Module Code & Module Title

CS6P05NI Final Year Project

Assessment Weightage & Type

25% FYP Interim Report

Semester

2024-25 Autumn/Spring Project

Title: HrLog

Student Name:

London Met ID:

College ID:

Internal Supervisor:

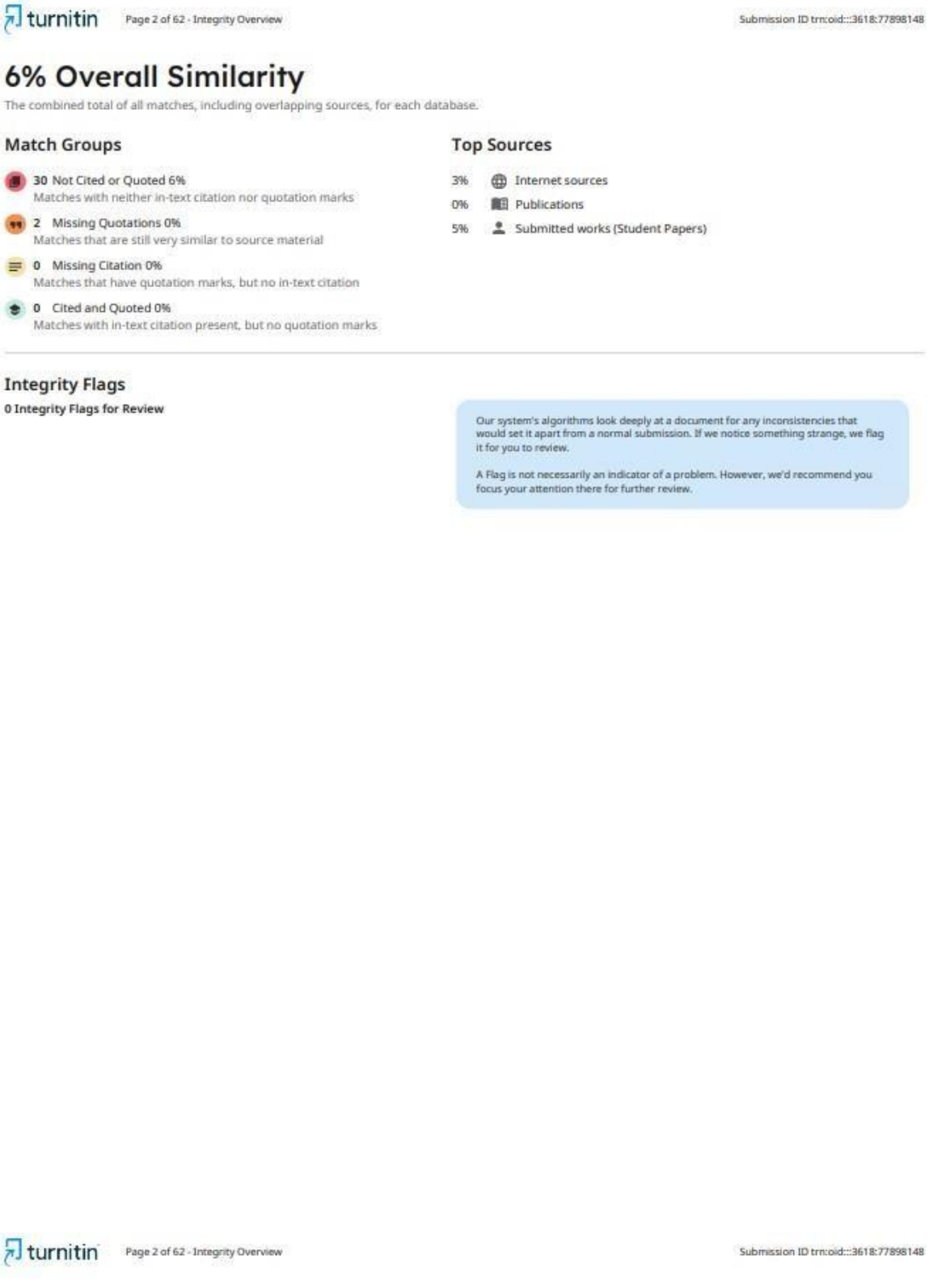
External Supervisor:

Assignment Due Date:

Assignment Submission Date:

Word Count: 3792

I confirm that I understand my coursework needs to be submitted online via MySecondTeacher under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a mark of zero will be awarded.



turnitin Page 2 of 62 - Integrity Overview Submission ID trn:oid:::3618:77898148

6% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

Match Groups

- 30 Not Cited or Quoted 6%
  Matches with neither in-text citation nor quotation marks
- 2 Missing Quotations 0%
  Matches that are still very similar to source material
- 0 Missing Citation 0%
  Matches that have quotation marks, but no in-text citation
- 0 Cited and Quoted 0%
  Matches with in-text citation present, but no quotation marks

Top Sources

3% Internet sources
0% Publications
5% Submitted works (Student Papers)

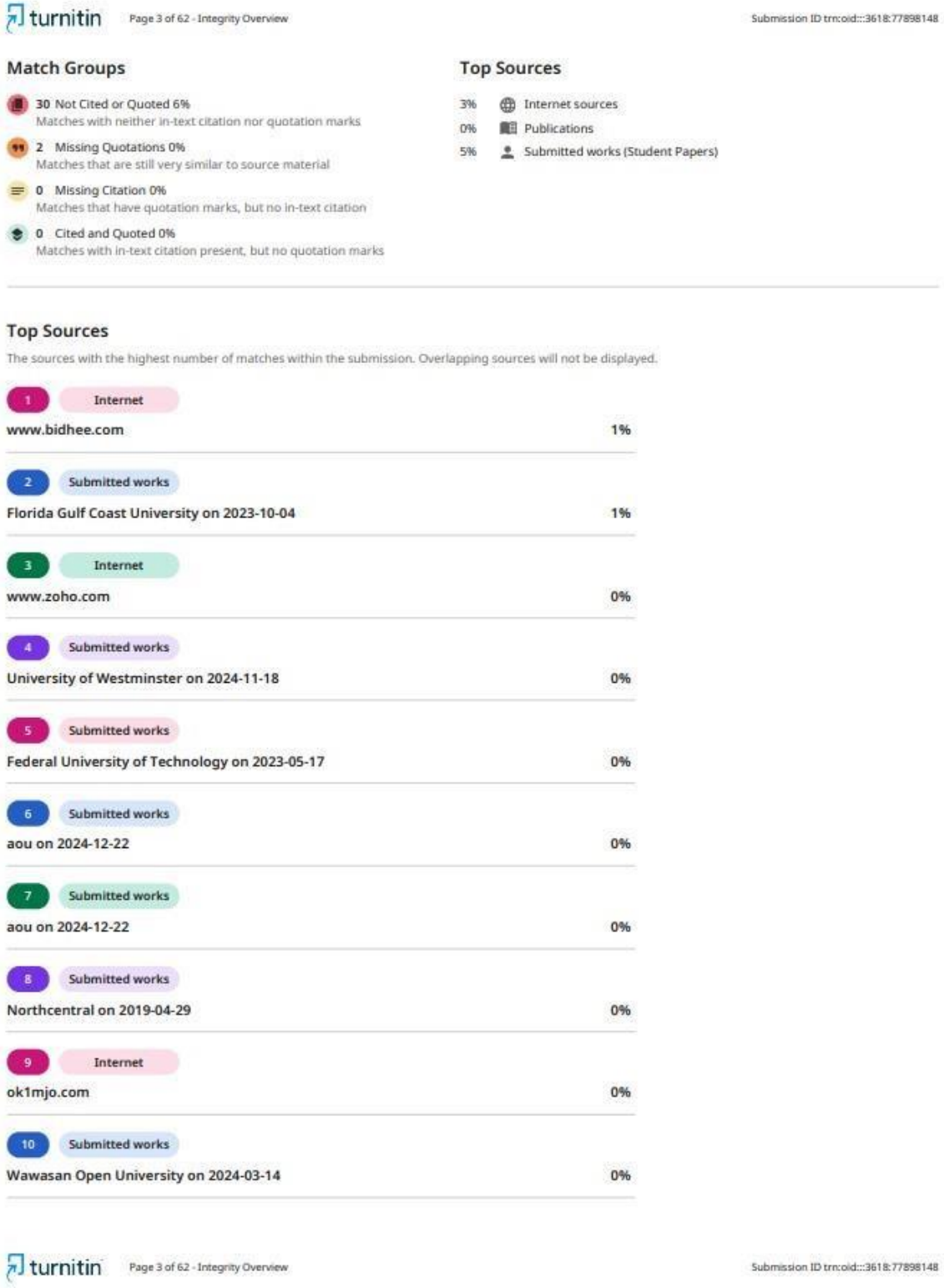
Integrity Flags

0 Integrity Flags for Review

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

turnitin Page 2 of 62 - Integrity Overview Submission ID trn:oid:::3618:77898148



turnitin Page 3 of 62 - Integrity Overview Submission ID trn:oid:::3618:77898148

Match Groups

- 30 Not Cited or Quoted 6%
  Matches with neither in-text citation nor quotation marks
- 2 Missing Quotations 0%
  Matches that are still very similar to source material
- 0 Missing Citation 0%
  Matches that have quotation marks, but no in-text citation
- 0 Cited and Quoted 0%
  Matches with in-text citation present, but no quotation marks

Top Sources

3% Internet sources
0% Publications
5% Submitted works (Student Papers)

Top Sources

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1	Internet	
www.bidhee.com		1%
2	Submitted works	
Florida Gulf Coast University on 2023-10-04		1%
3	Internet	
www.zoho.com		0%
4	Submitted works	
University of Westminster on 2024-11-18		0%
5	Submitted works	
Federal University of Technology on 2023-05-17		0%
6	Submitted works	
aou on 2024-12-22		0%
7	Submitted works	
aou on 2024-12-22		0%
8	Submitted works	
Northcentral on 2019-04-29		0%
9	Internet	
ok1mjo.com		0%
10	Submitted works	
Wawasan Open University on 2024-03-14		0%

turnitin Page 3 of 62 - Integrity Overview Submission ID trn:oid:::3618:77898148

Table of Contents

List of figures

List of tables

1. Introduction

Human Resource Management (HRM) is a firm's managerial aspect that can also be defined as the workforce management. It is a crucial function with an organization that is concerned with the responsibility of the HR professionals to balance the human resource integrity in an organization. A human resource management can also be referred as a workforce management system that is concerned with streamlining and optimizing the various tasks of HR professionals including various functions such as recruitment, onboarding, offboarding, payroll management, employee engagement and offboarding. The HRM serves as the backbone of workforce management workflows.

1.1. Problem scenario

In the current context, the human resource landscape has undergone significant changes since the organizations around the world are growing bigger. According to a study conducted by McKinsey, it was found that 42% of the organizations around the world find inefficient HR process as the key obstacle to the overall performance of the organization (Zeebaree, et al., 2019).

In the human resource management process, challenges arise due to the complex and dynamic nature of human resources management in an organization. Due to the problems like lack of automation and integration of multiple other processes i.e. supplementary process, various issues from the managerial aspect arises in an organization.

The lack primary standards in the onboarding processes lead to delays in welcoming new employees in the organization. Lack of proper management contributes to increase chaos in a firm. The manual processes involved in handling the employee data introduces further error and inconsistencies. Similarly, the offboarding also poses challenges, especially when manging resignations, terminations or retirements due to issue of lack of proper documentation and delays in processing the final settlements. These setbacks create a negative impression of the organization and even result in compliance violations.

Some of the major problems that causes irregularities in the HRM processes that significantly affect the organization's efficiency, employee satisfaction and overall productivity are as

follows:

- Low index of employee engagement in the organization HR processes.
- Unnecessary conflicts in the leave management processes.
- The delays in the recruitment process.
- Challenges in onboarding and offboarding employees.
- Lack of real-time efficient time tracking.

1.2. The project as a solution

The proposed Human Resource Management System (HRMS) aims to address the problem scenario in the present context by introducing a comprehensive Human Resource Management System i.e., "HrLog" that offers five core modules which are listed as follows:

i. Recruitment module ii. Employee onboarding and offboarding module iii. Time tracking module iv. Employee scheduling and leave management module v. Employee engagement module

1.3. Aim and objectives

The aim of this project is to develop a robust Human Resource Management System (HRMS) that streamlines the core HR processes, reducing inefficiencies and enhancing employee satisfaction.

The objectives behind developing this system are as follows:

- To simplify and track recruitment processes.
- To automate workflows for employee transitions.
- To enable accurate attendance management with real-time time tracking.
- To implement employee scheduling for optimizing shift planning and resource allocation.
- To foster a productive and satisfied workforce through employee engagement mechanism.

2. Background

Human Resource Management System (HRMS) is a crucial stone of modern organizations. The system ensures the management of employees to keep them motivated and retained. In the past decade, the HRM process have evolved by not just playing a pivotal role in enhancing efficiency but also boosting the employee satisfaction and operational effectiveness. Despite having the technologies to tackle the human resource management, organizations continue to face challenges in the HRM systems, such as low employee engagement, inefficient leave and time management and delays in recruitment processes.

Over the time, the existing HRMS software have incorporated advanced tools such as biometric attendance tracking, self-service portals and AI-driven analytics to address the existing issues. The integration of such technologies enables the organizations to align their processes with employee expectation and industry best practices while streamlining the HR operations. According to a study conducted by SHRM (Society for Human Resource Management), organizations that invest in modern HRMS tools experience up to 22% higher employee satisfaction and 19% improved operational efficiency (SHRM, 2022).

The "HrLog – A comprehensive HRM Software" development project focuses on the improvement of an HRMS to address organizational pain points identified through various surveys. The survey provided insights on several key issues, including challenges in onboarding and offboarding employees, inefficient and lack of real-time attendance tracking and communication challenges. The findings suggest that the lack of transparency, automation and user-friendly systems are the primary causes of inefficiencies in HR operations (Stone, et al., 2015).

Some of the similar systems that align with the same interest to the "HrLog" such as Oracle HRMS, Zoho People and Bidhee HRMS were studied carefully.

Oracle HRMS

The Human Resource Management System (HRMS) by Oracle is one of the major components of the Oracle E-Business Suite. The Oracle HRMS is a suite of applications that supports various HR functionalities. It supports various applications such as the Oracle Human Resources (HR), Oracle Payroll, Oracle Self-Service Human Resources (SSHR), Oracle iRecruitment, Oracle Learning Management, etc. These applications share a common database that is hosted on Oracle server mitigating the chances of data redundancy, error and produce a

consistent record. The Oracle HR system integrates the Oracle HR and Oracle Payroll systems closely. The core idea of system focuses on possible solutions to eliminate the redundant data entry, maintenance and storage (Oracle, 2024).

Zoho People

Zoho people is a unified HR platform for a seamless employee experience. The software supports various HR functionalities like talent acquisition, talent management, Core HR, Employee Engagement, and many more. It supports simplified customizations and provides powerful analytics for the right insights. It streamlines the recruitment process pipeline to provide a great candidate experience and helps in recruiting the best talent. Under the core HR module of Zoho, it supports functions likes time and attendance management, roster management, payroll management (in compliance with the Indian Labor Law), secure password management, document management, expense management and people analytics. The architecture of Zoho people relies on a centralized database for all employee needs. Zoho claims that it eliminates all the manual processes with real-time updates (Zoho, 2023).

Bidhee HR Management & Payroll Software

Bidhee is a Nepal-based software company that provides HR management and payroll services in a cloud-based approach. Bidhee introduces their HRMS system as an independent module of the Bidhee ERP. It covers major areas of HR management i.e., Employee Information Management, Payroll and Benefits, Reports, Hiring and Recruitment and many more. It provides Labor law and legal compliance of the organization. Bidhee also provides advance add-on features such as work report chart, roles and authorization, document management, dynamic field management, customizable reports and real time notification (Bidhee ERP, 2022).

The comparison revealed that there are distinct strengths and weakness across all the solutions. The **Oracle HRMS**, being a feature-rich human resource management system, lacks localization for the Nepal's labour laws and on-premises hosting, making it less suitable for Nepali business. Similarly, **Zoho People** miss features likes biometric integration, localization, grievance management and on-premises hosting of the software. Similarly, **Bidhee HRMS** that is developed

in compliance with the Nepali businesses lacks the recruitment through referrals and grievance management.

Table 1: Similar system comparison chart

Feature	Oracle HRMS	Zoho People	Bidhee HRMS	HrLog
Recruitment through referrals	Yes	Yes	No	Yes
Biometric device integration	Yes	No	Yes	Yes
Localization (Based on Nepal's Labor Law	No	No	Yes	Yes
Employee grievance management	Yes	No	No	Yes
On-premises (locally) hosting	No	No	Yes	Yes
Import and export data	Yes	Yes	Yes	Yes
Employee self service portal	Yes	No	Yes	Yes

The background research conducted for this project reflects a review of the existing real-world HRM solutions. This project seeks to deliver an HRMS by addressing gaps in the current context and leveraging advanced technologies, that resolves the existing pain points and sets a foundation for future scalability and adaptability in dynamic organizational environments.

3. Development till date

3.1. Software Requirements Specification (SRS)

Software Requirements Specification (SRS) is a description of a software system that is to be developed. It is generally developed based on the agreement between the client and the contractor. This document contains all the requirements that reduce the development time and cost. It helps in providing an insight of the software requirements to maintain clear understanding.

Some of the major advantages of developing SRS documentation are as follows:

- It minimizes the development efforts.
- It helps in estimating the cost and minimizes the development cost.
- It defines product scope.
- It reduces the changes of requirements mismatch.

- Eliminates the possibility of confusion or misunderstanding on initial stage.

The Software Requirements Specification (SRS) document for the "HrLog – A comprehensive HRM solution" is on Appendix – I.

3.2. Insights from the survey

A survey was conducted using Microsoft Survey to collect feedback from employees of various organization about the HR processes in their organizations. There were 18 multiple choice questions in the survey under various sections. Here are the key insights from each section of the survey:

i. Onboarding process: Most of the respondents were somewhat satisfied with the onboarding process. 40% of the respondents responded that the process lacks more interactive session and faster setup of tools and resources.

ii. Offboarding process: Majority of the respondents found that the process is "somewhat smooth". Most of the respondents responded clear communication is lacking in the current HRM process.

iii. Time tracking and attendance: Many respondents believed that digital systems are widely adopted and there is a significant interest in biometric system and web-based solutions.

iv. Shift scheduling: Most of the respondents responded that lack of proper communication is the major problem in the shift scheduling process. Similarly, some percentage of respondents responded that frequent changes in the schedule is a major problem.

v. Employee grievance and feedback: From the responses, it was found that the HRMS must prioritize user-friendly interfaces, reduce manual process and enhance the accessibility for employees.

vi. Desired features in an Ideal HRMS: Self-service portals are a popular feature for empowering employees. Similarly, respondents value integration with existing tools and platforms.

vii. Biometric device usage: Despite of widespread usage, biometric device face integration and real-time update challenges. This suggests a need for better compatibility and more reliable systems.

viii. HRMS recommendation: Most of the respondents are likely to recommend the system, but the low number of "very likely" responses shows that there's a room to improve employee satisfaction.

Overall recommendations provided some of the major areas to focus on. They are as follows:

- Prioritize user-friendliness and seamless integration in the HRMS interface.
- Enhance time tracking methods and resolve issues with biometric systems.
- Improve onboarding by streamlining resource setup.
- Develop self-service portals and mobile-friendly designs to enhance accessibility and employee autonomy.

3.3. Entity Relationships Diagram (ERD)

The entity relationship diagram of a project provides a visual representation of the entities and the relationship between the entities. It is one of the types of the Unified Modelling Language (UML). The entities in an ER diagram represents the core items or the tables in the database. They represent the real-world objects under which various attributes are places. ER diagram helps in revealing the incorrect steps taken in designing the database by providing a bird's-eye view of all the attribute containing entities.

An initial ER diagram of the HRMS system was designed. The ER diagram contained various entities that can be the tables in the HRMS database. The ER diagram helps in mitigating the logical errors while creating a database and helps in maintaining the data integrity. The ER diagram of the HRMS system is attached below:

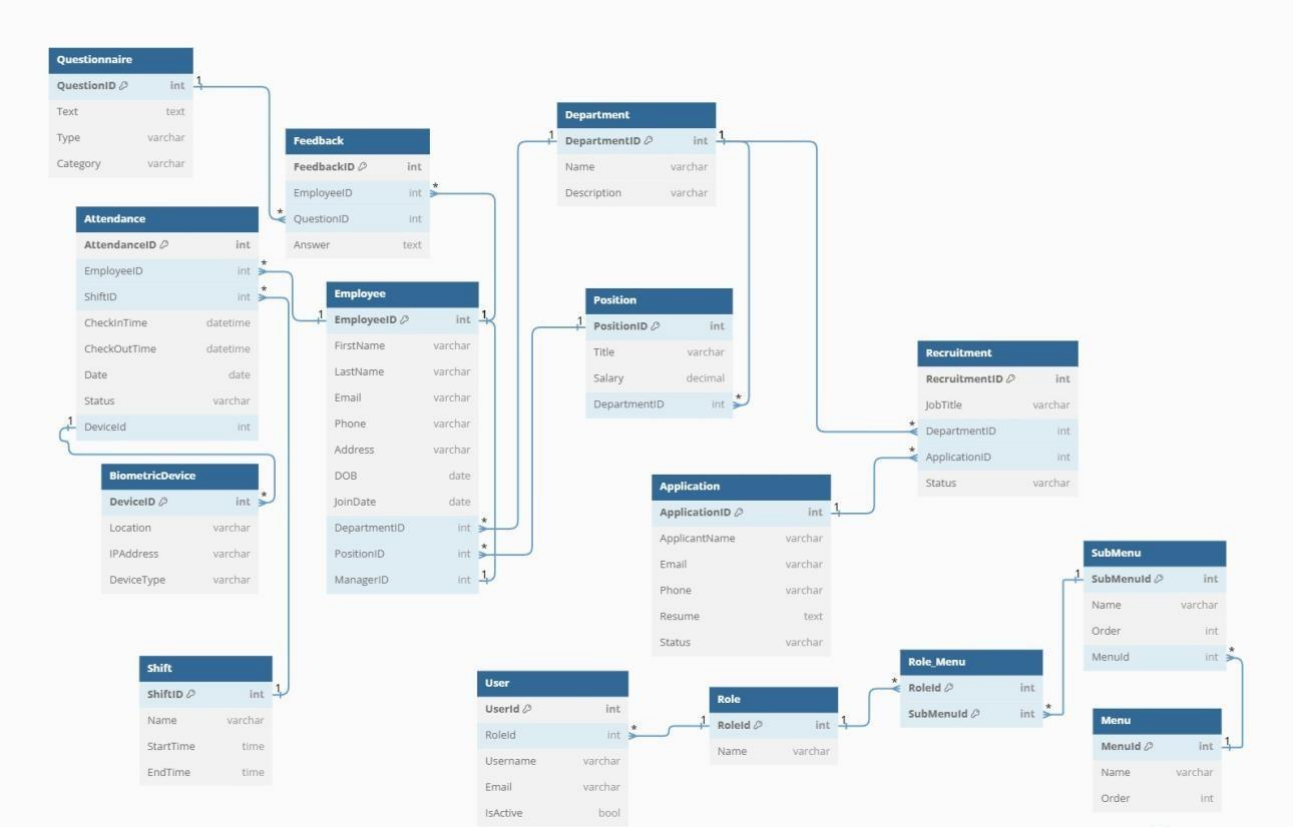


Figure 1: Entity Relationship Diagram (ERD)

3.4. Data-Flow Diagram (DFD)

Data Flow Diagram (DFD) provides a bird's eye view of the flow of the data within the information system. It provides a visual representation of the data flow of a system. This diagram can be useful for both the technical and non-technical members involved in the development process. It provides insights on the data that are provided or entered by various actors (entities) in a management information system.

Some of the advantages of developing a Data Flow Diagram are as follows:

- It provides an overview of the data in the system process.
- It shows the results that are produced.
- It provides the brief overview of the stored data.

The figure below represents the Data Flow Diagram of the Hr-Log System. It represents three entities which are biometric device, employee and the HR admin and the data interchanged between them.

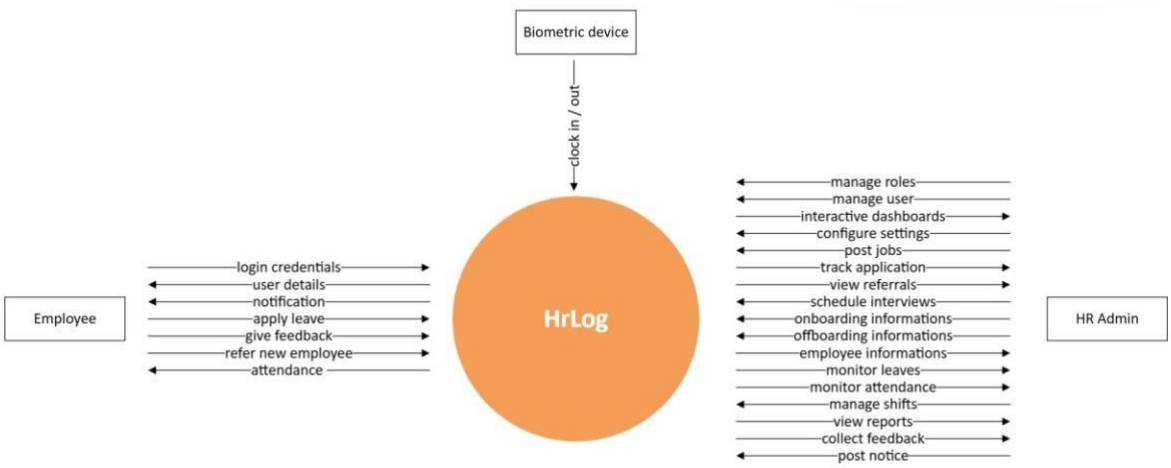


Figure 2: Data Flow Diagram (DFD)

3.5. Use-Case Diagram

Use-Case diagram is also one of the types of Unified Modeling Language (UML). It provides the visual representation of the functionalities of the system and the actors who are supposed to used those features. It provides a high level overview of the system's behaviour since it captures all the functional requirements of a system. There are three notations in this diagram i.e., the actor, the use case and the system boundary. The diagram illustrates the ways users can interact with the system.

The diagram attached below represents the use-case diagram of "HrLog". It has three actos which are the HR admin, super admin and employee. Various ways these actors can interact with the system is shown in the diagram below.

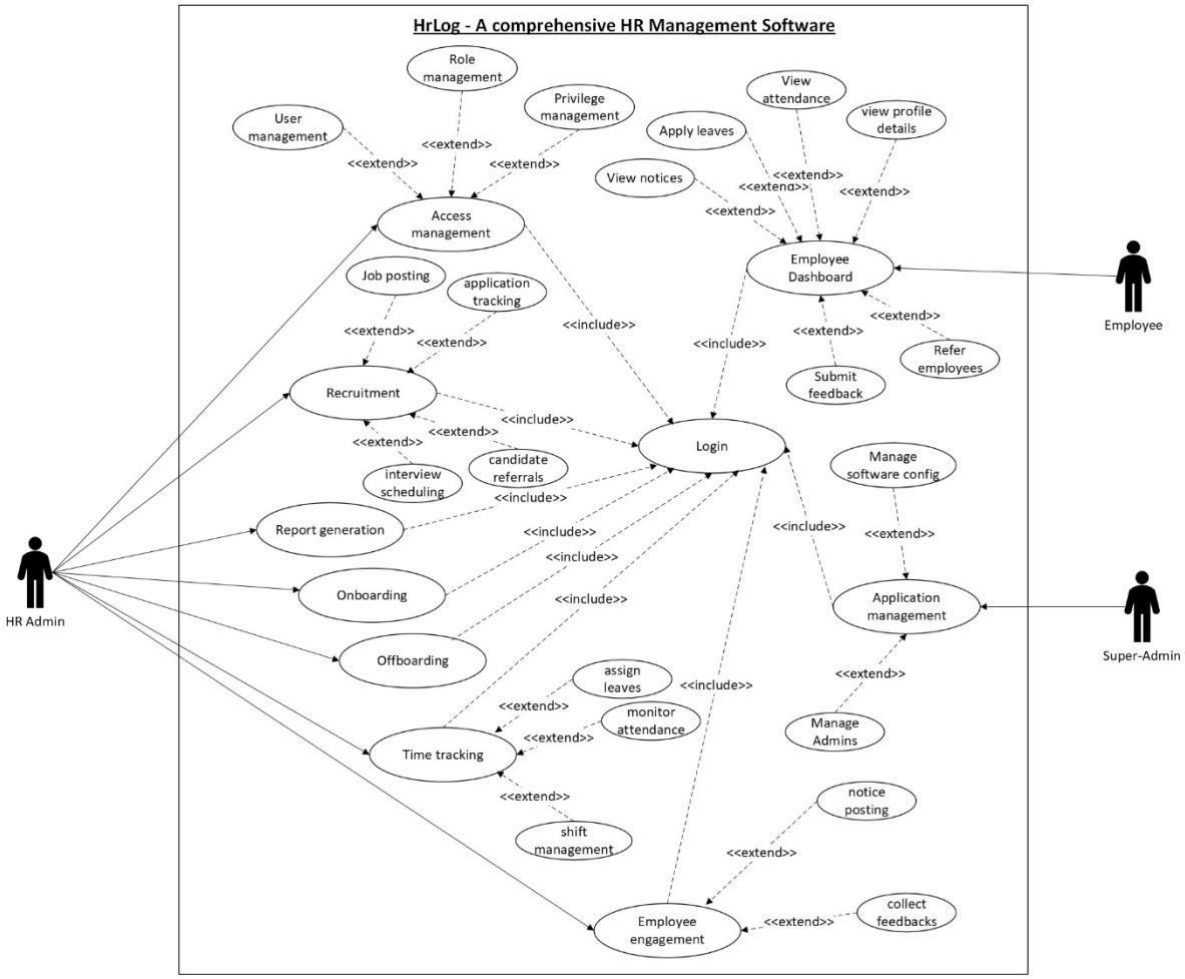


Figure 3: Use-Case Diagram

3.6. Sequence Diagram

Sequence Diagrams are the types of Unified Modelling Language (UML) which shows the interaction between the operations which are carried out to complete certain task. Sequence diagram represents the high-level interactions between the system processes. It shows the elements as they interact over time offering a clear visualization of the interactions. The diagram contains the actors, lifelines and messages or request and responses.

Sequence diagrams of some of the functionalities developed so far such as login, forget password link request and reset password are shown as follows:

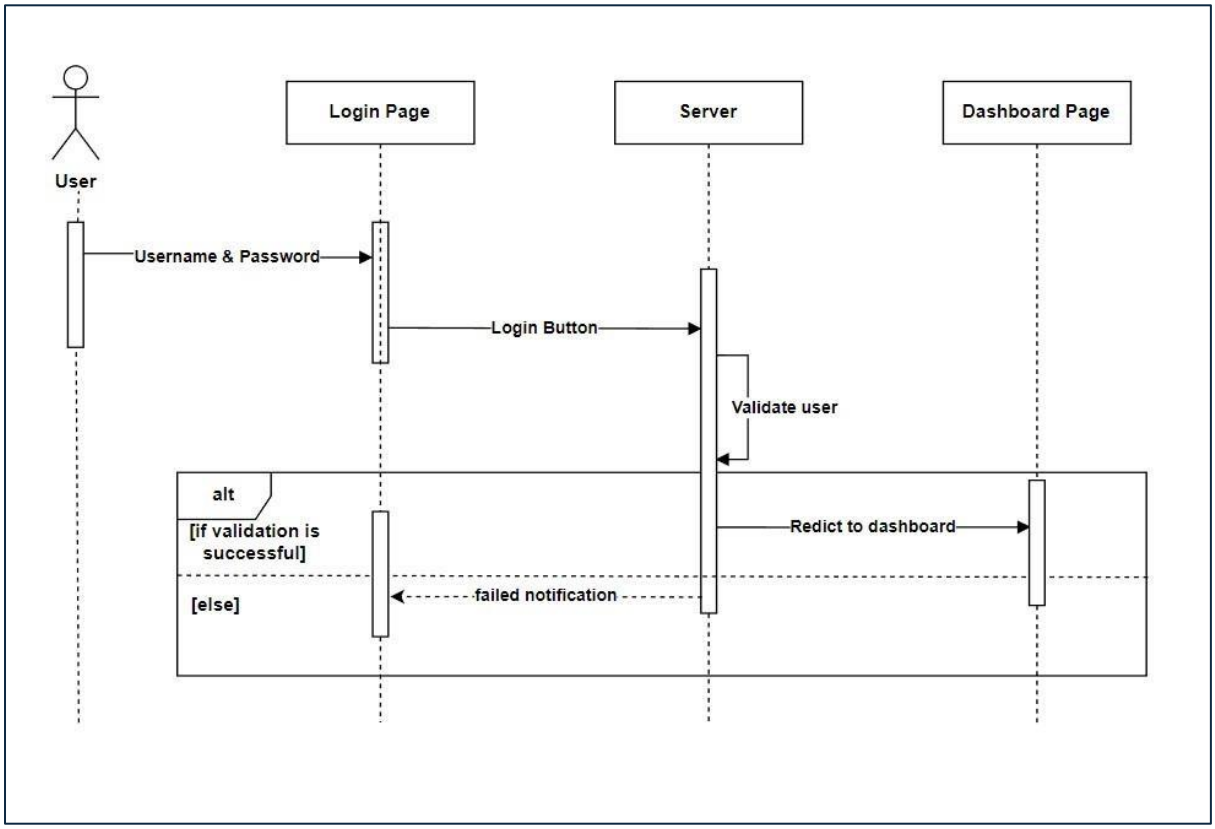


Figure 4: Sequence diagram of authentication flow

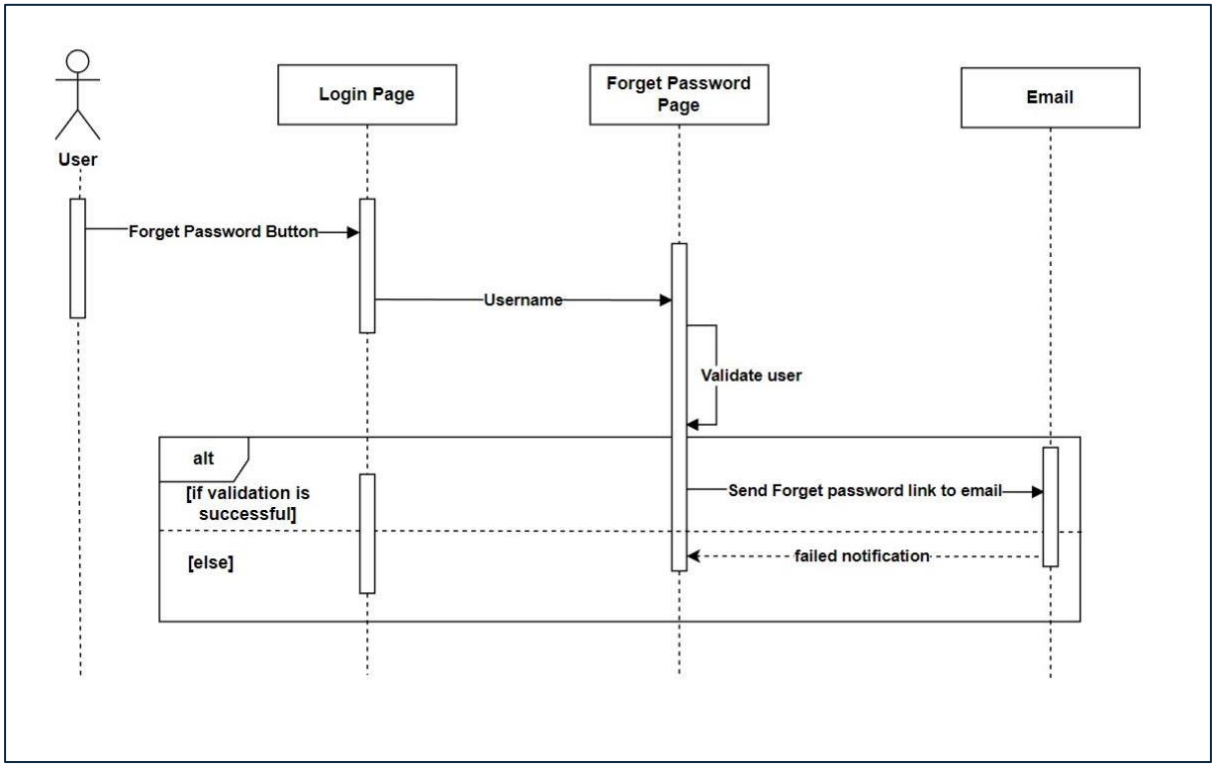


Figure 5: Sequence diagram of forget password link request

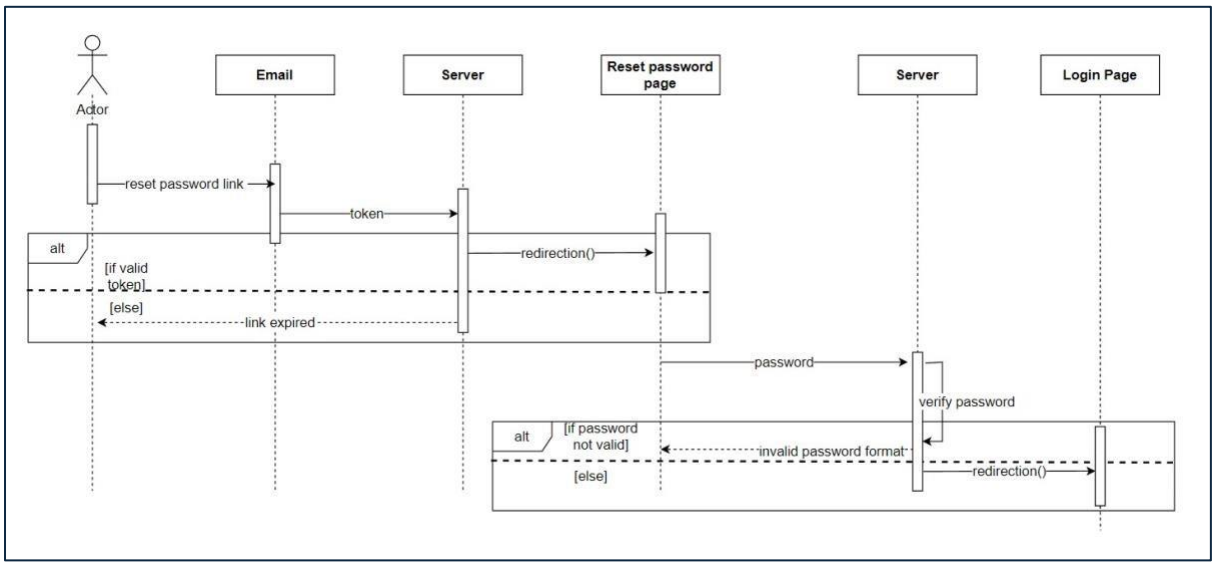


Figure 6: Sequence diagram of reset password

3.7. Style Guide

A style guide is a document that is designed for a specific brand. It defines the logo, the brand colours, the typography, etc. Style guide provides streamlines the process of the UI design in the process of making a brand. It helps in keeping the consistency throughout the development process.

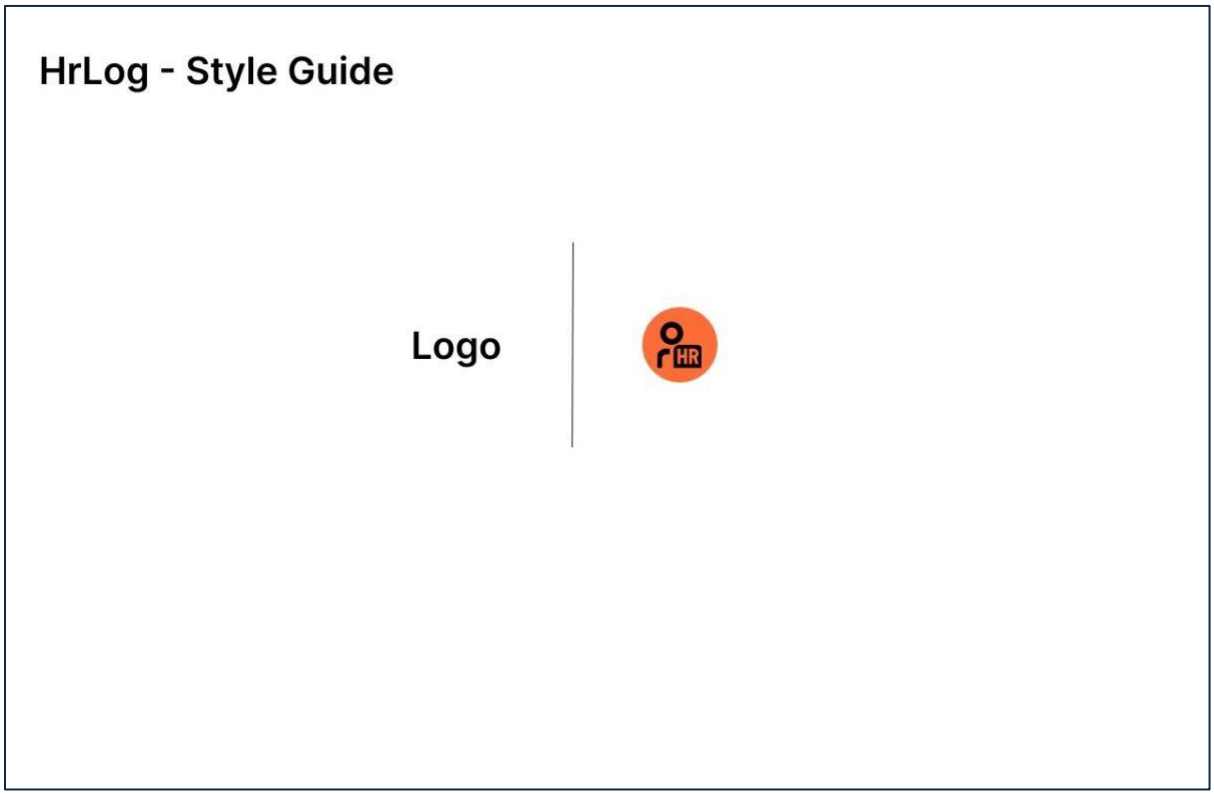


Figure 7: Style guide - logo

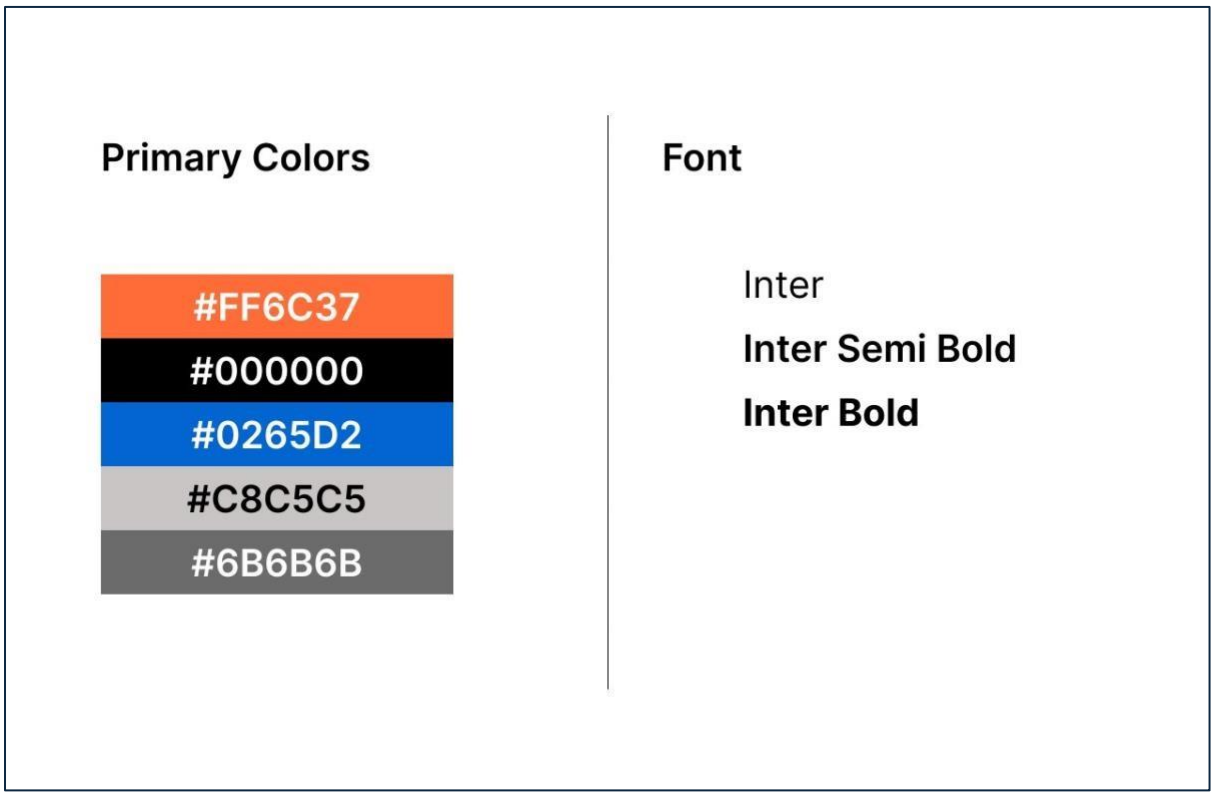


Figure 8: Style guide - colors & typography

3.8. User Interface (UI)

The user interface deals with the user's digital experience. User interface is a gateway through which the users can interact with the system. A well-crafted user interface enhances the usability of the system. User interface also highlights the brand's identity and values.

The user interface of the HrLog which have been developed so far are attached below:

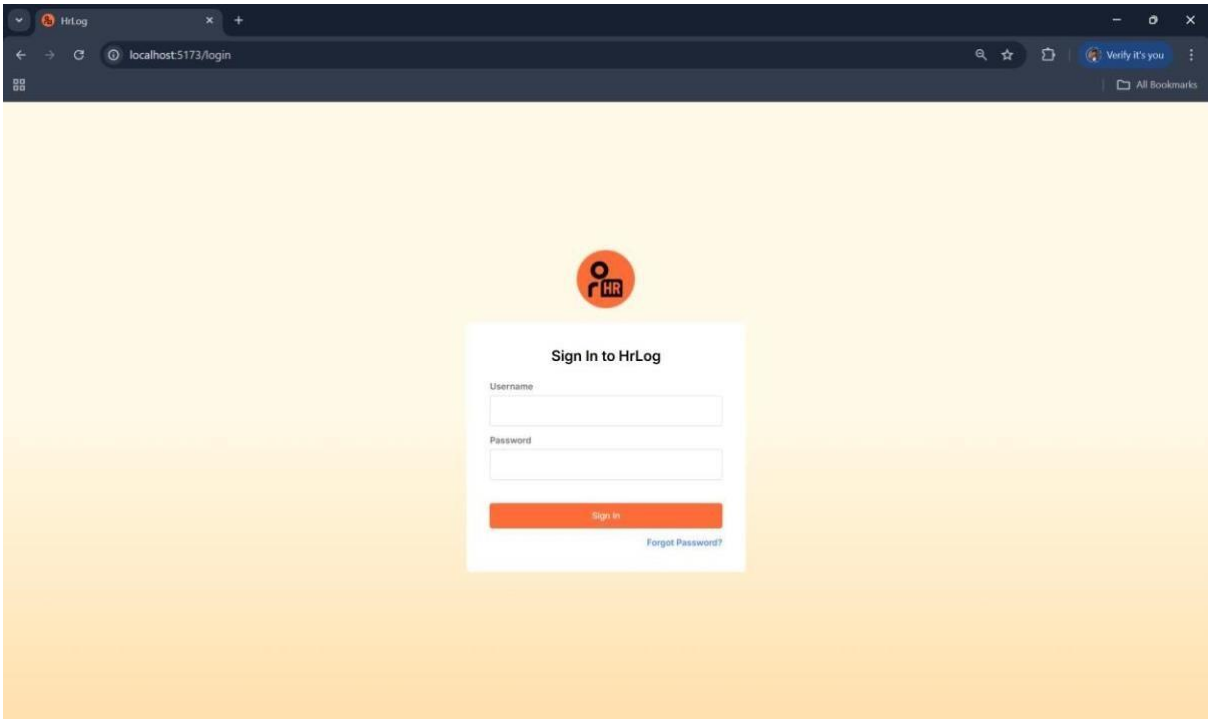


Figure 9: Login UI

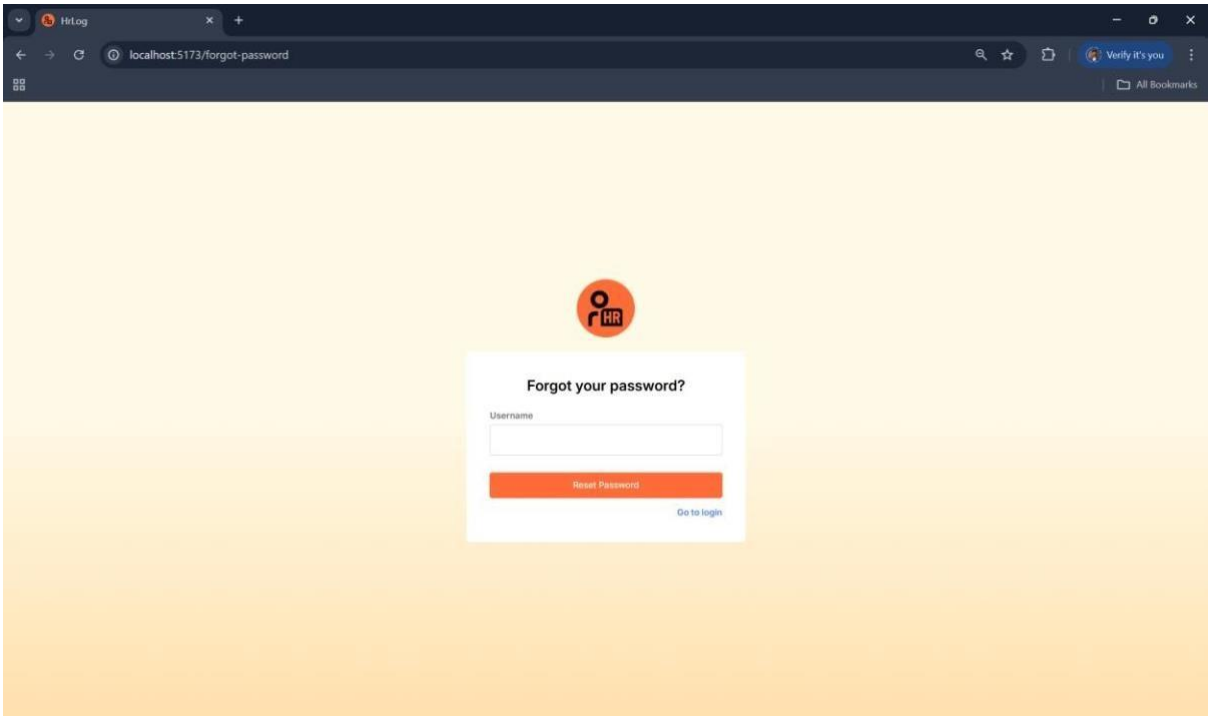


Figure 10: Forgot Password UI

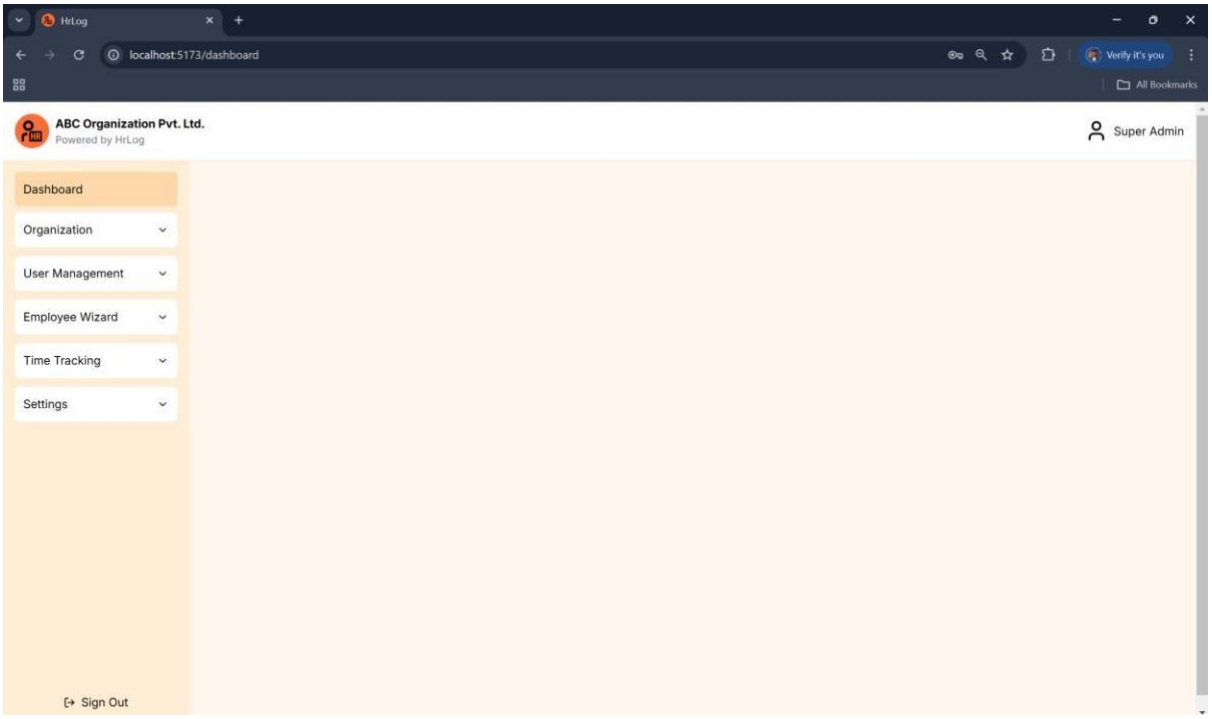


Figure 11: Dashboard UI with side nav menu

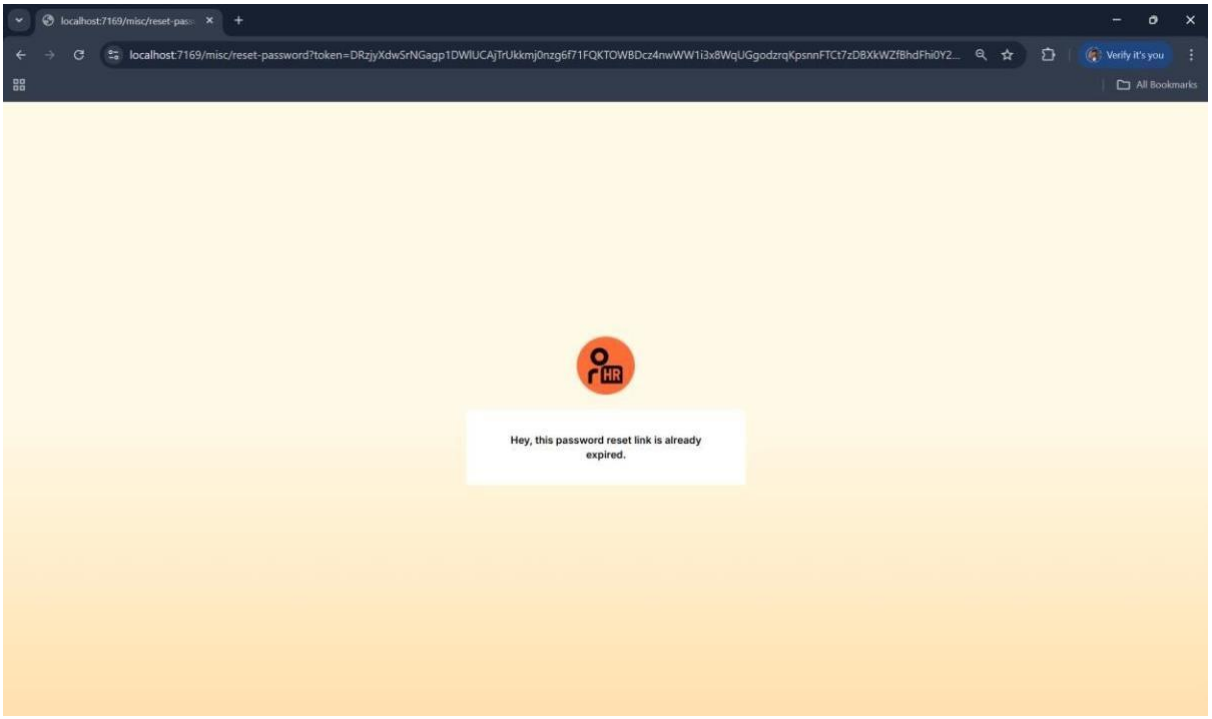


Figure 12: Link expired preview

3.9. Current sprint

Sprint 2: Onboarding checklist

Start date: 02/01/2025

End date: 20/01/2025

Status: In Progress

Objectives:

- Develop the employee profile creation and management feature.
- Develop offer letter management feature. • Develop employee account setup feature.
- Develop menu to save the employee attendance details.
- Develop menu to save the IT resources allocated to an employee to track history.

Deliverables:

- Employee management dashboard.
- Employee attendance details management menu.
- Employee login account setup dashboard.

Table 2: Current sprint details

Sprint Backlog	Start Date	End Date	Status
Employee profile creation	02/01/2025	08/01/2025	In progress
Offer letter management	09/01/2025	11/01/2025	To do
Employee account setup	12/01/2025	14/01/2025	To do
Employee attendance details	15/01/2025	16/01/2025	To do
IT Asset allocation	17/01/2025	19/01/2025	To do

4. Analysis of progress

The project has gone through two completed sprints so far. The project is on track with the planned Gantt chart timeline. Both the sprint has met their objectives so far and have made a strong foundation for the successful completion of this project.

4.1. Progress review

The first sprint of this project started on 15th of October which was about the project planning and proposal. In this sprint, the project scope and goals were defined and the documents like the Gantt chart were developed and finally the project proposal was submitted. Similarly, in the second sprint, the project was initialized. Documents like System Requirement Specification (SRS), entity relationship diagram, use cases, style guide, etc., were developed. The basic functionality of the system that this authentication and authorization with role-based access control was developed.

Sprint 0: Project planning and proposal (Oct 15 – Dec 5) The

objectives of the Sprint 0 were as follows:

- To define the project scope and goals.
- To prepare the project proposal documents.
- To develop a detailed Gantt chart and roadmap.

These objectives were successfully achieved within the allocated timeline with no delays.

Sprint 0 was completed in the allocated time frame with no delay. The sprint provided a clear understanding of the requirements of the project and helped in developing a roadmap for the project.

Sprint 1: Project initiation and interim report (Nov 20 – Jan 17) The

objectives of Sprint 1 were as follows:

- To prepare the Software Requirements Specification (SRS) document.
- To develop a style guide for the project.
- To prepare the Entity Relationship Diagram (ERD).
- To implement a robust authentication and authorization.
- To implement role-based access control functionality.
- To complete the interim report.

All the objectives of the sprint 1 were achieved before the allocated deadline according to the Gantt chart prepared in the sprint 0. The successful implementation of the authentication and authorization ensured a secure foundation for further development and secured a fundamental milestone.

Overall, both the sprints that are sprint 0 and sprint 1 were completed within the timeframe in accordance with the Gantt chart with no major hindrance, ensuring smooth progress towards the project's goal. The clearing planning and efficient execution of tasks resulted as a strength to continue the development as per the roadmap.

4.2. Progress Timeline

The progress timeline was tracked through the Gantt chart and the Trello project management tool. The progress table shown below provides the granular information on the status of the tasks.

Table 3: Progress timeline

Serial	Task	From Date	To Date	Status	Progress
1	**Sprint 0: Project planning & proposal**	15/10/2024	12/05/2024	Completed	100%
	Research about HRMS system	15/10/2024	22/10/2024	Completed	100%
	Risk and threats analysis	24/10/2024	03/11/2024	Completed	100%
	Project proposal development	04/11/2024	04/12/2024	Completed	100%
2	**Sprint 1: Project initiation & interim**	20/11/2024	17/01/2025	Completed	100%
	SRS and ERD documentation	20/11/2024	13/12/2024	Completed	100%
	Style guide preparation	24/11/2024	11/12/2024	Completed	100%
	Interim report development	13/12/2024	16/01/2025	Completed	100%
	Database setup	05/12/2024	06/12/2024	Completed	100%
	Version control & CI/CD setup	08/12/2024	09/12/2024	Completed	100%
	Authentication	10/12/2024	10/12/2024	Completed	100%
	Roles-Based Access Control (RBAC)	16/12/2024	16/12/2024	Completed	100%

3	**Sprint 2: Onboarding checklist**	02/01/2025	20/01/2025	In progress	20%
	Employee profile creation	02/01/2025	08/01/2025	In progress	90%
	Offer letter management	09/01/2025	11/01/2025	To do	0%
	Employee account setup	12/01/2025	14/01/2025	To do	0%
	Employee attendance details	15/01/2025	16/01/2025	To do	0%
	IT Asset allocation	17/01/2025	19/01/2025	To do	0%
4	**Sprint 3: Time tracking**	20/01/2025	01/02/2025	To do	0%
	Biometric device integration	20/01/2025	27/01/2025	To do	0%
	Employee time tracking	28/01/2025	31/01/2025	To do	0%
5	**Sprint 4: Shift and calendar management**	01/02/2025	26/02/2025	To do	0%
	Leave management features	01/02/2025	09/02/2025	To do	0%
	Shift management features	10/02/2025	18/02/2025	To do	0%
6	**Sprint 5: Probation and exit checklist**	27/02/2025	14/03/2025	To do	0%
	Probation timelines and evaluation	27/02/2025	03/03/2025	To do	0%
	Experience and relieving letter generation	02/03/2025	05/03/2025	To do	0%
	Exit feedback form feature	06/03/2025	09/03/2025	To do	0%
	Asset clearance	10/03/2025	13/03/2025	To do	0%
7	**Sprint 6: Recruitment module**	14/03/2025	26/3//25	To do	0%
	Job posting	14/03/2025	16/03/2025	To do	0%
	Candidate profile management	17/03/2025	20/03/2025	To do	0%
	Employee referral feature	22/03/2025	26/03/2025	To do	0%
8	**Sprint 7: Notification functionality**	25/03/2025	01/04/2025	To do	0%
	Job application notification	25/03/2025	26/03/2025	To do	0%

	Approval notification	27/03/2025	31/03/2025	To do	0%
9	**Sprint 8: Employee engagement**	01/04/2025	11/04/2025	To do	0%
	Employee survey	01/04/2025	04/04/2025	To do	0%
	Complain Submission features	05/04/2025	07/04/2025	To do	0%
	Notice board functionality	08/04/2025	11/04/2025	To do	0%
10	**Sprint 9: Deployment & final report**	12/04/2025	26/04/2025	To do	0%
	Black box testing	12/04/2025	18/04/2025	To do	0%
	Final refactors	12/04/2025	18/04/2025	To do	0%
	Deployment	20/04/2025	20/04/2025	To do	0%
	Final report development	12/04/2025	25/04/2025	To do	0%

The project has been managed by using a Gantt chart that is on the Appendix-III.

5. Further work

As the project is going on track according to the planned Gantt chart, the remaining further sprints remain well-structured with a clear achievable timeline. The objectives of the further sprints are described as follows:

Sprint 2: Onboarding checklist (Jan 2 – Jan 20) [In progress - 20% completed]

- Develop the functionalities of the onboarding checklist.
- Develop the employee profile and data management features.
- Conduct functional testing of the module at the end of the sprint.

Sprint 3: Time tracking (Jan 20 – Feb 1)

- Integrate the biometric device for time tracking.

- Develop the schedular for pushing the attendance record into the database.
- Conduct functional and integration testing at the end of the sprint.

Sprint 4: Shift and calendar management (Feb 1 – Feb 26)

- Develop the leave management functionalities.
- Develop the shift management features.
- Develop holiday management functionalities.
- Conduct functional testing at the end of the sprint.

Sprint 5: Probation and exit checklist (Feb 27 – March 14)

- Implement probation tracking functionality.
- Develop exit checklist features.
- Conduct functional testing at the end of the sprint.

Sprint 6: Recruiting module (Mar 14 – Mar 26)

- Develop job posting functionality.
- Implement candidate profile management.
- Implement employee referral features.
- Conduct functional testing at the end of the sprint.

Sprint 7: Notification functionality (Mar 25 – Apr 1)

- Implement robust email notification functionality for required features.
- Conduct functional testing at the end of the sprint.

Sprint 8: Employee engagement (Apr 1 – Apr 11)

- Develop employee survey features.
- Develop employee grievance management.
- Implement notice board functionality.
- Conduct functional testing at the end of the sprint.

Sprint 9: Deployment and final report (Apr 12 – Apr 26)

- Conduct black box testing.
- Finalize the system.
- Deploy the project.
- Prepare the final report and documentation.

5.1. Project risks, threats and contingency plans

Various risks and threats can occur during the development process of the project under various circumstances. A brief analysis of the project risks, threats and their contingency plans are described in the table below:

Table 4: Project risks, threats and contingency plans chart

	Title	Risk	Severity	Contingency plans
A.	Development risks	Timeline delays.	Moderate	• Use agile practices. • Monitor the development process with tools like Trello, Gantt charts.
B.	Technical risks	Biometric device integration challenges.	High	• Conduct early prototyping. • Perform extensive testing.

C.	Maintenance and scalability risks	Challenges in maintaining and further scaling the system.	High	• Follow best practices to designing the software architecture. • Optimize databases for performance,
D.	External risks	Regulatory or market charges impacting development.	Moderate	• Regularly review external factors. • Design the system to be flexible and adaptable for future changes.

In accordance with this pre-planned further plan, the project is expected to be completed successfully within the remaining timeframe. The following points provides a high level of confidence that the project can be completed within the allocated timeframe:

- A well-detailed roadmap has been established with clear milestones.
- The successful completion of the first two sprints proves that the project is progressing according to plan.
- Challenges faced in the past sprints were resolved without impacting the deadline.

6. Conclusion

In conclusion, this interim report described the progress, and the achievement achieved so far of the final year project. Significant research has been carried out in understanding the problem domain and the background of the human resource and enterprise software domain.

Through detailed research of the problem domain, a strong foundation of the project has been established to achieve a robust and functional system. In the next stage, the focus will be on the development of the solution, incorporating feedback from various sources to achieve the product. The project remains on track for the successful completion and progress thus far shows the potential to achieve the target problem domain.

References

Bidhee ERP, 2022. *HR and Payroll System | Payroll Software in Nepal | Bidhee Private Limited.* [Online]
Available at: https://www.bidhee.com/products/hr-and-payroll-system [Accessed 6 January 2025].

Oracle, 2024. *Oracle HRMS Enterprise and Workforce Management Guide.* [Online] Available at: https://docs.oracle.com/cd/E18727_01/doc.121/e13511/T6652T6654.htm [Accessed 4 January 2025].

SHRM, 2022. *Employee Satisfaction and Operational Efficiency Survey,* s.l.: Society for Human Resource Management.

Stone, D. L., Deadrick, D. L., Lukaszewski, K. M. & Johnson, R. D., 2015. *The influence of technology on the future of Human Resource Management,* s.l.: s.n.

Zeebaree, S. R. M., Shukur, H. & Hussan, B. K., 2019. Human resource management systems for enterprise organizations: A review. *Periodicals of Engineering and Natural Sciences,* pp. 660-699.

Zoho, 2023. *Integrated HR suite for seamless employee experiences | Zoho People Plus.* [Online]
Available at: https://www.zoho.com/peopleplus/ [Accessed 6 January 2025].

Appendix – I

Software Requirements Specification

for

HrLog

Version: 1.0

Prepared by: Rishav Karna

Dec 30, 2024

1. Introduction

Purpose

The purpose of this document is to state the scope, requirements and constraints for the Human Resource Management System (HRMS). This product is designed to streamline HR processes such as recruitment, onboarding, offboarding, time tracking and engagement of the employees. This SRS will provide a guideline for developers, stakeholders and evaluators throughout the system's lifecycle.

The system is modular, with each module focusing on specific HR functions. The system aims to reduce errors, improve efficiency and enhance the overall employee experience by automating repetitive tasks.

This document is documented for developers, stakeholders and evaluators.

Scope

The HrLog is a comprehensive web-based solution with modular architecture to ensure scalability and maintainability. It will support:

- Recruitment and referral management with visual dashboards.
- Streamlined employee information management from onboarding through offboarding.
- Employee attendance management with real-time time tracking.
- Employee scheduling and shift management.
- Engagement features like surveys and grievance tracking.

Objectives

The objectives behind developing the HRMS system are as follows:

- To simplify and track recruitment processes.
- To automate workflows for employee transitions.
- To enable accurate attendance management with real-time time tracking.
- To implement employee scheduling for optimizing shift planning and resource allocation.

- To foster a productive and satisfied workforce through employee engagement mechanism.

2. Product description

The HRMS is a wholesome integration of various HR functionalities into a unified system. The system will be developed using .NET Core MVC and SQL Server for the database.

Modules and Features

A. Recruiting and Referrals

This module simplifies and streamlines the recruitment process.

- **Job Posting Management:** Create and publish job postings to multiple platforms. Track and update open positions with ease.
- **Application Tracking Management:** Monitor candidate applications through every stage—screening, interviews, and hiring. Visual dashboards for easy tracking of the recruitment pipeline.
- **Candidate Profile Management:** Maintain a centralized database for all candidates, including resumes, portfolios, interview feedback, and status.
- **Employee Referrals:** Enable employees to refer candidates. Automate tracking and rewarding successful referrals.
- **Automated Notifications:** Send automated updates to candidates and internal stakeholders on application status, interview schedules, and hiring decisions.
- **Interview Scheduling and Management:** Schedule interviews efficiently by syncing with interviewer calendars. Manage interview feedback and evaluations in one place.

B. Employee Onboarding and Offboarding

Efficiently integrate new employees and streamline the exit process for departing staff.

- **Onboarding Checklist:** Provide new hires with a step-by-step checklist, including form submissions, equipment assignments, and policy **acknowledgments.**
- **Role-Based Access Setup:** Automatically configure access to systems, tools, and resources based on the employee's role, ensuring compliance and security.

- **Probation Tracking:** Track the progress of new hires during their probation period, including feedback and evaluations.
- **Exit Checklist:** Ensure departing employees complete all exit formalities, including equipment return, knowledge transfer, and final clearance.

C. Time Tracking

Improve attendance accuracy and optimize workforce management.

- **Clock In/Clock Out Time Recording:** Integrate with biometric devices or desktop applications to automate attendance recording.
- **Overtime Tracking:** Automatically calculate and report overtime hours, ensuring proper compensation and compliance.
- **Leave Management:** Allow employees to request and track leaves, while managers can approve or deny them seamlessly. Maintain a leave balance for each employee.
- **Real-Time Monitoring:** Monitor employee attendance and productivity in real time via a live dashboard.
- **Report Generation:** Generate comprehensive reports on attendance, punctuality, overtime, and absenteeism for analysis and compliance.

D. Employee Scheduling

Ensure efficient scheduling of shifts and manage workforce availability.

- **Shift Management:** Plan, assign, and adjust employee shifts.
- **Holiday and Calendar Events:** Maintain a shared calendar for public holidays, company events, and employee leave schedules to avoid conflicts.

E. Employee Engagement

Foster a positive workplace culture through continuous engagement and communication.

- **Feedback and Surveys:** Conduct regular surveys to gather employee feedback on job satisfaction, work environment, and policies. Use insights to improve employee experience.
- **Complaint and Grievance Management:** Provide a confidential platform for employees to submit complaints or grievances. Track resolution progress to ensure prompt action.

- **Notice Posting for Internal Communication:** Share important updates, announcements, and policy changes company-wide through a centralized notice board.
- **Team Directory View:** Offer an interactive directory with employee contact details, department hierarchy, and team structures to promote collaboration and communication.

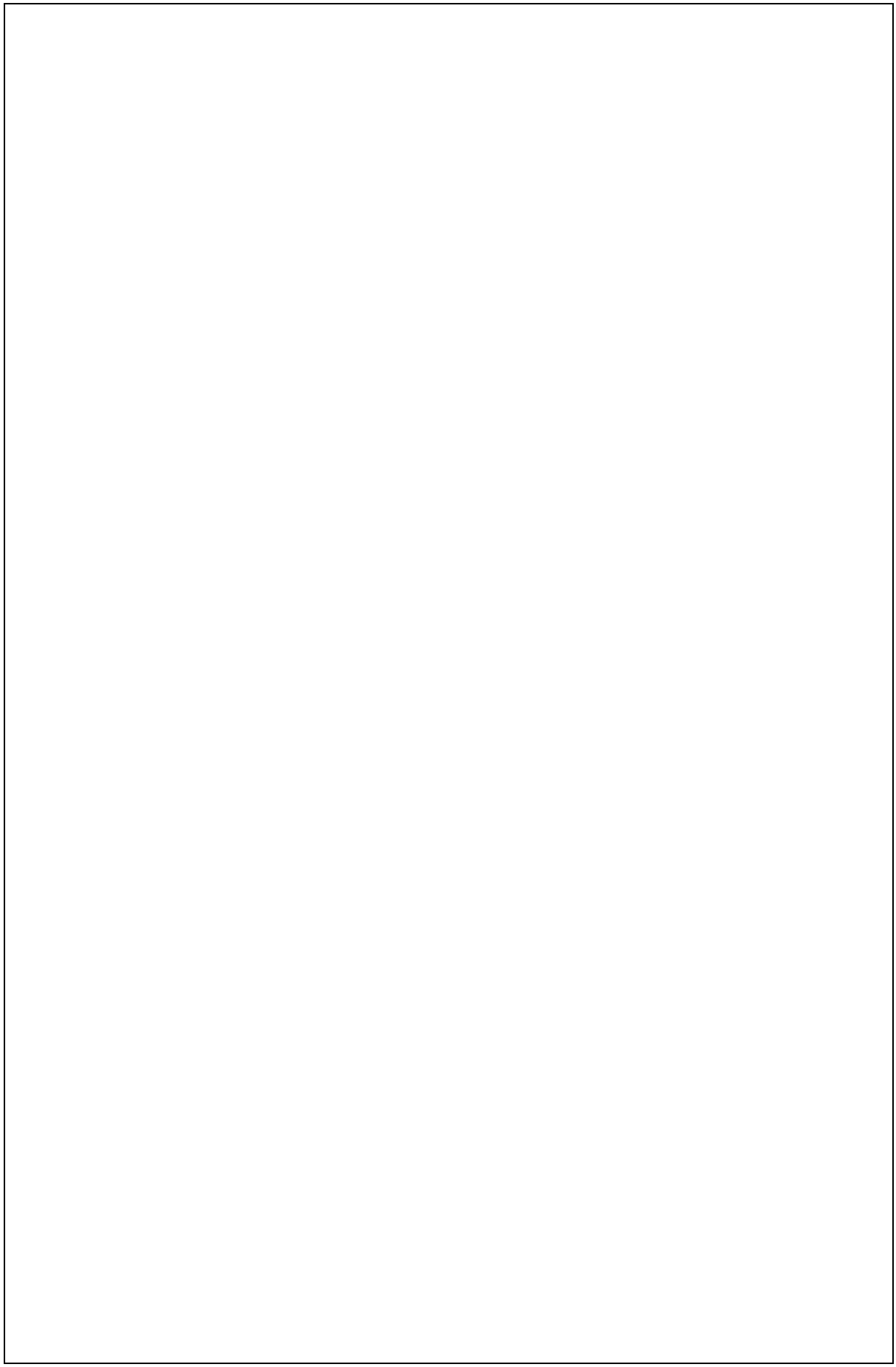
3. User Requirements

Functional Requirements:

- Allow users to manage recruitment workflows, including job postings, applications, and referrals.
- Automate onboarding processes with customizable checklists and probation tracking.
- Enable time tracking with real-time monitoring and biometric device integration.
- Provide scheduling tools with conflict resolution and shift management.
- Facilitate performance reviews, goal tracking, and feedback management.
- Support employee engagement through surveys, complaint management, and feedback tools.
- Generate reports and analytics for compliance and decision-making.

Non-Functional Requirements:

- The system must have an intuitive and user-friendly interface.
- Ensure high availability with minimal downtime and robust error handling.
- Adhere to data protection laws with strong encryption and secure access controls.
- Maintain high responsiveness with fast loading times across all modules.
- Support scalability to accommodate an increasing number of users and modules.



4. System Requirements

Hardware requirements:

- The system must support web browsers on desktops and mobile devices.
- It must be compatible with devices having at least 2 GB of RAM and modern browsers like Chrome, Edge, or Firefox.
- A biometric device with fingerprint, face ID or RFID support is required for the time tracking.

Software requirements:

- The HRMS will be developed using technologies like .NET Core for the backend and React with TailwindCSS for the frontend.
- PostgreSQL will be used for database management.
- The system will be deployed on a Linux server or windows server. It can be hosted using cloud platforms like Azure, AWS, etc.

Infrastructure requirements:

- The system must have a stable internet connection to access cloud-hosted resources. • The system will require access to third-party APIs for biometric integration and notification services.

5. Design Constraints

- **Performance:** The system must handle concurrent usage by at least 500 users without performance degradation.
- **Compatibility:** The system must be accessible on all major browsers and mobile operating systems.
- **Usability:** The user interface must be designed for HR staff and non-technical employees alike.

- **Security:** The system must comply with data protection laws and encrypt sensitive data during storage and transmission.

6. Assumptions and Dependencies

Assumptions:

- Users will have access to devices with stable internet connections.
- Organizations will provide necessary hardware (e.g., biometric devices) for integration.

Dependencies:

- Integration with APIs for biometric devices and email notifications.
- Hosting on a reliable cloud infrastructure to ensure scalability and security.
- Utilization of PostgreSQL as the database management system.

7. Interface Requirements

User Interface:

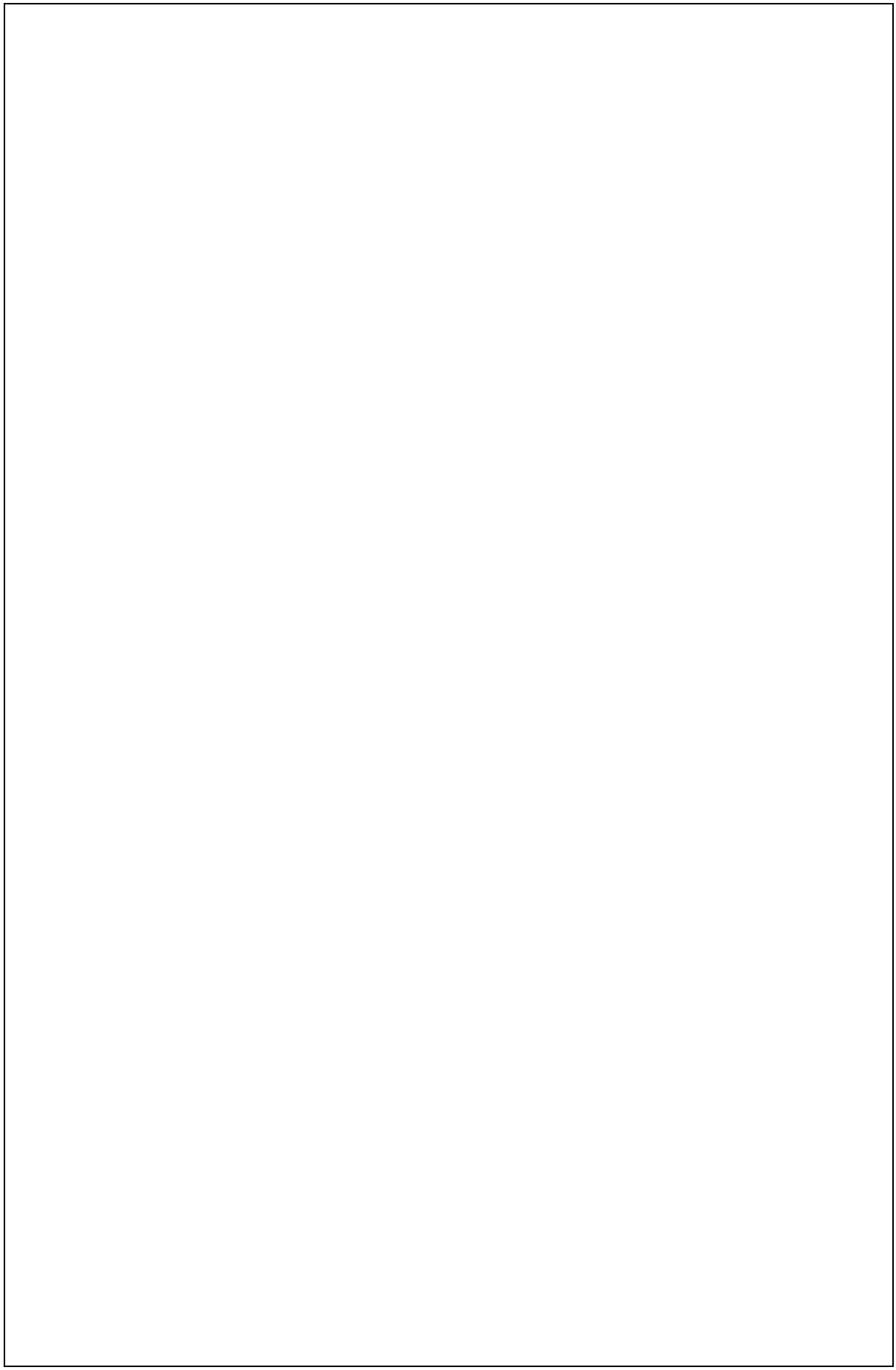
- The system will have a web-based interface, responsive to both desktop and mobile devices.
- The interface will feature dashboards for HR managers and employees.

External Interfaces:

- The system will integrate with APIs for biometric devices.
- Notifications will be sent via email using external providers.

Hardware Interfaces:

- The system will interface with biometric devices for attendance tracking.



8. Performance Requirements

The performance requirements of the software are listed as follows:

- The system must load pages within 3 seconds under normal load conditions.
- The system must support concurrent logins for up to 500 users.
- Attendance data must sync in real-time with external hardware like biometric devices.
- Reports must generate within 10-30 seconds for datasets of up to 10,000 records.

9. Security Requirements

The security requirements of the software are listed as follows:

- The system must use role-based access control (RBAC) to restrict unauthorized access.
- Passwords must be hashed using secure algorithms such as crypt.
- Data transmission must be secured using HTTPS and TLS protocols.
- Regular backups must be maintained to ensure disaster recovery.
- Users must have access to a clear privacy policy and opt-in for data collection.

10. Testing and Evaluation

The following testing measure will be carried to evaluate the software:

- **Functional Testing:** Validate all modules, including employee management.
- **Usability Testing:** Ensure the system is easy to use for HR staff and employees.
- **Performance Testing:** Test system response times under varying loads.
- **Security Testing:** Perform vulnerability scans and penetration tests.
- **Compatibility Testing:** Test compatibility across different browsers and devices.

Appendix – II

HRMS Feedback and Feature Requirements

51 Responses 02:16 Average time to complete Active Status

1. Name

51
Responses

Latest Responses
"Jiwan Maharjan"
"Parash Rai"
"Pabitra Rai"

Update

7 respondents (14%) answered **Rai** for this question.

2. Email

51
Responses

Latest Responses
"Maharjan_jiwan@gmail.com"
"parasraipokemon@gmail.com"
"Pabitra2024@gmail.com"

3. What is your current role at your organization?

51
Responses

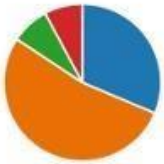
Latest Responses
"Finance manager "
"Software developer "
"Production manager "

Update

13 respondents (27%) answered **manager** for this question.

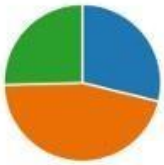
4. How satisfied were you with the onboarding process at your organization?

Very satisfied	16
Somewhat satisfied	27
Neither	4
Somewhat dissatisfied	4
Very dissatisfied	0



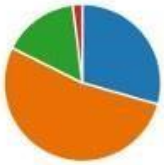
5. What do you think could improve the onboarding experience?

Better documentation	17
More interactive sessions	27
Faster setup of tools and resour...	15
Other	0



6. How smooth was your offboarding experience?

Very smooth	15
Somewhat smooth	27
Neutral	8
Somewhat difficult	1
Very difficult	0

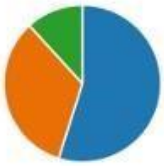


7. What is the most important feature for a good offboarding process?

Clear communication	31
Timely exit formalities	15
Timely exit formalities	15
Knowledge transfer processes	5

8. Does your organization use a time tracking system?

Yes, digital time tracking	28
Yes, manual time tracking	17
No	6

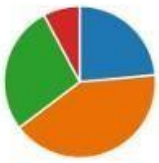


9. What is your preferred method of time tracking?

Mobile app	10
Desktop software	18
Biometnc system	17
Manual records	6

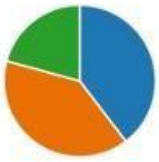
10. How effective is your organization's current shift scheduling system?

Very effective	12
Somewhat effective	21
Neither effective nor ineffective	14
Somewhat ineffective	4
Very ineffective	0



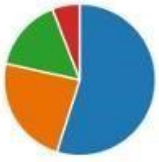
11. What challenges do you face with shift scheduling?

Frequent changes in schedule	21
Lack of proper communication	21
Insufficient rest between shifts	11
Other	0



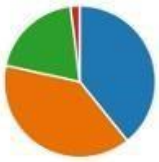
12. How often does your organization collect feedback from employees?

Frequently	28
Occasionally	12
Rarely	8
Never	3



13. What is the most frustrating aspect of your current HR management system?

Lack of user-friendliness	20
Too many manual processes	20
Limited accessibility	10
Other	1

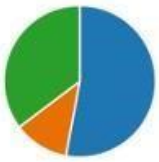


14. What features would you like to see in an ideal HRMS?

Seamless integration with other ...	22
AI-powered analytics	17
Mobile-first approach	11
Self-service portals	12

15. Do you feel incentivized to refer candidates for open positions?

Yes	27
No	6
Maybe	18



16. Does your organization use biometric devices for attendance?

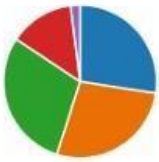
Yes	40
No	11

17. If yes, what challenges have you faced with biometric device integration?

Device malfunctions	10
Slow syncing with systems	25
Inaccurate readings	11
Lack of real-time updates	8

18. How likely are you to recommend your organization's HR system to others?

Neither likely nor unlikely	14
Very likely	14
Somewhat likely	15
Somewhat unlikely	7
Very unlikely	1



Appendix – III

The Gantt chart that was used to determine the timeline of project is as follows.