Human Resource Management Product Analytical System

Diploma in Software Engineering

Final Project Documentation

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Declaration

"We Certify that this project does not incorporate without acknowledgement, any material previously submitted for a Diploma in any institution and to the best of our knowledge and belief, it does not contain any material previously published or written by another person or ourselves except where due reference is made in the text. We also hereby give consent for our project report, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organizations"

- Project Tittle: SyncHR
- Group Members:

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Abstract

Every organization has their own human resource in order to perform the internal and external human resource activities. The main objective of the project is to develop a human resource management system for the intranet automation of HR software. This software provides information about the employees of the organization through the human resource system. There is a good interaction between employees and administrators, as well as the ability to obtain accruable daily data. This was created as a solution to the problems of the existing human resource management system in this company. Human Resource Management system provides the information regarding the employees in the company. The system has been facilitated between the employees and administration staff.

This new software is made with people from several key sectors. They are HR department, Production manager and supervisor. There is also a platform called admin which adds new employees to the organization. The HR department provides details of new employees, Monthly requirement reports, employee performance evaluation and payroll. This is under three Supervisors in the supervisor platform. Daily production is one of them. Daily production includes data of products produced daily. Furthermore, Information about the production process, including the company's products, daily products and damaged products. The other supervisor section is training needs. It provides data on employee training. The other supervisor deals with leave, such as employee leave. The production manager platform includes the company can obtain separate reports on existing products. It is possible to get overall production reports from this. According to the difficulties and problems that occurred in this company, we hope that this SyncHR software will be a great service to the administration of the organization.

Acronyms and Abbreviations

GUI - Graphical User Interface

SQL -> Structured Query Language

ERD -> Entity Relationship Diagram

UML -> Unified Modeling Language

SRS -> Software Requirement Specification

SDLC -> Software Development Life Cycle

DFD -> Data Flow Diagram

Acknowledgment

The success and final outcome of this project required a lot of guidance and assistance from many people and extremely fortunate to have got this all along the completion of our project work. Whatever we have done is only due to such guidance and assistance and we would not forget to thank them. We respect and thank Ms. Inoka Abayasinghe, Ms. Sathya Wijewardhana and Mr. Manjula for giving us an opportunity to do this Project and providing us all support and guidance which made us to complete the project on time, we are extremely grateful to have such a nice support and guidance.

Then our special thanks to NIBM Kandy, Which provided us the knowledge, skills, experiences, and the basement of our career. NIBM developed our technical skills through the theories.

This project cannot be completed without the effort and cooperation from our group members. Thanks to our group members. We have done the project based on Rainco Umbrella Factory. This project was created as a solution to an existing problems in present companies. Therefore, We would like to thank those officials and the company for their support in sharing those ideas with us.

Finally, Thanks to everyone who helped to make this a success.

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1. Introduction

1.1 Background of the company

This document is a review of some of the relevant and recent scholarly work on the importance of HRMS to organization. The company used for this project is a medium scale umbrella Manufacturer. It is Sync Umbrella Private limited. It is a medium company operates in the area. The CEO position is handling by Mr. Milan Fernando.

1.2 Problem Statement

- Data Redundancy
- Past data cannot be analyzed
- Data Loss, Unauthorized Access
- Use of a Training Requirement Scope
- Use of a Outside worker Performance Evaluation Option
- User Friendliness Issues
- No option to email system data

1.3 Solution

This new software is made up of people from several key sectors. They are HR department, production manager and supervisors. There is also a platform called admin which adds new employees to the organization. The HR department provides details of new employees, Monthly requirements reports, employee performance evaluation and payroll. This is under three Supervisors in the supervisor platform. Daily production is one of them. Daily production includes data on products produced daily. Furthermore, Information about the production process, including the company's products, daily products and damaged products. The other supervisor section is training needs. It provides data on employee training. The other supervisor deals with leave, such as employee leave. The production manager platform includes the company can obtain separate reports on existing products. It is possible to get overall production reports from this.

SyncHR,is basically focused on company administration sector. We hope that this SyncHR new software will be a great service to the administration of the organization

1.4 Project Scope

SyncHR focus on the to provides solution to the problems of the Human resource management system of this organization. This new software helps administration of the organization to make their work easy. However, the study has focused on the following,

- Helps to facilitate operations in human resource management systems.
- This will enable the administration of the company to obtain accurate data.

Objectives,

- Finally submit all production reports to the production manager.
- Facilitate administrative tasks.
- Achieve organizational goals.
- Employee Motivation.
- Team incorporation.
- Training and development.
- Data and observance.
- Working culture.
- Retention.
- Workforce Empowerment.

1.5 Constraints of use

- Operator must remember their login ID and password.
- PC with a stable internet connection.
- Screen size differs when designing to implementation.
- Storage and cache sizes.
- Data usage

2. Software Requirement Specifications (SRS)

2.1. Software/ Hardware Configuration

Accessing the mobile app and the website is a simple process. Client does not need that much technological knowledge or high-end hardware.

User can access the website from,

- Any PC with an internet connection using any browser.

2.2 External Interface Requirement

GUI (Graphical User Interface)

This application provides good graphical interface for the user and the admin can operate on the system, performing the request task such as create, update, delete and view every details and to Create other internal operators.

- The user interface must be customizable.
- All the modules provided with the software must fit into this graphical User interface and accomplish to the standard definition.
- The design should be clear, and all the different interfaces should follow a standard template.
- The user interface should be able to interact with the other users.
- Design of registration page, log in page and data entry pages are easy to Understand for every user.

2.3 System Features

- Every operator has access to view appropriate details inside the system.
- Admin is the person who enters the details of the operators into the system.
- Production manager can view daily reports of productions.
- Supervisor is responsible to enter finalized daily reports to the system.

2.4 Other Non- Functional Requirement

Performance Requirement

- The performance of the system should be fast and accurate.
- The Website should have no data traffic when lot of number of users have logged in.
- The system should be able to handle large amount of data.

Satisfy Requirement

The database may get crashed at any certain time due to virus or operating system failure.

Therefore, it is required to take the database backup.

Security Requirement

- System will use secured database.
- Proper user authentication should be provided.
- Only admin has the rights to update create & delete operator databases.

2.5 Assumptions and Dependencies

The assumptions are:

- The coding should be error free.
- The application should be user-friendly so that it is easy to use for the users.
- Valid information of every operator must be stored in database that is accessible by the website.
- The system should provide more storage capacity and provide fast access to the database.

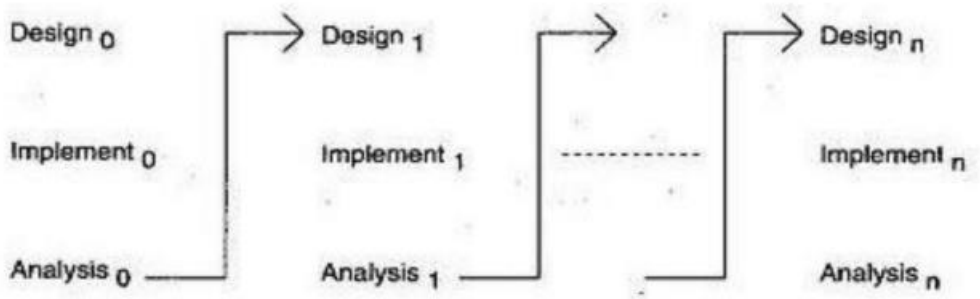
The dependencies are:

- The specific hardware and software due to which the product will be run.
- Based on listing requirements and specification the project will be developed and run.
- Any update regarding the operator’s profiles and the data entered should be correct.

3. Methodology

3.1 Introductions

We have chosen “Iterative Life Cycle Model” for developing this application, because an iterative life cycle model does not attempt to start with a full specification requirement. Instead, development begins by specifying and implementing just part of the software, which can then be reviewed to identify further requirements. This process is then repeated, producing a new version of the software for each cycle of the model. Here is the diagram of the iterative life cycle model which depicts its working flow.



3.2 Software process model

- In iterative model we are building and improving the product step by step. Hence, we can track the defects at early stages. This avoids the downward flow of the defects.
- Testing and debugging in smaller iteration are easy.
- In iteration model we can get the reliable user feedback. When presenting sketches and blueprints of the product to user for their feedback, we are effectively asking them to imagine how the product will work.
- Progress can be measured.
- In iterative model less time is spent on documentation and more time is given for designing.
- Risks are identified and resolved during iteration; and each iteration is an easily managed milestone. It supports changing requirements

3.3 Software development tools

- Front end: HTML, CSS, Bootstrap ,ASP.net, fontawesome, Iconscout
- Back end: C#
- Client side: Validation: C#
- Business Logic: Database: SQL server management studio
- Web server: IIS server
- Data sharing: GitHub

3.3.1 Development tools

- Microsoft Visual Studio

Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs, as well as websites, web apps, web services and mobile apps. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight. It can produce both native code and managed code.

- GitHub and Git for source control

GitHub is a Git repository hosting service, but it adds many of its own features. While Git is a command line tool, GitHub provides a Web-based graphical interface. It also provides access control and several collaboration features. Which we used for collaborating with the project team members.

- Microsoft SQL Server Management Studio

SQL Server Management Studio (SSMS) is a software application first launched with Microsoft SQL Server 2005 that is used for configuring, managing, and administering all components within Microsoft SQL Server. It is the successor to the Enterprise Manager in SQL 2000 or before. The tool includes both script editors and graphical tools which work with objects and features of the server.

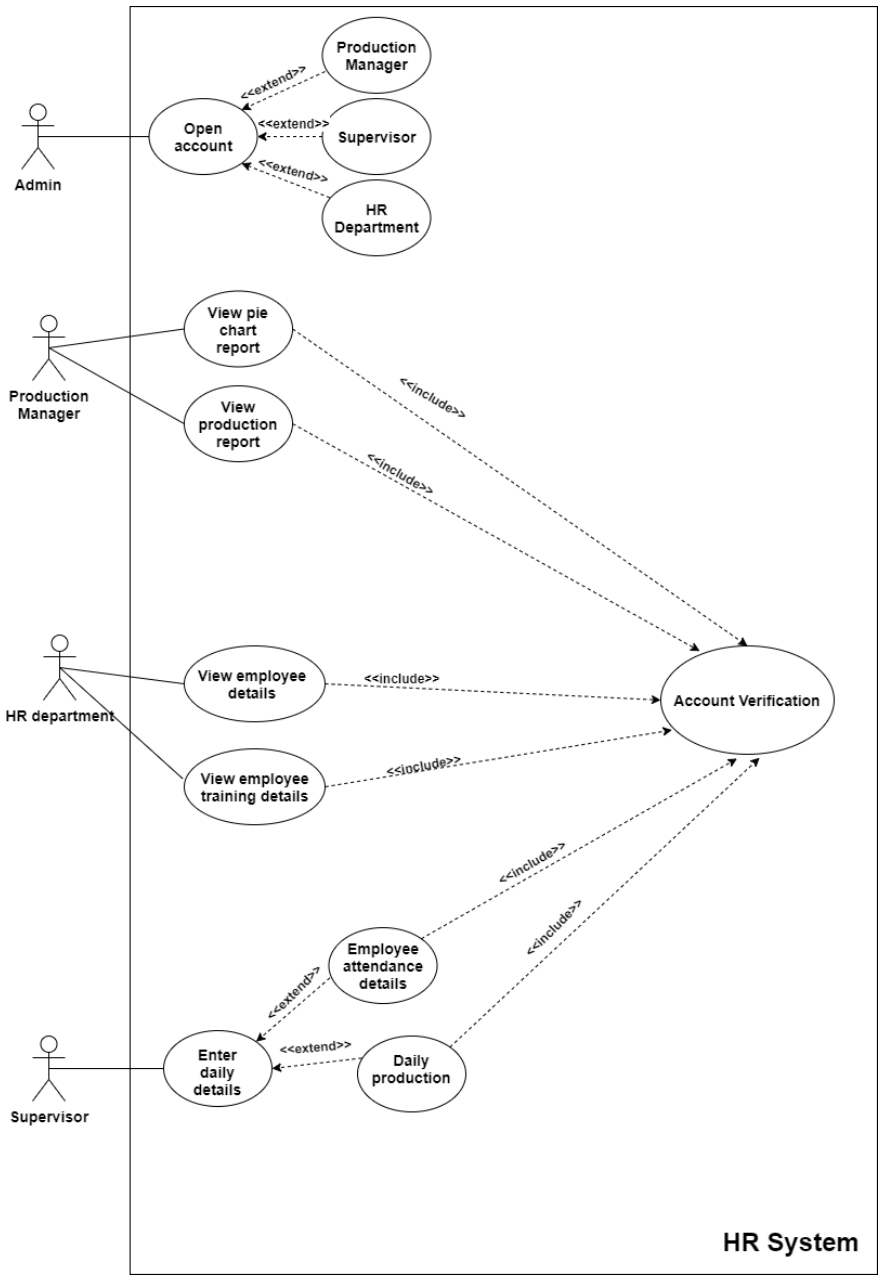
4. Analysis

4.1 Introduction

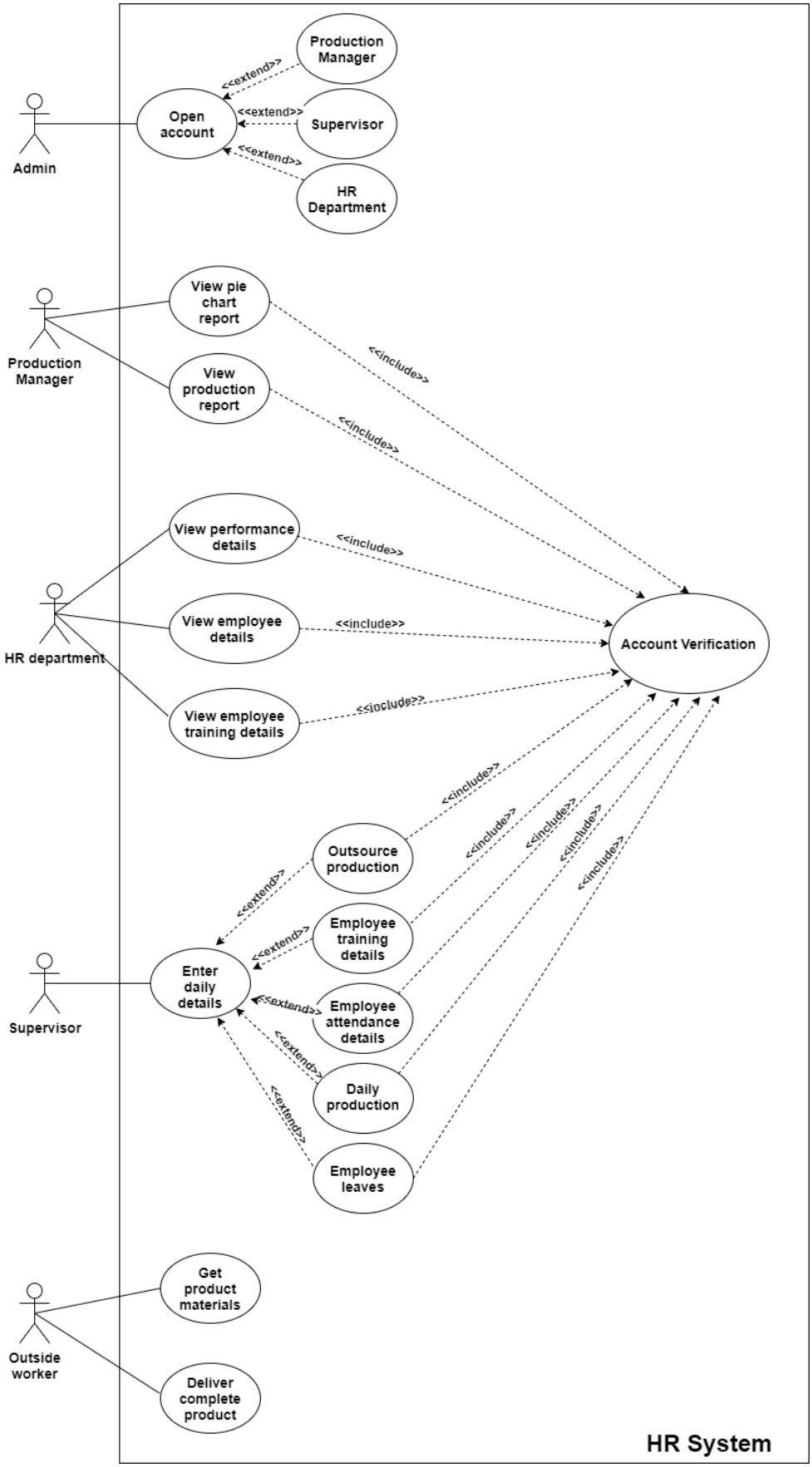
When comes to analysis we have included some chart demonstrations, DFD diagrams and UML Diagrams for further awareness. These figures convey a major perspective about the project scope that we are implemented for the Proposed system.

4.2 UML diagram

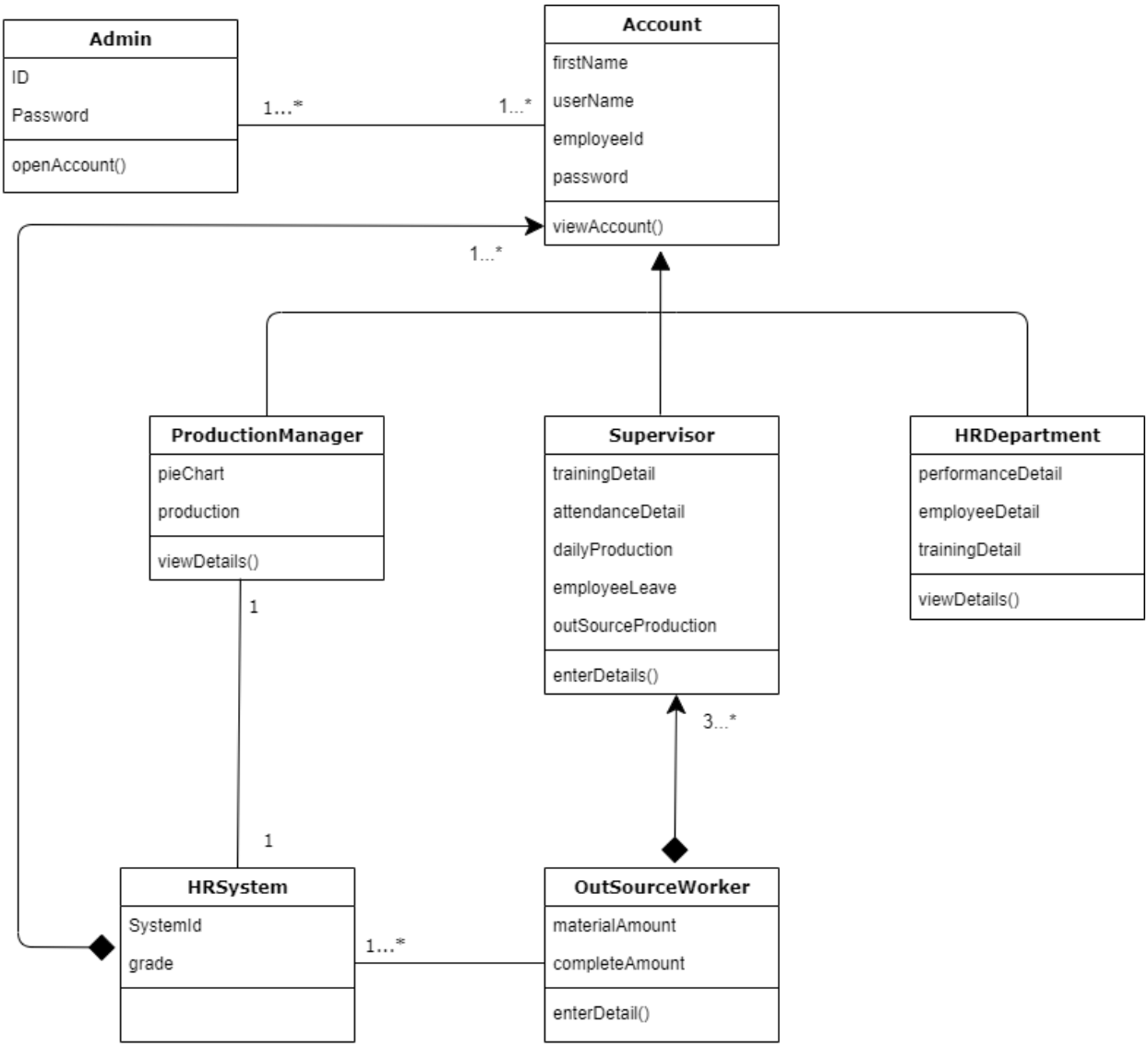
4.2.1 Use Case Diagram of Current system



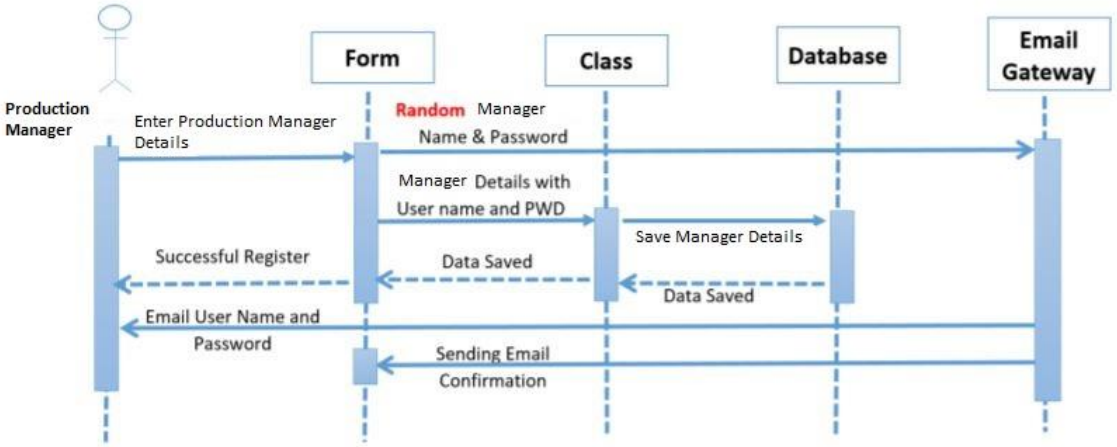
4.2.2 Use Case Diagram of Proposed System



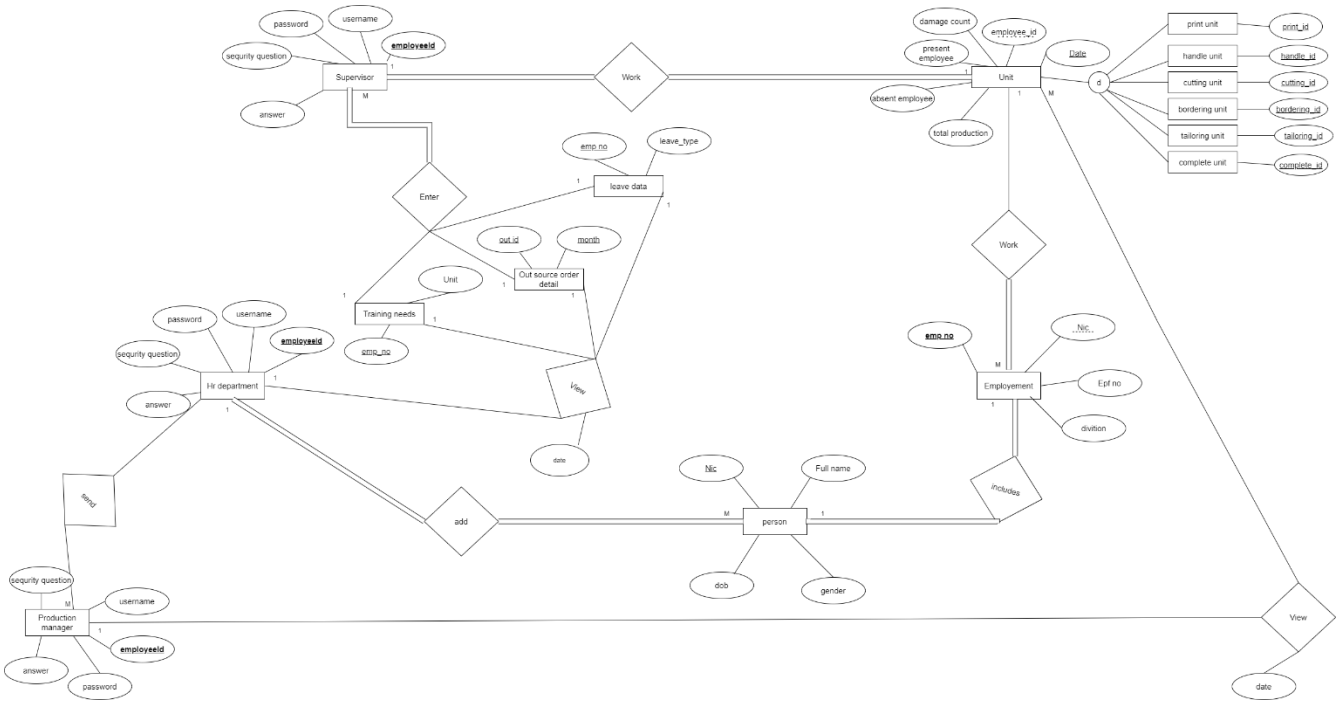
4.2.3 Class Diagram of Proposed System



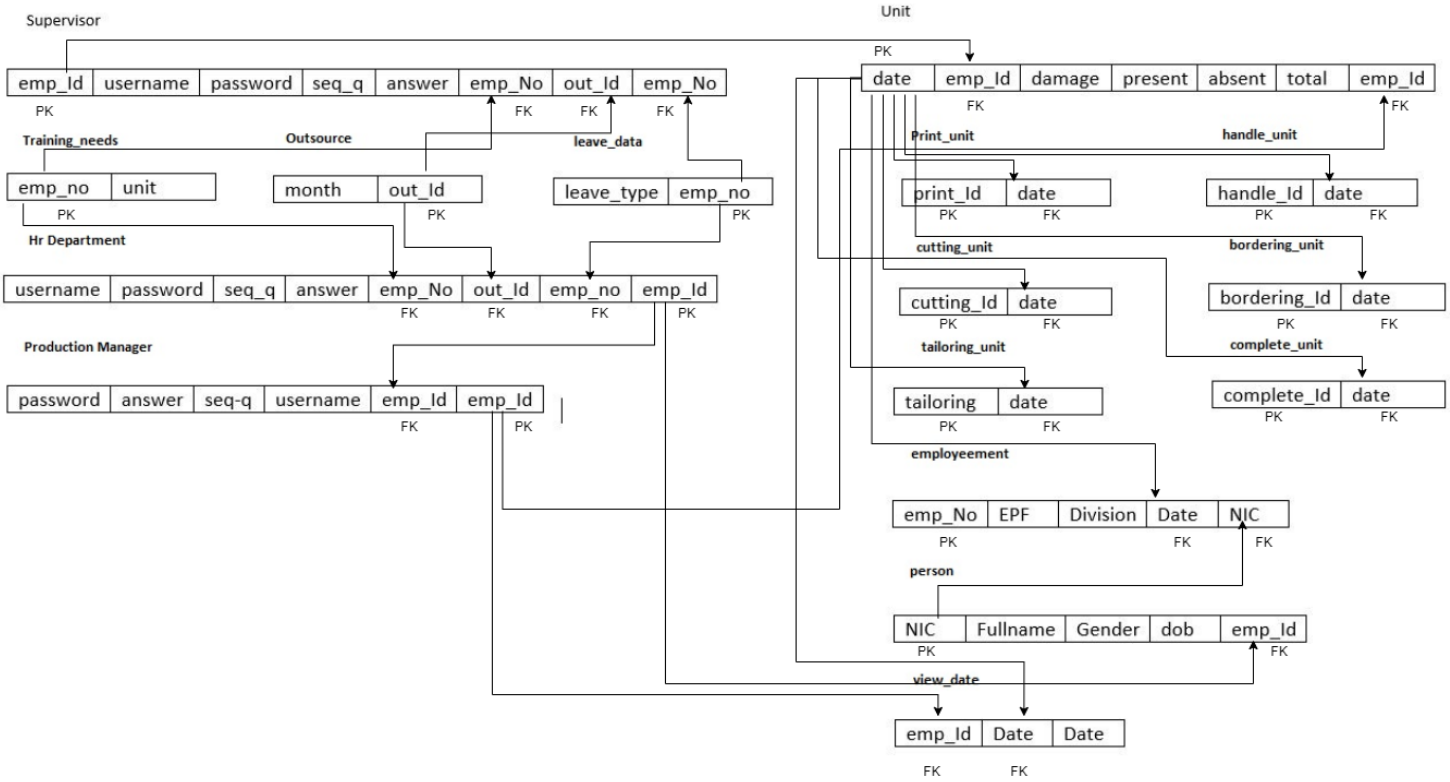
4.2.4 Sequence Diagram for Proposed System



4.3 ER Diagram of the Proposed System



4.4 Schema Diagram

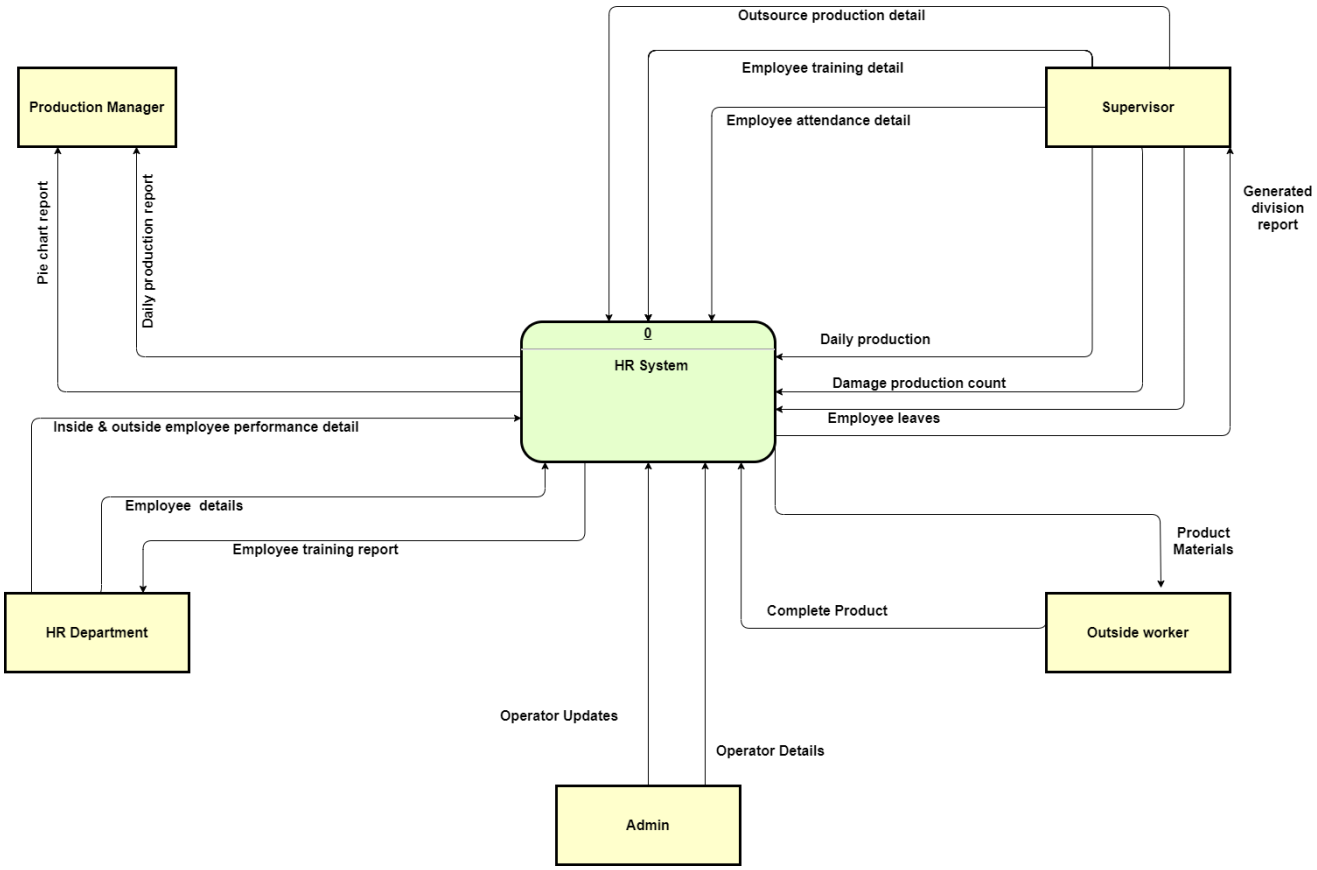


4.4 DFD Diagrams

4.4.1 Context Diagram of proposed system

-Context Diagram

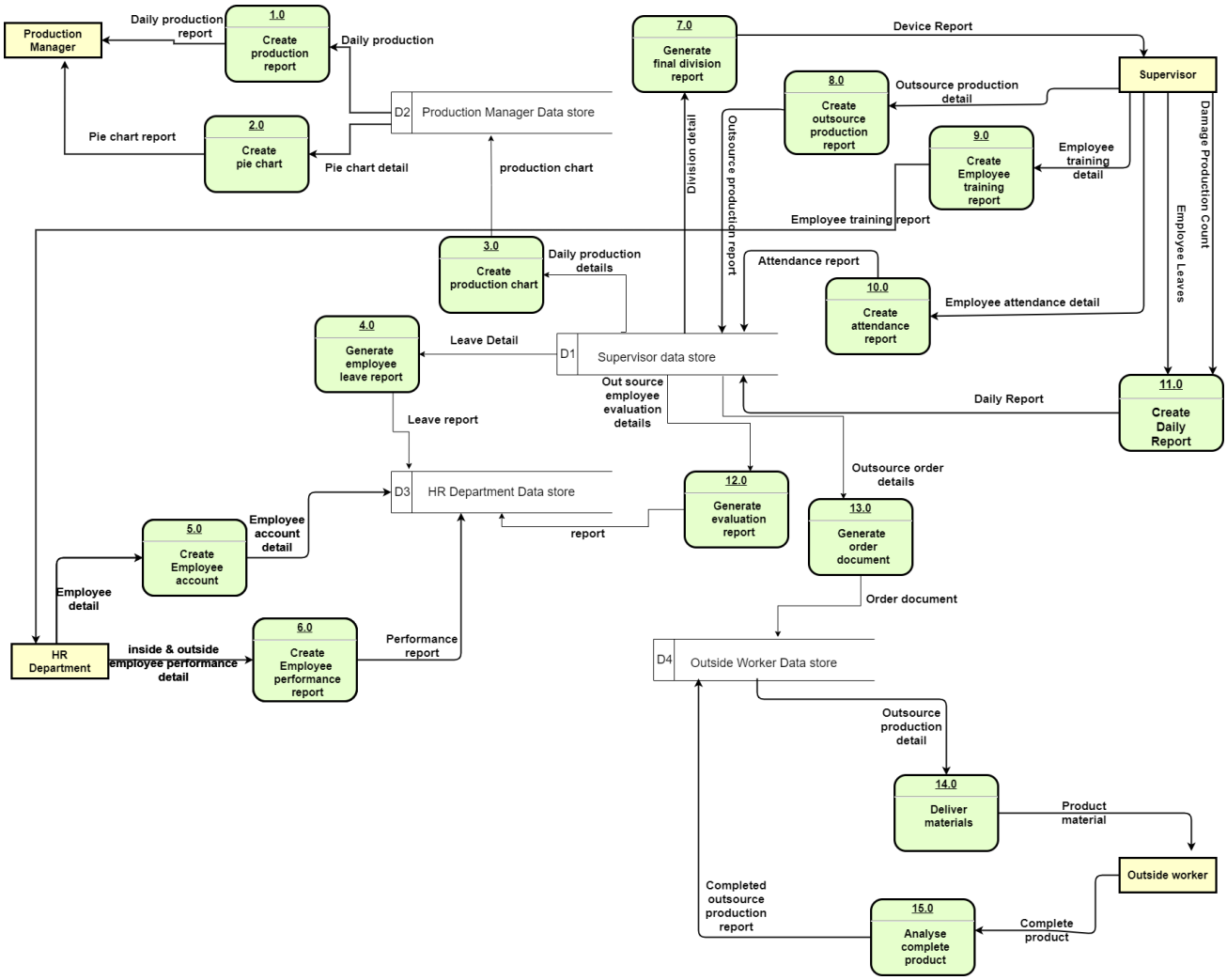
This is the context level of the data flow diagram. This diagram shows how the process is happening in the system.



4.4.2 Level 0 Diagram of proposed system

-Level 0 Diagram

This represents the level 0 of the data flow diagram



5. Solution Design

5.1 Introduction

We have illustrated the project interface images and database screenshots to get a brief idea about the new proposed system.

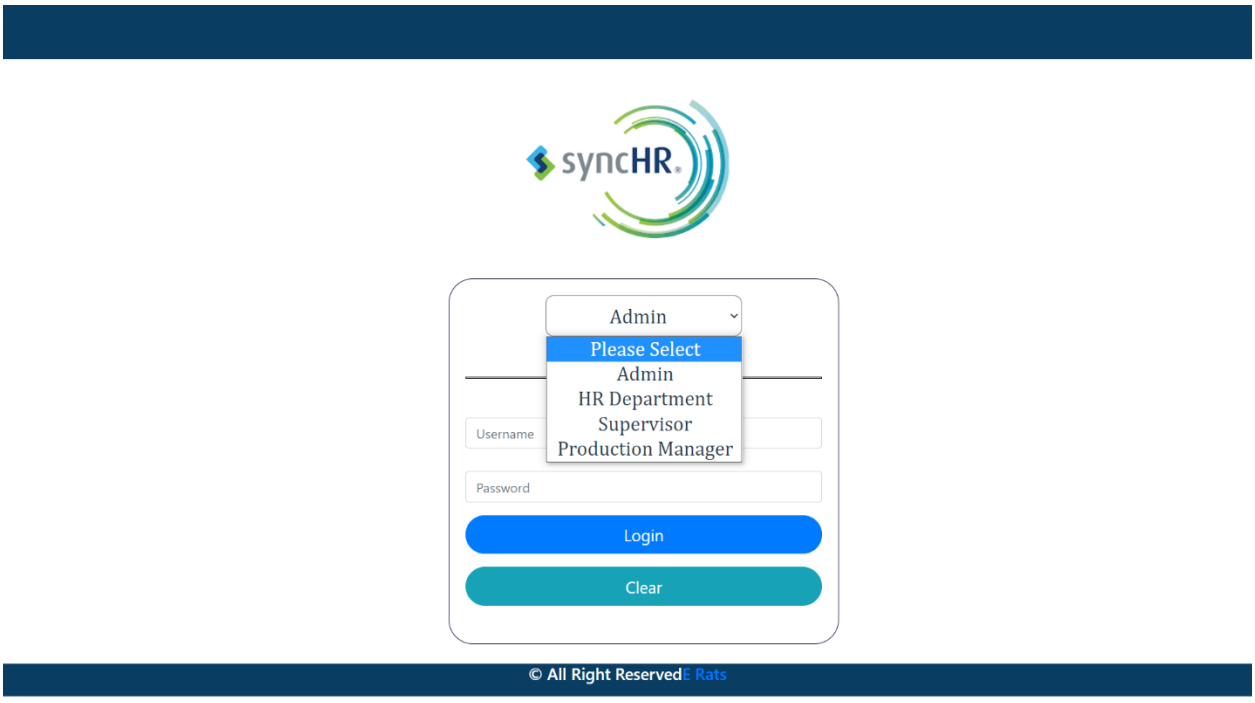
5.2 Interface Design

5.2.1 Newly Implemented Functionalities

- Daily Production Chart Demonstration
- Labour turnover report via email
- Training requirement function
- Employee leave requesting function
- Outside worker performance Evaluation function

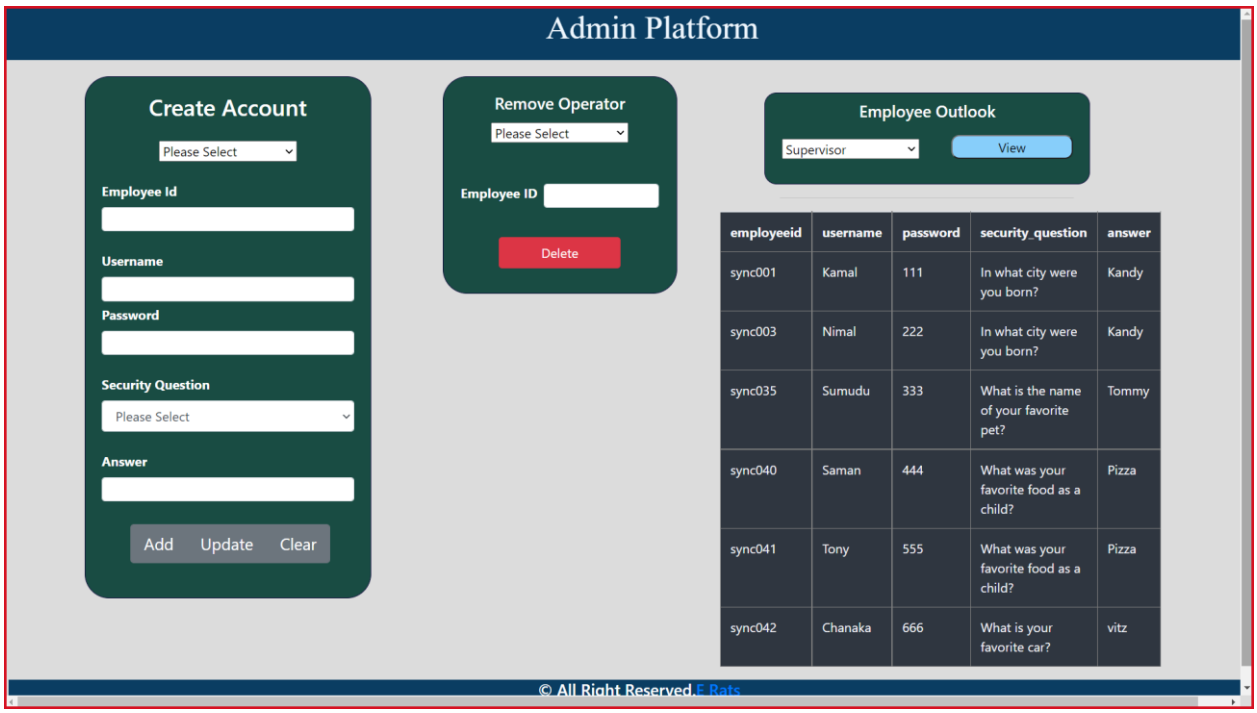
5.2.2 Login page

This is the first page of the website. This page loads first. Each operator can access the system appropriately.



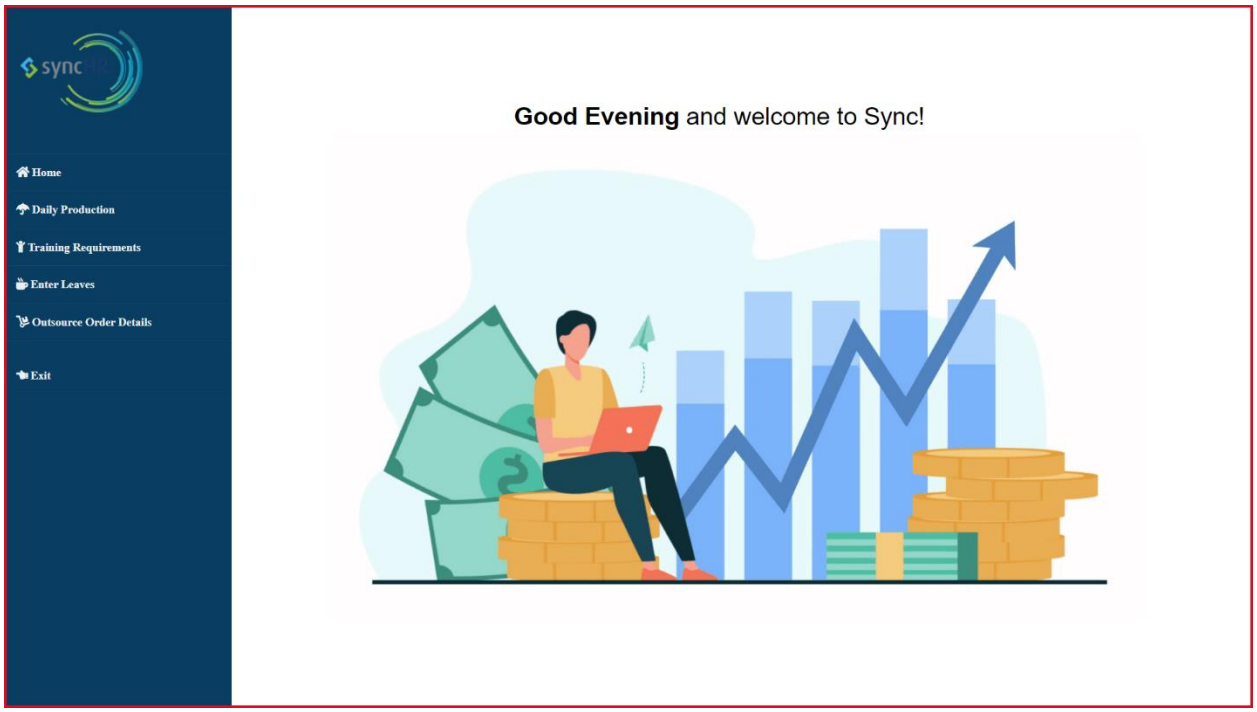
5.2.3 Admin

This interface consists with operator information’s which includes add, delete, update & can view operator details.



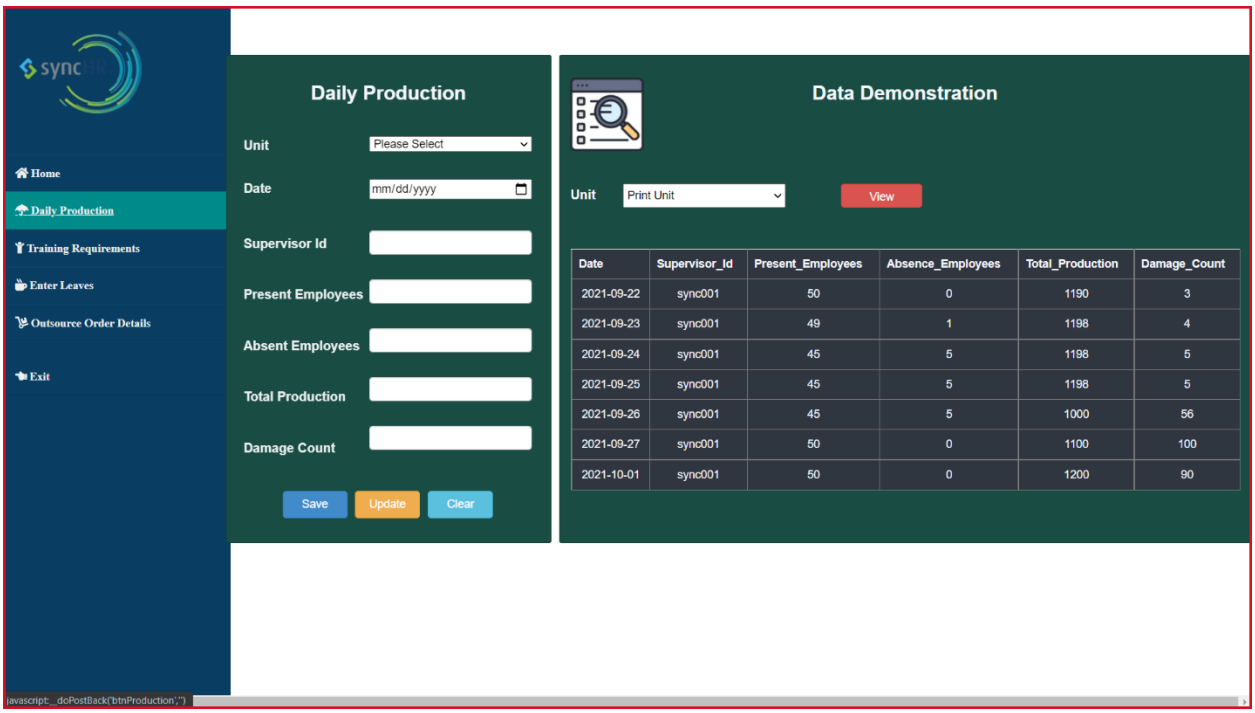
5.2.4 Supervisor

In this interface the supervisor can mainly view the daily production & can enter the training needs to the system.



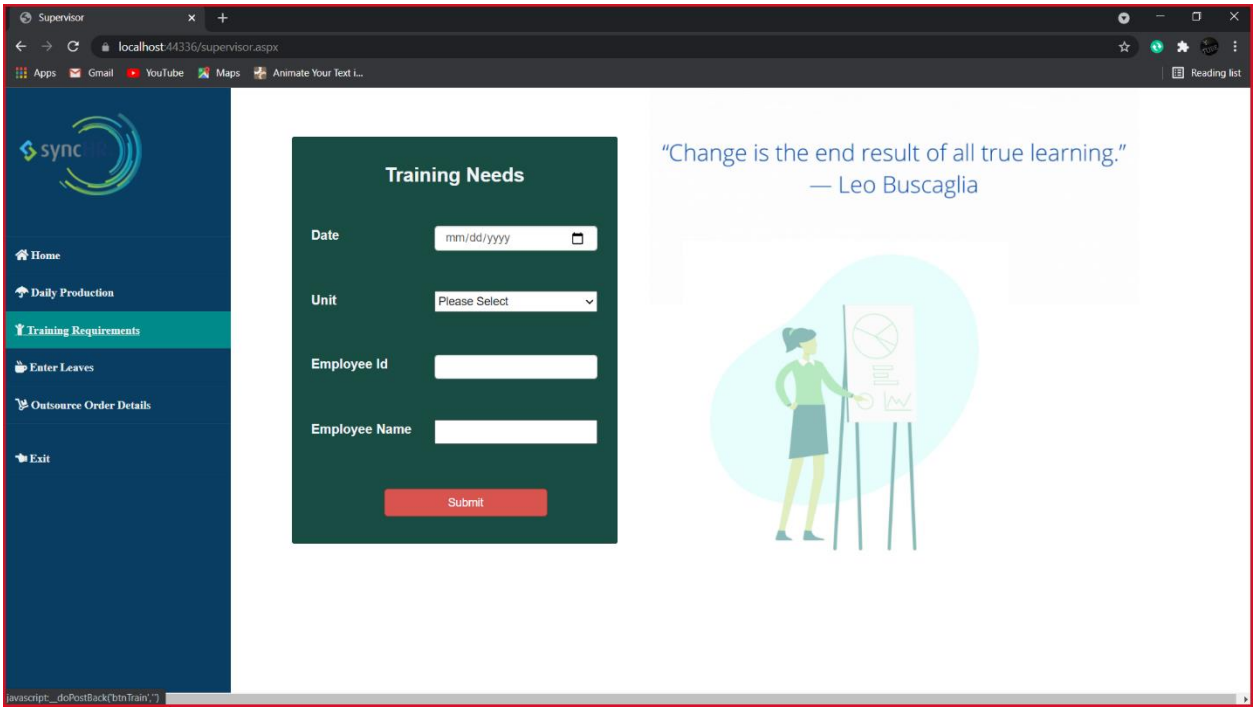
5.2.5 Daily Production

In this interface the supervisor is entering the daily production & employee details to the system.



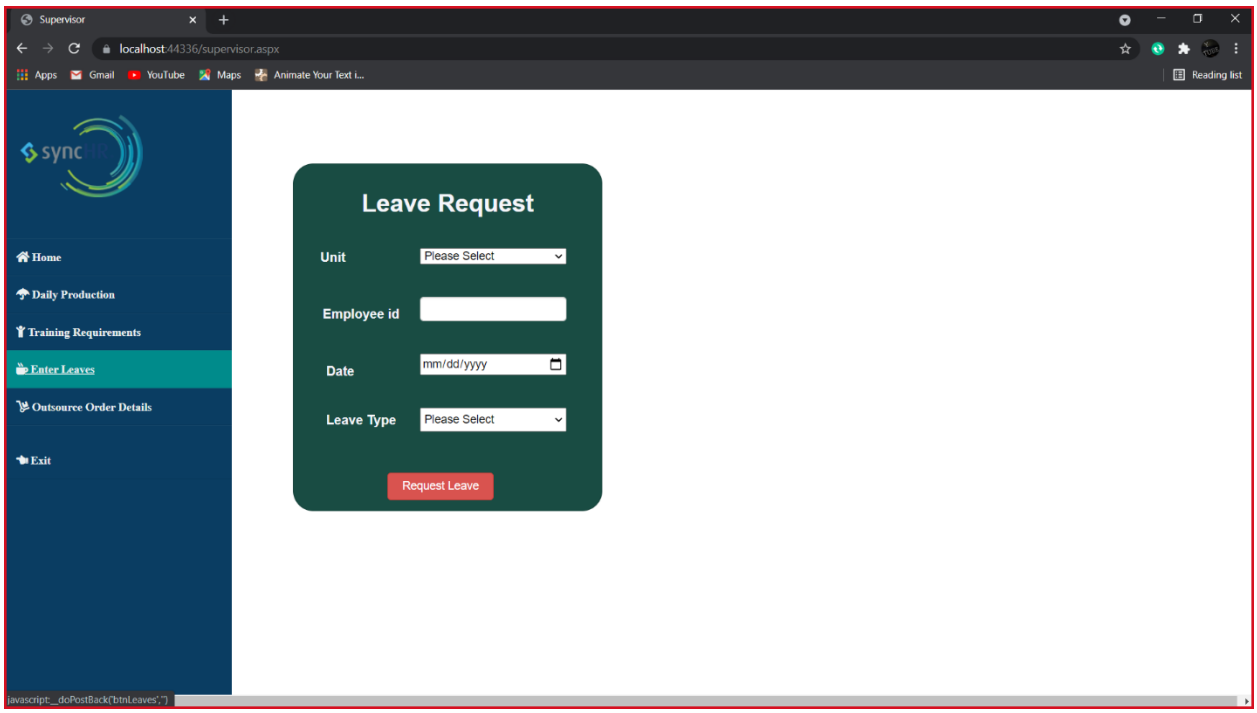
5.2.6 Training Needs

Supervisor enters the details of employees who needs to get a proper training.



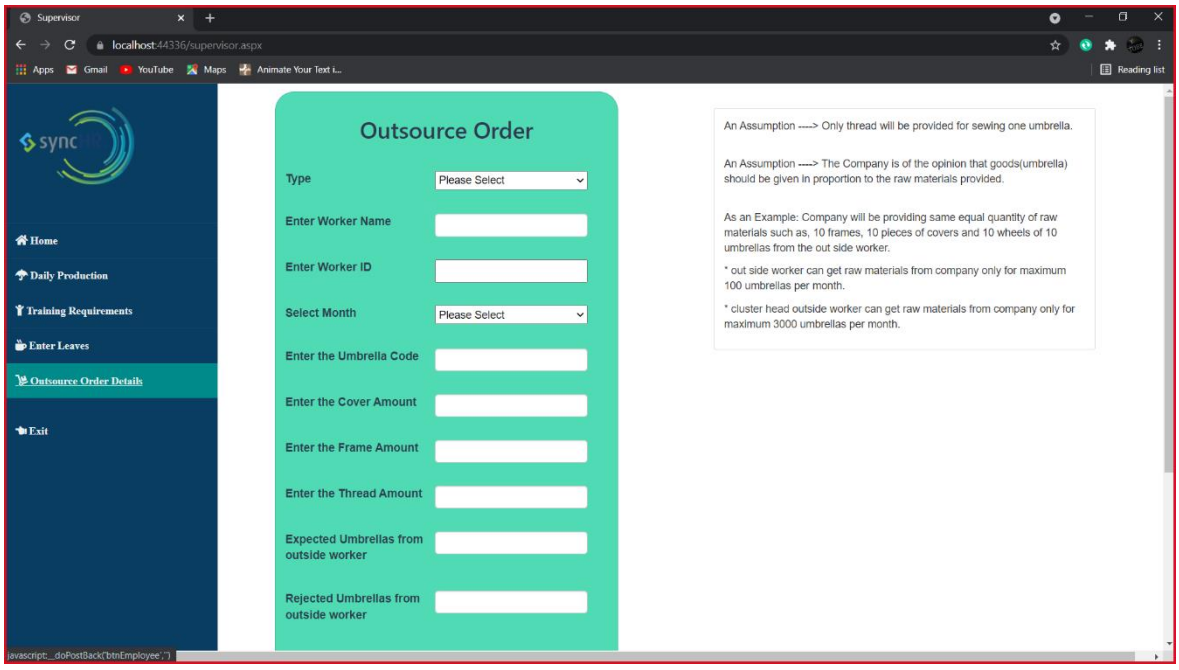
5.2.7 Leave Unit

If an employee wishes to get a leave, then it's done through the supervisor who enters the record to the System from this interface.



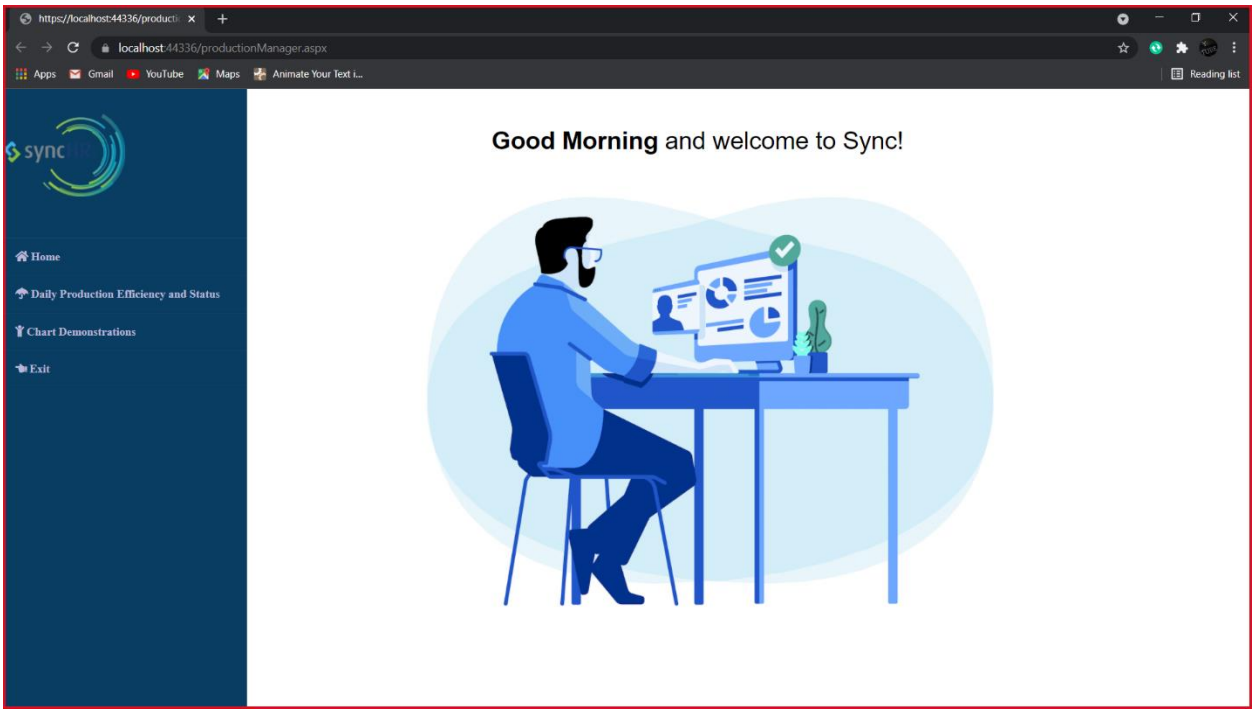
5.2.8 Outsource production

In this case supervisor is the person who is responsible to provide company umbrella materials to the out-side workers. All details are entered to the system by the supervisor and eventually the outsource production is entered to the system with some restrictions.



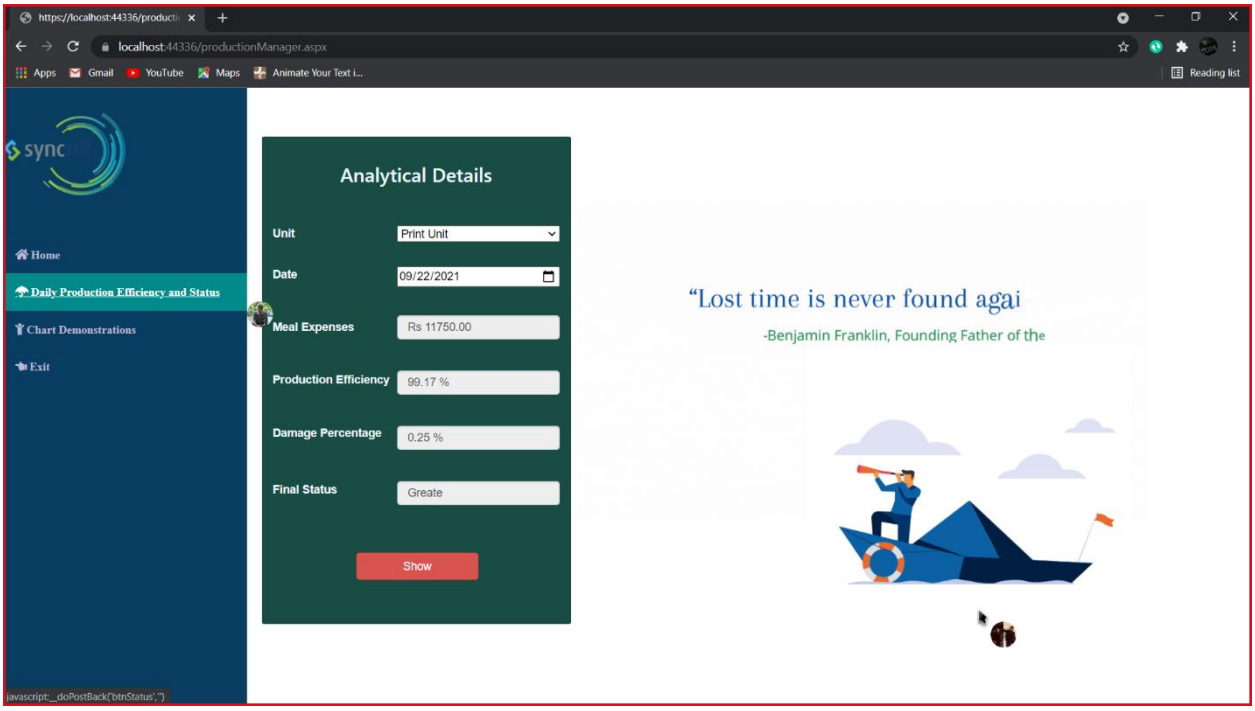
5.2.9 Production Manager

Production manager can view the finalized view of daily production efficiency & daily view of company expenses from this interface.



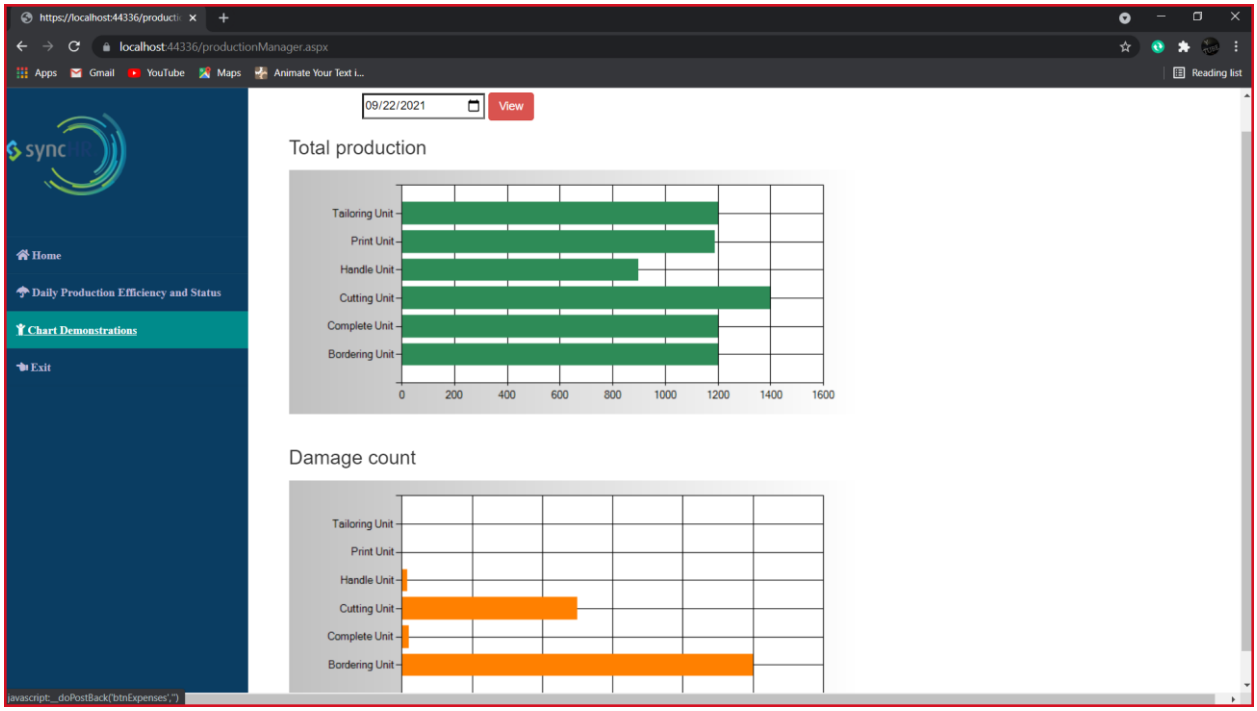
5.2.10 Company Expenses

The production manager can view the daily company expenses by entering the unit and the appropriate date to the system.



5.2.11 Chart Demonstration

This interface illustrates the damage count and the total production chart views with regarding data structures for particular date

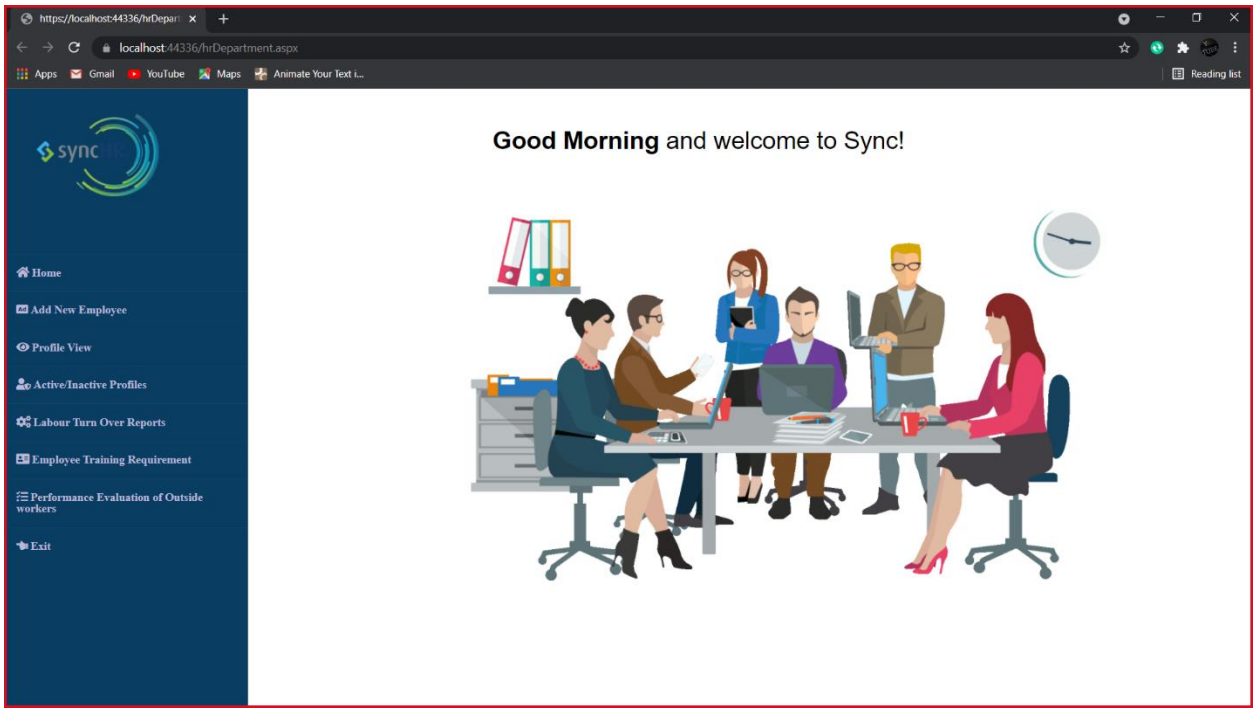


5.2.12 HR Department

Mainly this phase includes the interface to add new employees to the system. Two reports are generated

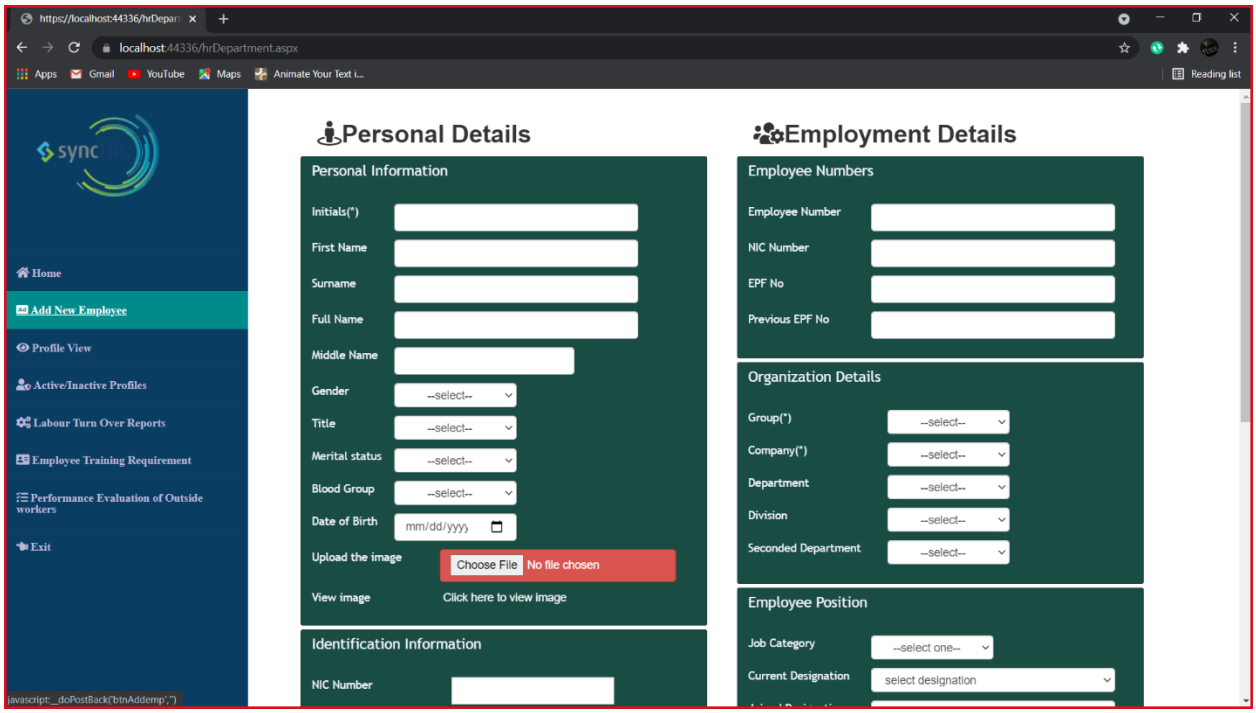
1. Labour turn-over report
2. Monthly recruitment report

Eventually, Employee performance evaluation details are also added to the system.



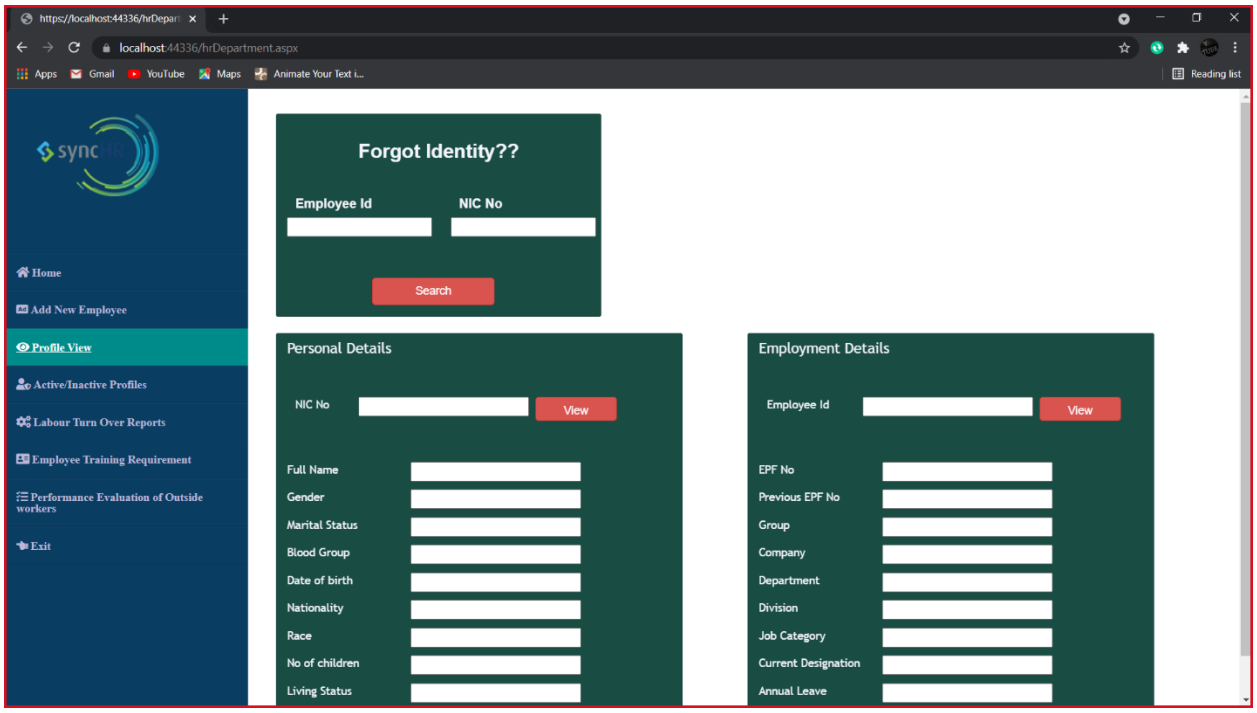
5.2.13 Add New Employee

HR Management creates Employee accounts in the system with the appropriate details.



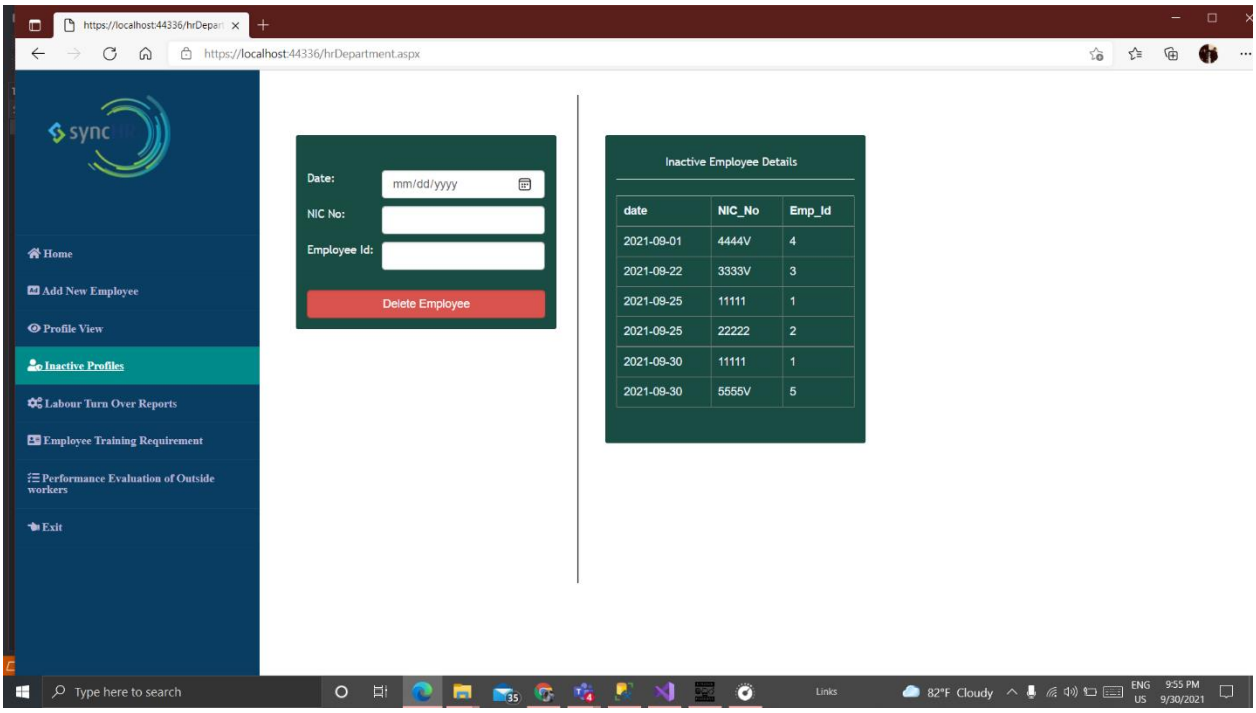
5.2.14 Profile View

This interface shows personal and employment details in regards to the appropriate employee identity.



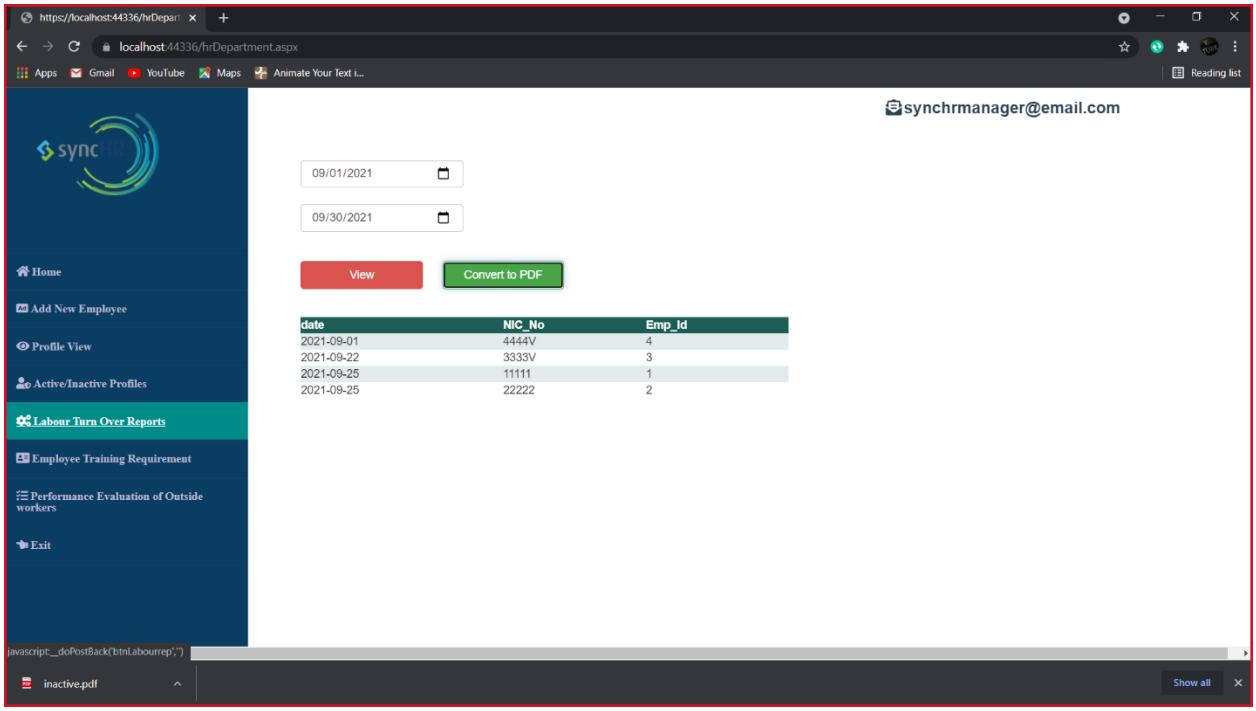
5.2.15 Inactive Profiles

Can remove an employee from the system and also can view the inactive employee accounts



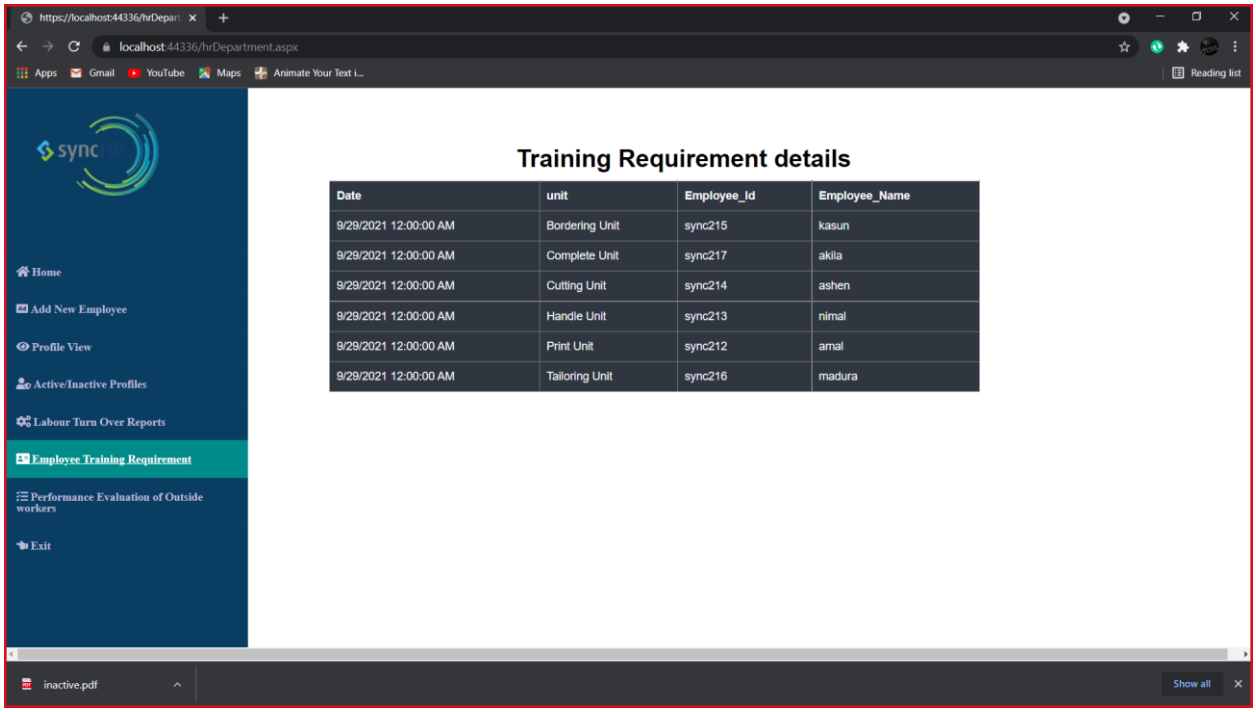
5.2.16 Labour Turn Over Reports

Production Manager can view the labour turnover report in regards to the particular date by an email. Furthermore, Hr Management can convert the report in to a detailed pdf file.



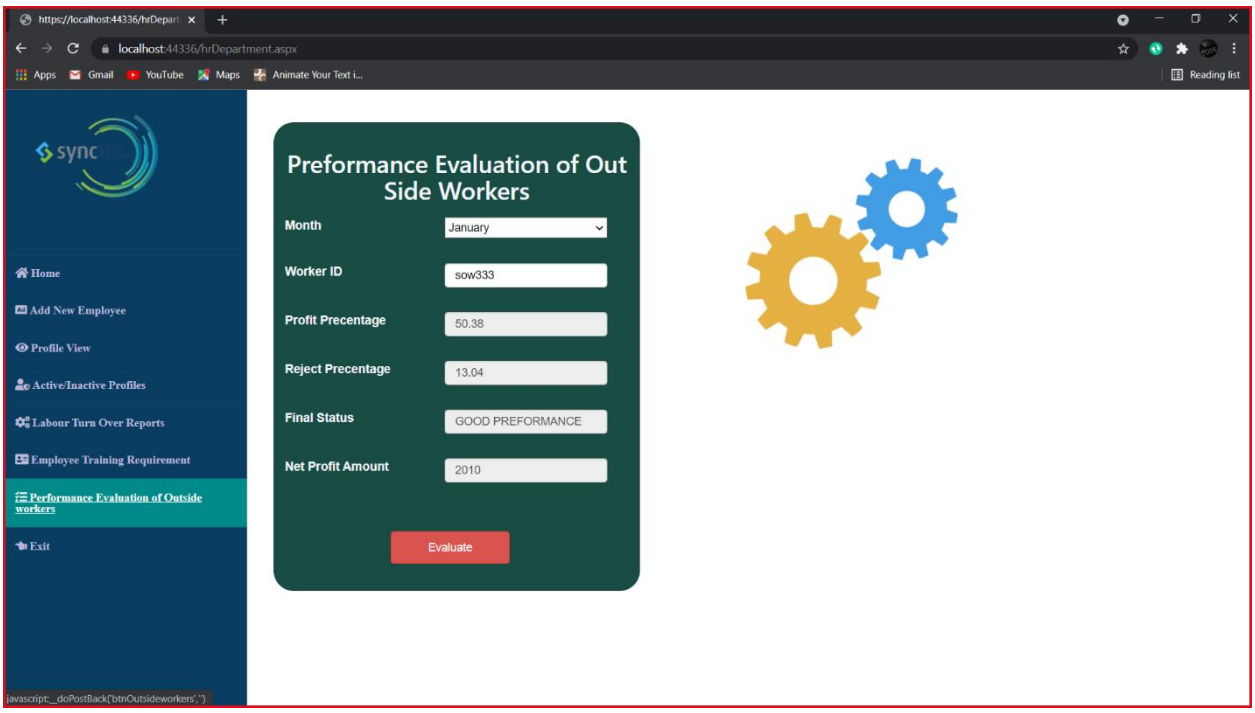
5.2.17 Employee Training Requirements

This interface in the HR Department demonstrates the training requirements of employee's for the particular date.



5.2.18 Performance Evaluation

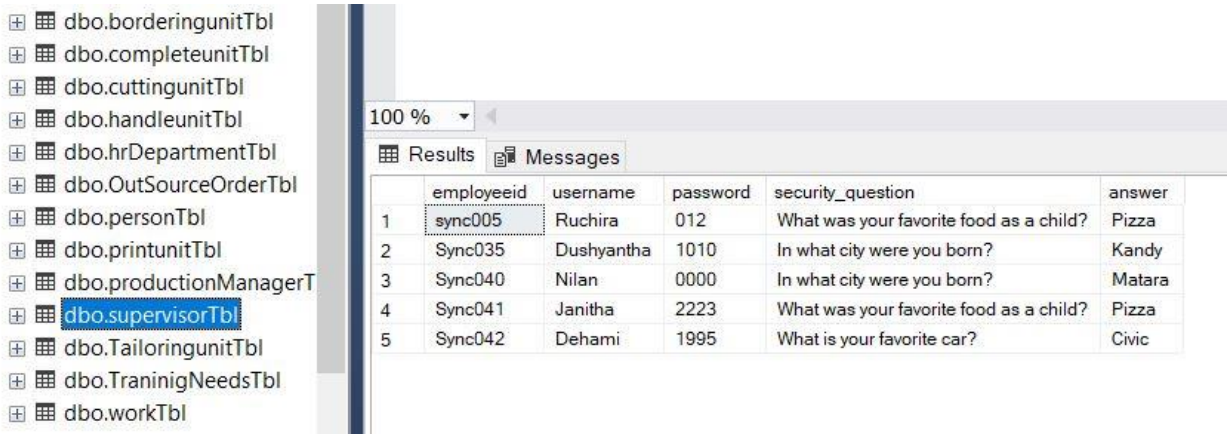
The HR Management can view the performance evaluation of the outside-workers by entering the Worker ID & the month to the system.



5.3 Database Tables

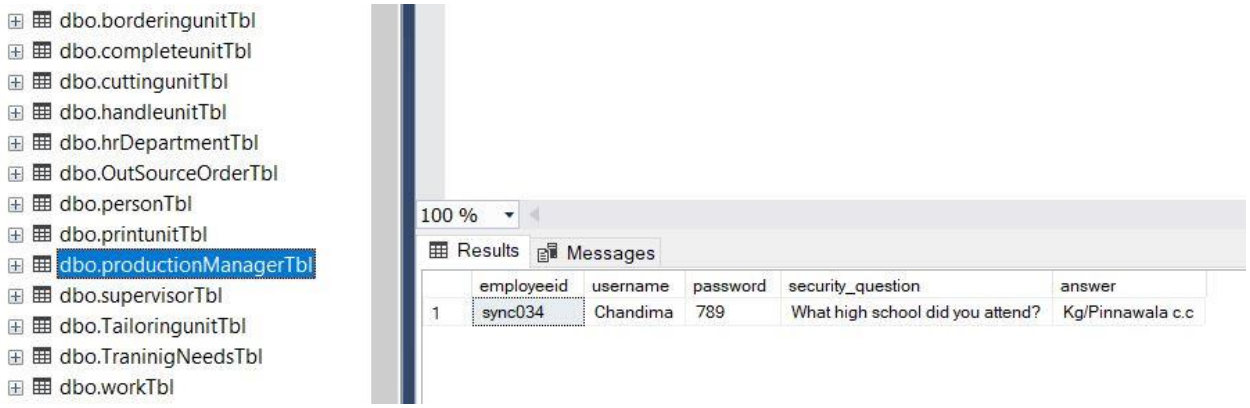
Presently we have inserted 13 database tables to the system by the use of Microsoft SQL Server Management studio. Furthermore, we are willing to add more tables to the system.

01. Supervisor Table Primary Key - employeeid



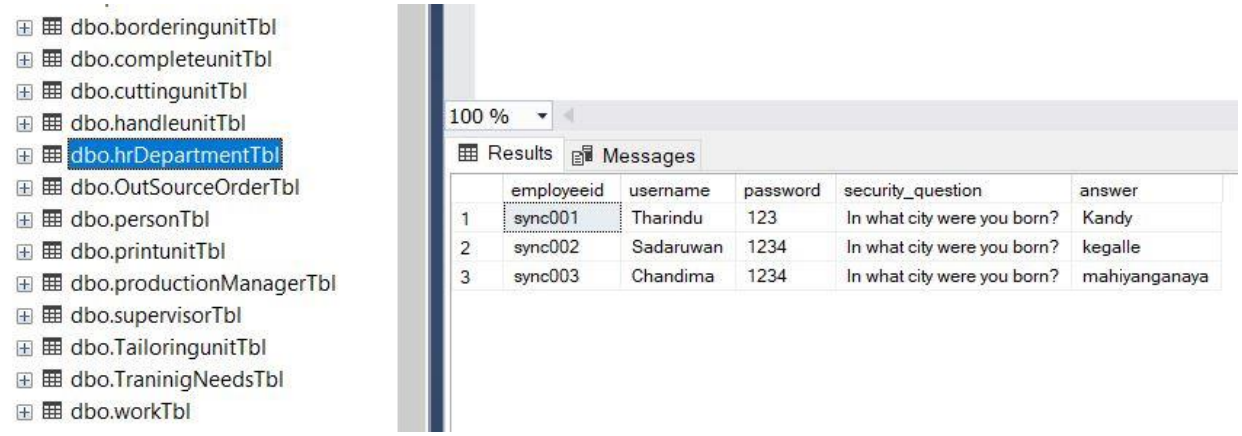
	employeeid	username	password	security_question	answer
1	sync005	Ruchira	012	What was your favorite food as a child?	Pizza
2	Sync035	Dushyantha	1010	In what city were you born?	Kandy
3	Sync040	Nilan	0000	In what city were you born?	Matara
4	Sync041	Janitha	2223	What was your favorite food as a child?	Pizza
5	Sync042	Dehami	1995	What is your favorite car?	Civic

02. Production Manager Table Primary Key - employeeid



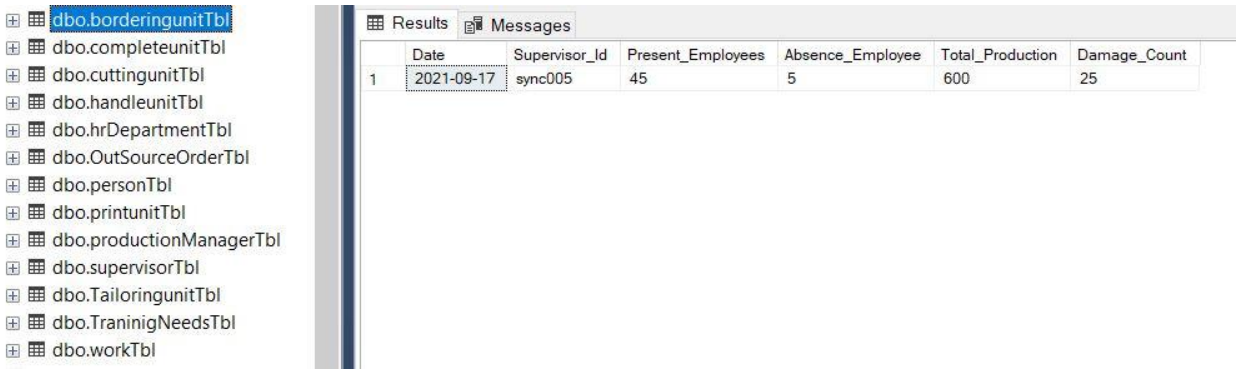
	employeeid	username	password	security_question	answer
1	sync034	Chandima	789	What high school did you attend?	Kg/Pinnawala c.c

03. HR Department Table Primary Key - employeeid



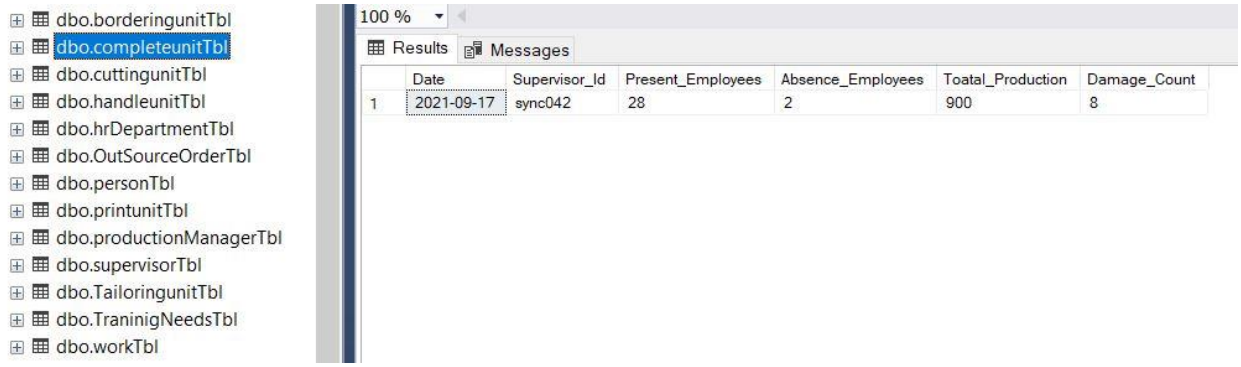
	employeeid	username	password	security_question	answer
1	sync001	Tharindu	123	In what city were you born?	Kandy
2	sync002	Sadaruwan	1234	In what city were you born?	kegalle
3	sync003	Chandima	1234	In what city were you born?	mahiyanganaya

04. Bordering Unit Table Primary Key - Date



	Date	Supervisor_Id	Present_Employees	Absence_Employee	Total_Production	Damage_Count
1	2021-09-17	sync005	45	5	600	25

05. Complete Unit Table Primary Key - Date

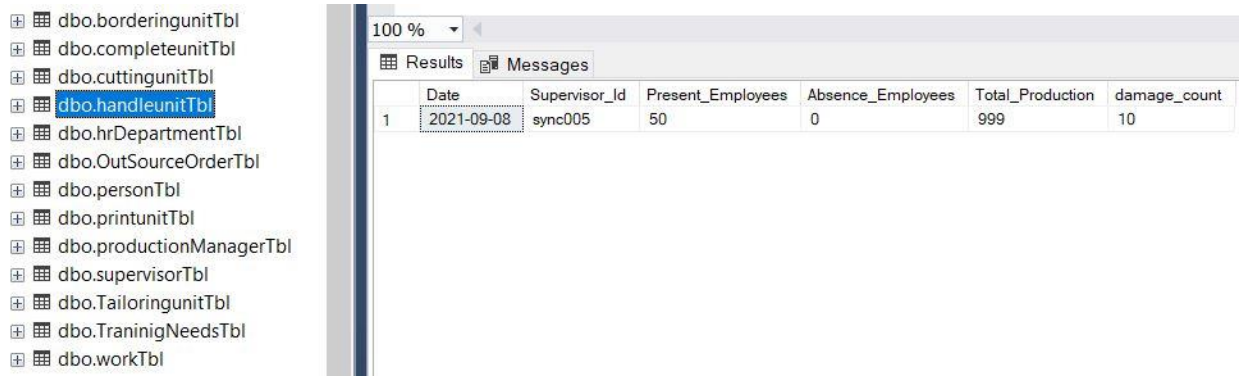


	Date	Supervisor_Id	Present_Employees	Absence_Employees	Toatal_Production	Damage_Count
1	2021-09-17	sync042	28	2	900	8

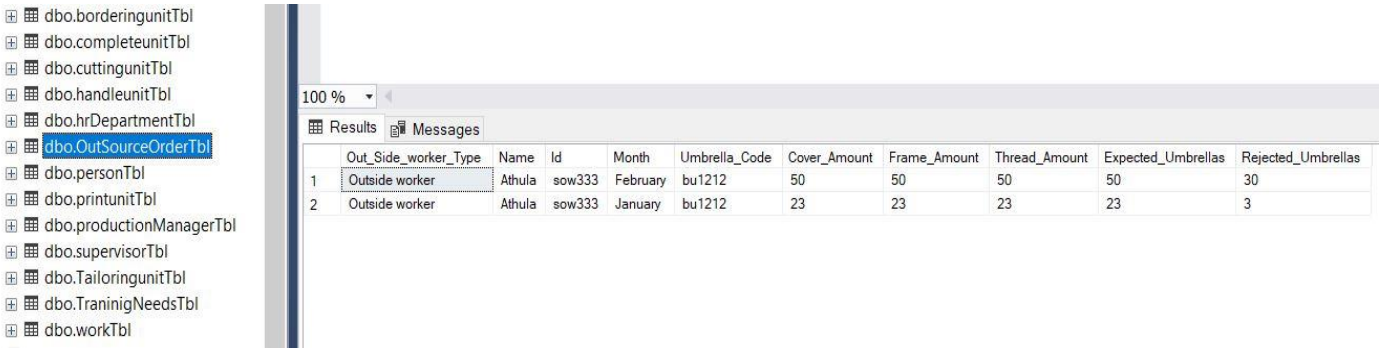
06. Cutting Unit Table Primary Key - Date

	Date	Supervisor_Id	Present_Employees	Absence_Employees	Total_Production	Damge_Count
1	2021-09-16	sync040	38	2	700	20
2	2021-09-17	Sync040	40	2	800	15

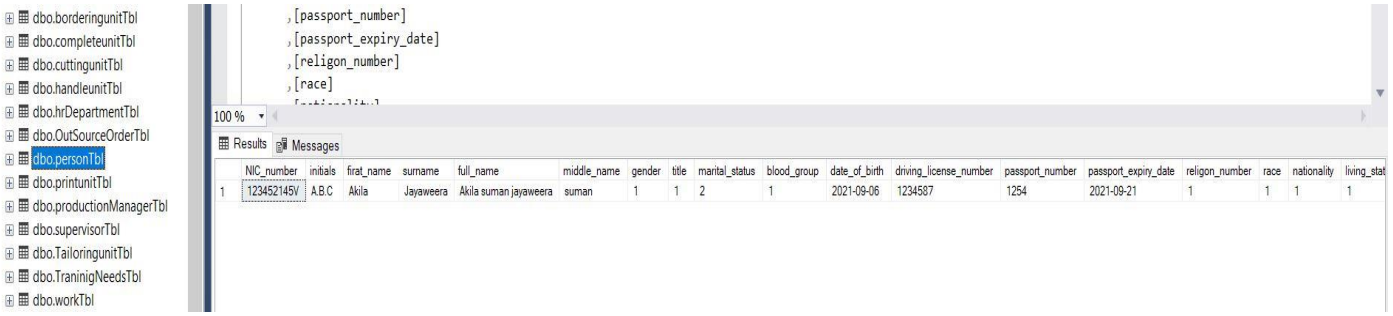
07. Handle Unit Table Primary Key - Date



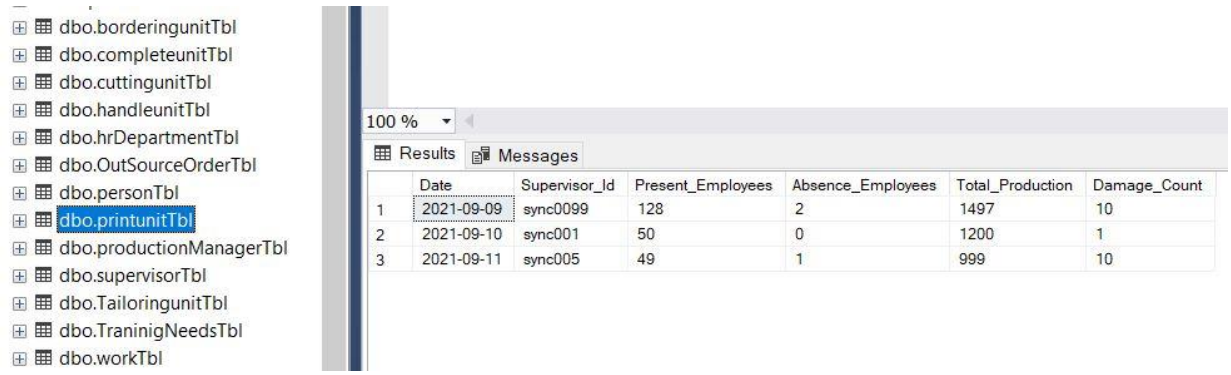
08. Outsource Order Table Primary Key – Id, Month



09. Person Table Primary Key – NIC_number



10. Print Unit Table Primary Key - Date

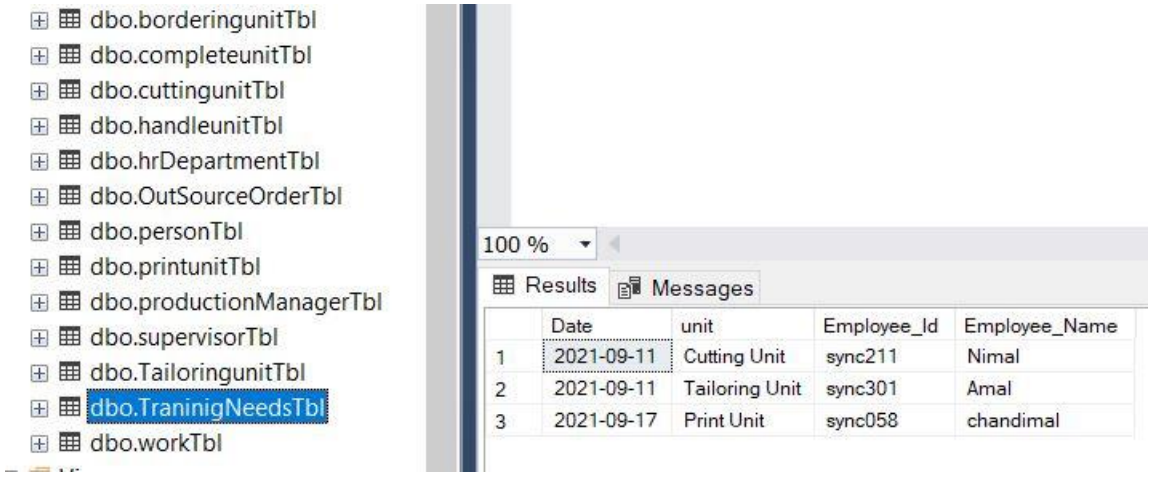


	Date	Supervisor_Id	Present_Employees	Absence_Employees	Total_Production	Damage_Count
1	2021-09-09	sync0099	128	2	1497	10
2	2021-09-10	sync001	50	0	1200	1
3	2021-09-11	sync005	49	1	999	10

11. Tailoring Unit Table Primary Key - Date

	Date	Supervisor_Id	Present_Employees	Absence_Employees	Total_Production	Damage_Count
1	2021-09-17	sync041	55	5	900	18

12. Training Needs Table Primary Key – Date, unit

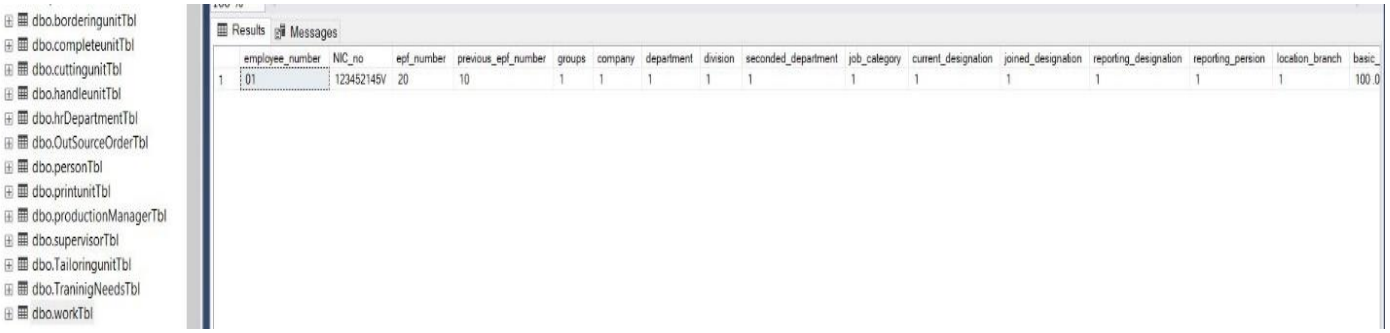


	Date	unit	Employee_Id	Employee_Name
1	2021-09-11	Cutting Unit	sync211	Nimal
2	2021-09-11	Tailoring Unit	sync301	Amal
3	2021-09-17	Print Unit	sync058	chandimal

13. Work Table

Primary Key - employee_number

Foreign Key - NIC_no



6. Conclusion

The project "SyncHR" is a Human Resource Management System which was invented as an innovative System replacing the current old System with some new features. From the requirements we gathered, we were able to identify four key points that want to be implemented in the new System. The new system was developed to resolve those which were identified. As soon as the final method was presented to the client, the advocates concluded that it was dynamically and fully functional. Nevertheless, the system has been developed in line with the required automation company requirements.

The main objective behind developing an automated system was to eradicate human-made errors and to completely erase fraudulent activities, by implementing such a system. We were able to achieve the objectives by making the system a foolproof and error-free system. Apart from the main objective, there were minor goals that we as a team wanted to implement in the system. by analyzing the needs of the company. We were able to execute different types of logic to help the company become more efficient even if the client didn't request it.

The new key features that we have implemented in the system.

- Training requirements Functionality for Minor Workers
- Leaves Entering process for minor workers
- Outside labourers performance evaluating procedure
- Labour turn over report Emailing capability to Production manager

Throughout this project, we had to face many complications. Some days we thought of giving up some parts, but the team spirit and unity somehow managed us to develop the system as we wanted. Ultimately, we were able to see our hard work pay off and deliver a fully applicable automated system on time that we are proud of. Thank you.

7. References

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8. Appendices

8.1 Letter by the HR Executive

- Our current HR System has some old local platforms that are not effectively organized with the present circumstances. Nevertheless, We will look forward to have an innovative new HR System with some new features that include labor turnover report, Data Emailing Options, Performance Evaluation of outsource workers and some Interesting GUI interface formats. Furthermore, We expect to enhance the System by Unit wise to improve the daily efficiency by a good magnitude.

8.2 Questioners and interview Questions

- What are the major Requirements that want to Enhance in the Proposed System?
- What are the issues formed with the GUI interfaces?
- What are the complex fields that want to improve in the current System?
- What are the New Features that Required to Insert in the new System?
- What are the Assumptions and Calculations that want to include in the System?