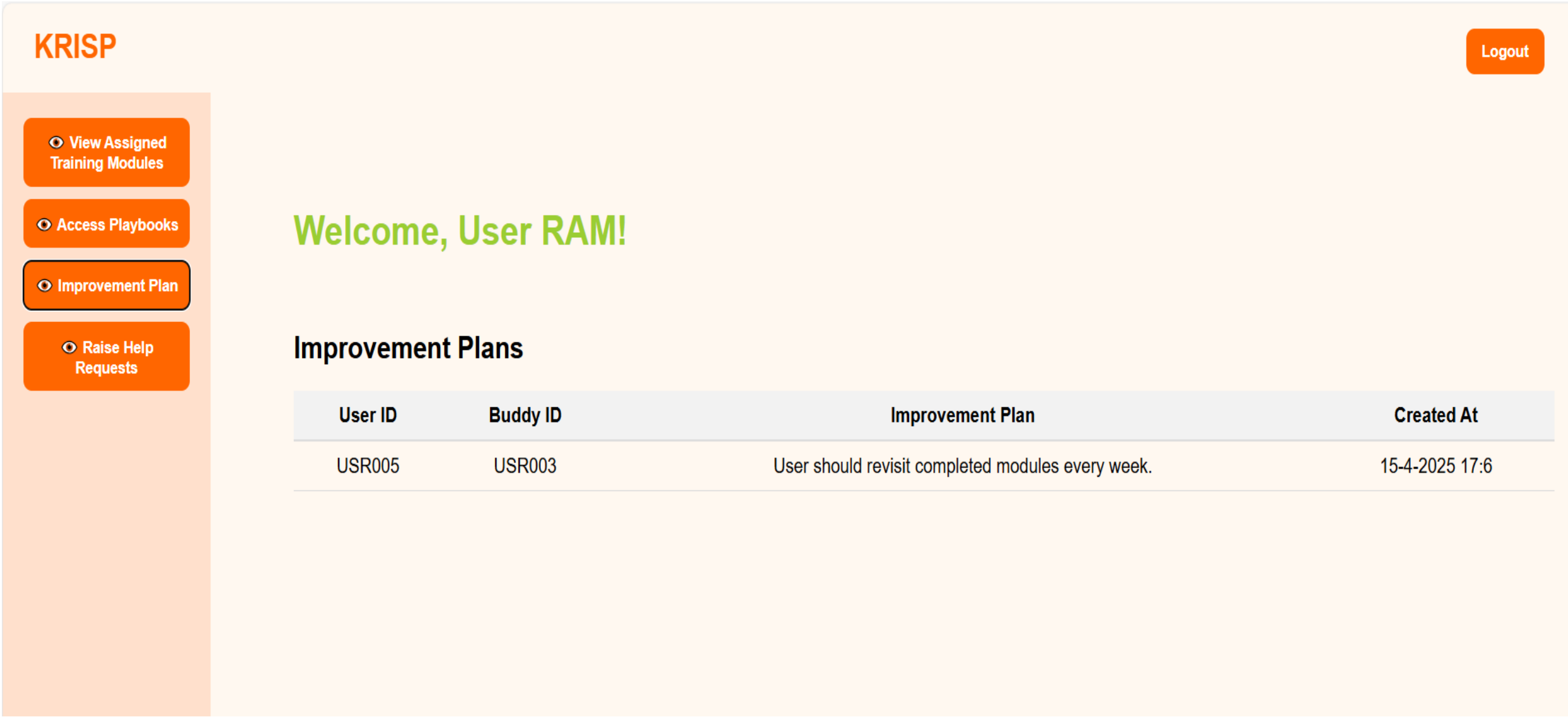


Fig 5.5.2 View Improvement Plan

CHAPTER 6

CONCLUSION AND FUTURE ENHANCEMENTS

6.1 Conclusion

Insight360 emerges as a comprehensive, scalable, and secure platform that addresses the evolving needs of enterprise learning and development. By incorporating robust **Role-Based Access Control (RBAC)**, secure authentication (via **Okta or Azure AD**), and a centralized PostgreSQL-backed architecture, the platform ensures that users interact with data and tools relevant to their roles—whether Admin, Manager, Module Buddy, or Employee.

The modular structure enhances system flexibility, enabling efficient training module management, real-time progress tracking, and actionable analytics. Seamless UI/UX powered by **Material UI** ensures accessibility across devices, while the centralized feedback loop strengthens mentorship and performance alignment. Compared to existing skill-building platforms, Insight360 stands out with its dynamic dashboard rendering, real-time data synchronization, and enterprise-level security integration.

Thus, the platform not only streamlines corporate training workflows but also empowers all stakeholders to make informed decisions, promoting a culture of learning, accountability, and continuous improvement.

6.2 Future Scope

- **AI-Driven Recommendations:** Integrate machine learning models to provide intelligent suggestions for training modules, mentorship pairings, and career development paths based on user behavior and performance.
- **Gamification Features:** Add leaderboards, badges, and achievement tracking to enhance user engagement, motivation, and completion rates across modules.
- **Mobile App Integration:** Extend the platform with a cross-platform mobile app for learning on the go, ensuring wider accessibility and real-time notifications.
- **Third-Party LMS Integration:** Enable interoperability with popular LMS platforms like Moodle, Coursera for Business, or LinkedIn Learning to expand content offerings.
- **Blockchain Credentialing:** Incorporate blockchain to offer tamper-proof, verifiable digital certificates and skill badges for completed training and mentorship programs.
- **Natural Language Processing (NLP) in Feedback:** Use NLP to analyze qualitative feedback and derive sentiment trends or potential areas of concern within teams or modules.
- **Custom Report Builder:** Allow managers and admins to create custom analytics dashboards and export reports based on team, department, or training parameters.
- **Localization and Multi-Language Support:** Support multi-language dashboards and localized content to cater to global enterprises with a diverse workforce.

REFERENCES

- [1] K. Jadhav, P. Mehta, and A. Roy, “SkillSync: AI-Driven Learning Pathways for Enterprise Upskilling,” Jan. 12, 2024. Accessed: Apr. 02, 2025. [Online]. Available: <http://example.com/skillsync>
- [2] P. Sharma, R. Verma, and L. Iyer, “Upskill360: Leveraging Analytics to Drive Corporate Learning Outcomes,” Feb. 08, 2024. Accessed: Apr. 02, 2025. [Online]. Available: <http://example.com/upskill360>
- [3] A. Patel, M. Sinha, and V. Kapoor, “SkillWise: Intelligent Mentor-Mentee Matching and Learning Progress Tracking,” Mar. 15, 2024. Accessed: Apr. 02, 2025. [Online]. Available: <http://example.com/skillwise>
- [4] D. Rao, T. Deshmukh, and S. Kumar, “LearnEdge: A Role-Centric Training System for Enterprise Learning Management,” Apr. 10, 2024. Accessed: Apr. 02, 2025. [Online]. Available: <http://example.com/learnedge>
- [5] R. Krishnan, A. Bhatt, and K. Sen, “SkillForge: Gamified Learning Platform for Workforce Development,” May 06, 2024. Accessed: Apr. 02, 2025. [Online]. Available: <http://example.com/skillforge>
- [6] N. Bansal, Y. Rao, and M. Chatterjee, “EduChain: Blockchain-Based Learning Credential Verification System,” Jun. 20, 2024. Accessed: Apr. 02, 2025. [Online]. Available: <http://example.com/educhain>

BIBLIOGRAPHY

1. *Spring Boot Reference Documentation*. Available: <https://spring.io/projects/spring-boot>
2. *Spring Data JPA Documentation*. Available: <https://spring.io/projects/spring-data-jpa>
3. *Hibernate ORM Documentation*. Available: <https://hibernate.org/orm/documentation/>
4. *Maven Documentation*. Available: <https://maven.apache.org/guides/index.html>
5. *Spring Security Documentation*. Available: <https://spring.io/projects/spring-security>
6. *REST API Design Guidelines*. Available: <https://restfulapi.net/>
7. *PostgreSQL 15 Documentation*. Available: <https://www.postgresql.org/docs/15/>
8. *JDBC (Java Database Connectivity) Documentation*. Available: <https://docs.oracle.com/javase/8/docs/technotes/guides/jdbc/>
9. *React Official Documentation*. Available: <https://reactjs.org/docs/getting-started.html>
10. *Material-UI (MUI) Documentation*. Available: <https://mui.com/material-ui/getting-started/overview/>
11. *Framer Motion Documentation*. Available: <https://www.framer.com/motion/>
12. *Styled Components Documentation*. Available: <https://styled-components.com/docs>
13. *GSAP (GreenSock Animation Platform) Documentation*. Available: <https://greensock.com/docs/>
14. *React Awesome Reveal Documentation*. Available: <https://react-awesome-reveal.morello.dev/>
15. *Axios (HTTP Client for React)*. Available: <https://axios-http.com/docs/intro>
16. *Bootstrap Documentation*. Available: <https://getbootstrap.com/>