A REPORT

ON

HRMS

BY

Guptesh Ranjan Sahoo	2022A2PS1067P
Rachit Bansal	2022B5A71642H
Aman Kirtikumar Patel	2022A7PS0152P
Aadityaraj Mohta	2022B3A71384H

AT

INDOVISION SERVICES PRIVATE

A Practice School-I Station of

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

(July 2024)

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Prepared in partial fulfillment of the
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AT

INDOVISION SERVICES PRIVATE LIMITED

A Practice School-I Station of

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

(July 2024)

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE PILANI
(RAJASTHAN)

Practice School Division

Station: Indovision Services Pvt. Ltd. **Centre:** Delhi (Online) **Duration:** 2 months

Date of Start: 28 May,2024 **Date of Submission:** 21st July 2024

Title of the Project: HRMS (HR Management System)

ID No./Name(s)/ Discipline(s)/of the student(s)

2022A2PS1067P - Guptesh Ranjan Sahoo-B.E. Civil

2022B5A71642H - Rachit Bansal - M.Sc. Physics with B.E. Computer Science

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Name(s) and designation(s) of the expert(s): Mr. Dinesh Sharma (Manager of Software Development team)

Name(s) of the PS Faculty: Mr. Piyush Verma

Key Words: PHP, HTML, CSS, Figma, Web Development, Database management

Project Areas: Web development for HR management system

Abstract: This report is a summary of the Practical School 1 (PS1) project conducted at Indovision Services to improve human resource management. The main goals were to create a responsive website, optimize effectiveness and implement an efficient human resource management system.

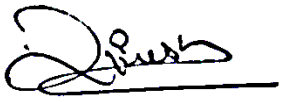
Key features of the HRMS include an intuitive user interface, automated scheduling algorithms, real-time attendance monitoring, and a robust reporting module. The system is designed to be scalable, secure, and compliant with industry standards, ensuring data integrity and user privacy.

Signature(s) of Student(s):

Date: 21st July 2024

Signature of PS Station Mentor:

Date: 21st July 2024



ACKNOWLEDGEMENTS

We would like to take this opportunity to express our deepest gratitude and appreciation to the individuals who have made significant contributions to the successful completion of our internship report. Their guidance, support, and encouragement were invaluable throughout this journey.

First and foremost, we would like to extend our heartfelt thanks to Prof. Piyush Verma, our esteemed PS faculty member. Your expertise, dedication, and unwavering support have been instrumental in shaping our internship experience. Your valuable insights, constructive feedback, and continuous encouragement have helped us navigate through challenges and enhance our understanding of the subject matter. We are sincerely grateful for the opportunity to learn from you and for the impact you have had on our professional growth.

We would also like to express our deepest appreciation to our mentor, Mr. Dinesh Sharma. His mentorship, patience, and extensive knowledge have been invaluable during our internship. His guidance and constant encouragement have not only provided us with valuable insights into the industry but also challenged us to exceed our potential. We are also grateful to INDOVISION where we have the privilege of interning. The opportunities, resources, and practical experiences provided have been instrumental in deepening our understanding of the industry and enhancing our professional capabilities.

Lastly, we would like to express our sincere thanks to our families, friends, and peers for their unwavering support, encouragement, and understanding throughout this internship. Their belief in our abilities and constant motivation has been a driving force behind our success.

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INTRODUCTION

A Human Resource Management System (HRMS) is a comprehensive suite of software applications designed to streamline and manage various human resources functions within an organization. This powerful tool integrates multiple HR processes, facilitating the management of employee data, payroll, recruitment, benefits, training, performance appraisal, and compliance with legal and regulatory requirements. By consolidating these functions into a single platform, HRMS solutions enhance the efficiency and effectiveness of HR operations, enabling HR professionals to focus on strategic initiatives rather than administrative tasks.

This report details the design and development of an HRMS, beginning with Figma for initial design and flow diagrams, followed by database structuring using MySQL. It includes entity properties, keys, and their relationships as depicted in the ER diagram. Tools like GitHub and Git Bash facilitated code management, while XAMPP enabled local testing of HTML and CSS. Continuous updates and advanced CSS designs enhanced the software's functionality and aesthetics

HTML and CSS play a crucial role in designing and styling the HRMS interface. HTML provides the structural framework of the web pages, while CSS is used to enhance their appearance, making the software user-friendly and visually appealing. Advanced CSS techniques are applied to ensure a responsive and aesthetically pleasing design, contributing to an intuitive user experience.

Additionally, we have incorporated inline PHP codes within the HTML to handle dynamic content efficiently. Common PHP scripts are utilized for the left and top navigation bars, ensuring a consistent look and functionality across the entire application. This approach streamlines the development process and enhances maintainability. By seamlessly integrating HTML, CSS, and PHP, we ensure that the HRMS system is not only robust and functional but also provides an engaging and cohesive user experience.

SOFTWARE LEARNING

Figma: - Figma is an invaluable tool for developing a Human Resource Management System (HRMS) due to its robust collaborative features and intuitive interface. By enabling real-time collaboration, Figma allows designers, developers, and stakeholders to work together seamlessly, ensuring that design iterations and feedback are integrated swiftly. The platform's vector graphics capabilities and prototyping tools facilitate the creation of detailed, interactive mockups, which are crucial for visualizing user workflows and interface designs. Additionally, Figma's cloud-based nature ensures that the latest versions of designs are always accessible, reducing version control issues and enhancing project efficiency. Utilizing Figma in HRMS development streamlines the design process, fosters teamwork, and helps in creating a user-centric product.

Fig jam: - FigJam, an online whiteboard tool by Figma, significantly enhances the development process of a Human Resource Management System (HRMS) by fostering dynamic brainstorming and collaboration. It allows teams to ideate, plan, and map out user journeys in a visually engaging and interactive environment. With FigJam, project members can contribute simultaneously, adding sticky notes, drawing diagrams, and leaving feedback in real-time, which accelerates the decision-making process and ensures that diverse perspectives are considered. This tool also integrates smoothly with Figma, enabling a seamless transition from brainstorming to be detailed design. By leveraging Fig Jam, the HRMS development team can enhance creativity, streamline workflows, and ensure a comprehensive and well-thought-out design process.

Sublime text editor: - Sublime Text Editor is a highly effective tool for writing MySQL code in the development of a Human Resource Management System (HRMS) due to its versatility and robust feature set. It offers syntax highlighting and auto-completion specifically for SQL, which enhances code readability and reduces errors. Sublime Text's powerful search and replace functionality, along with its ability to handle multiple files simultaneously through tabbed editing, significantly boosts productivity. Its customizable interface and support for various plugins allow developers to tailor the editor to their specific needs, integrating seamlessly with version control systems like Git. Using Sublime Text for

MySQL coding in HRMS development facilitates efficient, error-free coding and a more streamlined workflow.

4. GitHub: - GitHub is a crucial tool for the development of a Human Resource Management System (HRMS) due to its powerful version control and collaborative capabilities. It allows multiple developers to work on the codebase simultaneously, facilitating efficient management of code changes and integration of features. GitHub's branching and pull request features enable systematic code reviews, ensuring high code quality and reducing the likelihood of introducing bugs. Additionally, its issue tracking and project management tools help in organizing tasks, tracking progress, and managing deadlines, which enhances overall project coordination and transparency. By using GitHub, the HRMS development team can maintain a robust, scalable, and well-documented codebase, ensuring smooth collaboration and continuous integration throughout the project lifecycle.

5.PhpMyAdmin: - phpMyAdmin is a free, web-based tool written in PHP, designed to manage MySQL and MariaDB databases. It provides an intuitive graphical interface for performing database tasks such as creating, modifying, and deleting databases, tables, fields, and rows. Users can execute SQL queries, manage users and permissions, and import or export data with ease. Its user-friendly interface simplifies complex database operations, making it accessible for users with varying levels of technical expertise.

ARCHITECTURE

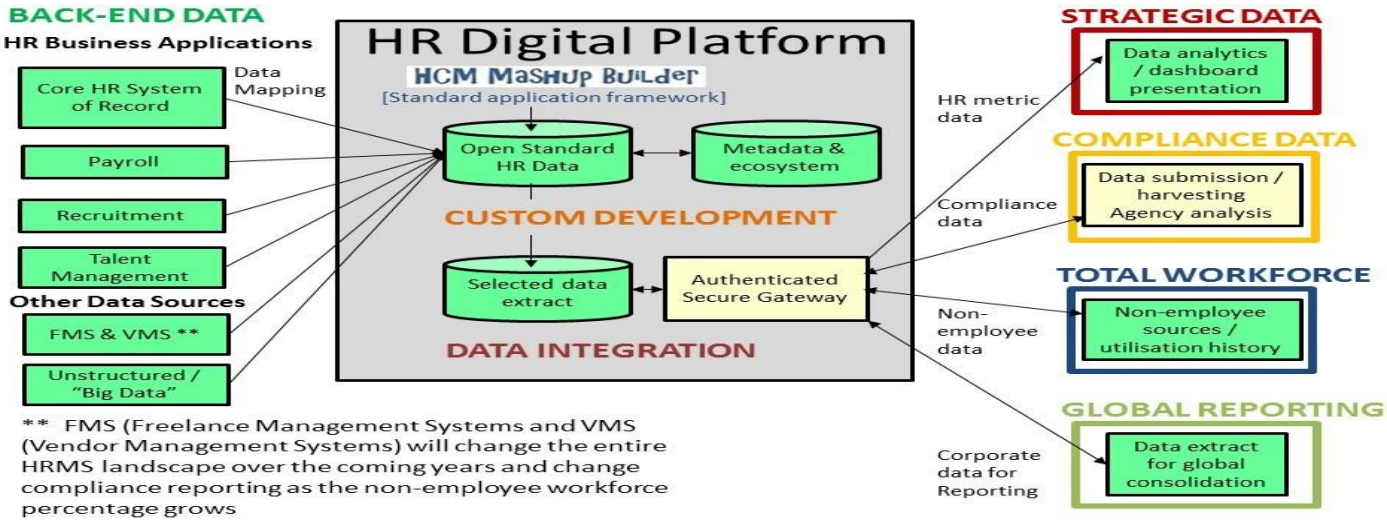
Client-Server Architecture for HRMS Project

In our HRMS project, we will utilize a typical client-server architecture. This model involves a client making calls to a server to request resources such as data, or to perform tasks remotely on the server like manipulating databases or executing various remote tasks.

A central server system will provide services or resources to multiple client devices. The server acts as a centralized hub, managing data, processing requests, and coordinating communication between clients. Clients, which can be computers, mobile devices, or applications, connect to the server over a network and request services or access resources. The server processes these requests, performs the necessary operations, and sends back the requested information or results to the clients.

This architecture allows for a distributed and scalable system, where the server handles the heavy lifting of data management and processing, while clients focus on presenting the information and interacting with the users. It enables efficient sharing of resources, centralized control, and the ability to serve multiple clients simultaneously.

When employees interact with various features of the HRMS website, the PHP backend will handle authorized calls, interacting with the MySQL database to obtain data, process this data accordingly, and send the output back to the frontend, which is then displayed to the employee

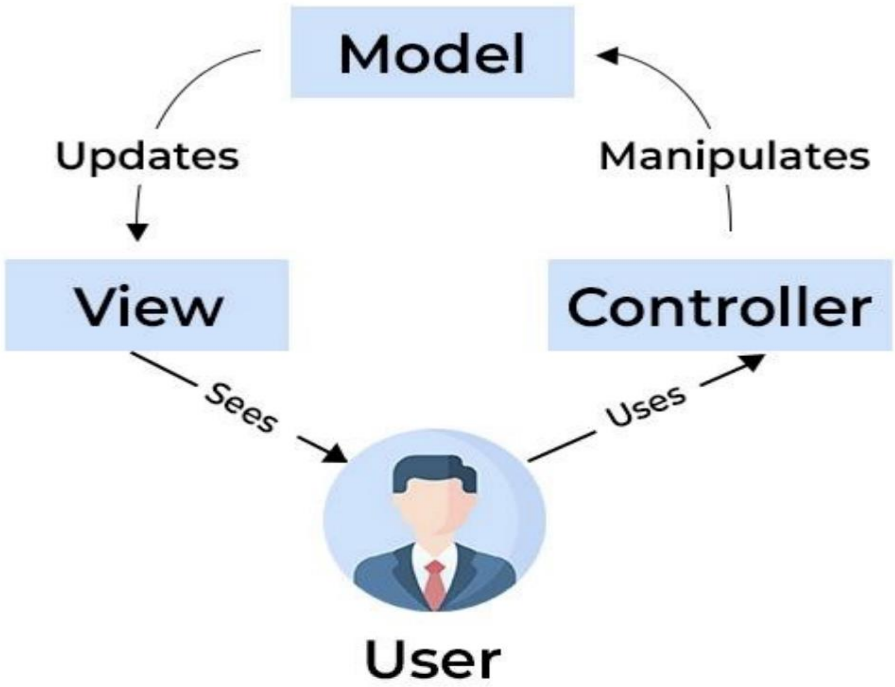


MVC Architecture in HRMS Project

The MVC (Model-View-Controller) architecture is widely used in software development to separate data management, presentation logic, and user interaction. In this architecture, the Model handles data storage and manipulation, the View generates the user interface, and the Controller processes requests and manages application logic.

Adopting MVC in PHP for our HRMS project promotes code organization, reusability, maintainability, and team collaboration. By following the MVC architecture, we can achieve a modular and scalable codebase. The separation of concerns enables independent development and testing of each component.

Additionally, the MVC pattern promotes code readability and simplifies troubleshooting and debugging processes. With the flexibility provided by MVC, developers can easily adapt and extend their applications as business requirements evolve. Ultimately, adopting the MVC architecture in PHP enhances the overall development process, leading to efficient and robust web applications for our HRMS project.



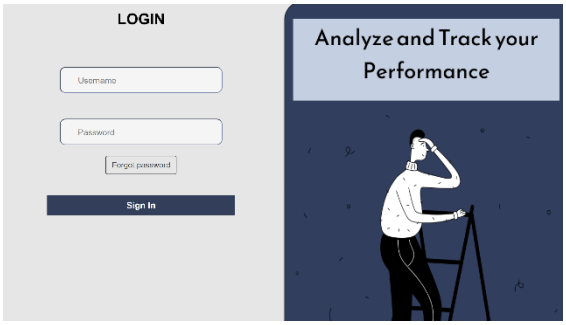
HRMS SOFTWARE MANUAL

1. LOGIN PAGE

The login page is **common ground for the employee and HR dashboard** and redirects the user to their respective dashboard based on the company's email-id.

Below are the steps explained,

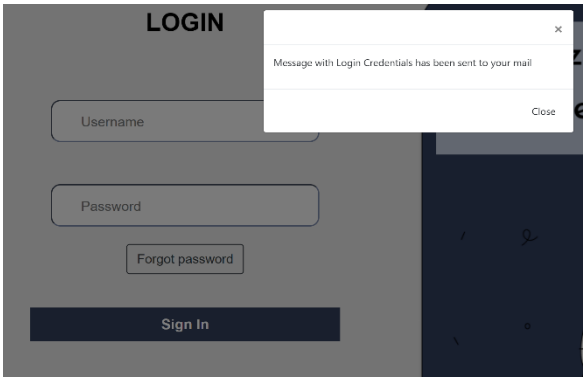
1.1 The below figure is the **landing page of our software**. The user needs to have an email-id and password provided by the company for logging in since this is specific to a company. There's no separate provision to enroll as a new user.



1.2 Forgot Password Functionality

This enables any employee of the company to seamlessly change the password in restriction to the company's criteria. The employee cannot generate new password manually rather provided by the company via **email**. This has been implemented using **SMTP protocol**.

To change the password, the employee needs to have a **valid email-id** of the company which needs to be entered before clicking on the forget password button.



HR Portal Manual: -

1.Navigation bar: -

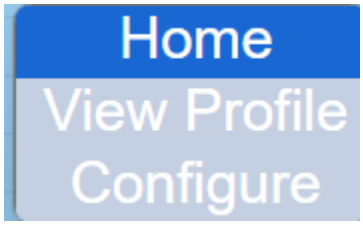
The **Navigation Bar** is a common **add on** for the **Employee portal** which mainly comprise of 2 main features namely, **About Us** & **Profile** Dropdown, the workflow to using these is mentioned below,

1.1 About Us

This is a side option functionality of our software that allows redirection to a site where **Company Info** and **Policies** are listed down.

1.2 Home Dropdown

This dropdown allows the HR to Go to **Profile page** or **Configuration** Tab. Where further Customization of website can be made.



2.Side bar: -

The **Side Bar** is also a necessary **common add on** for the **Employee portal** which mainly facilitate movement of User from One module to Another,

6 distinct modules have been provided for easy piloting through the site and a Log out button to exit back to Login page. These are-

1.Overview

2.Employee

3.Project

4.Attendance

5.Payroll&Performance

6.Leaves

3.Content Screen: -

It is the **main screen** of the website, that showcases **all the features** of the **modules** mentioned above.

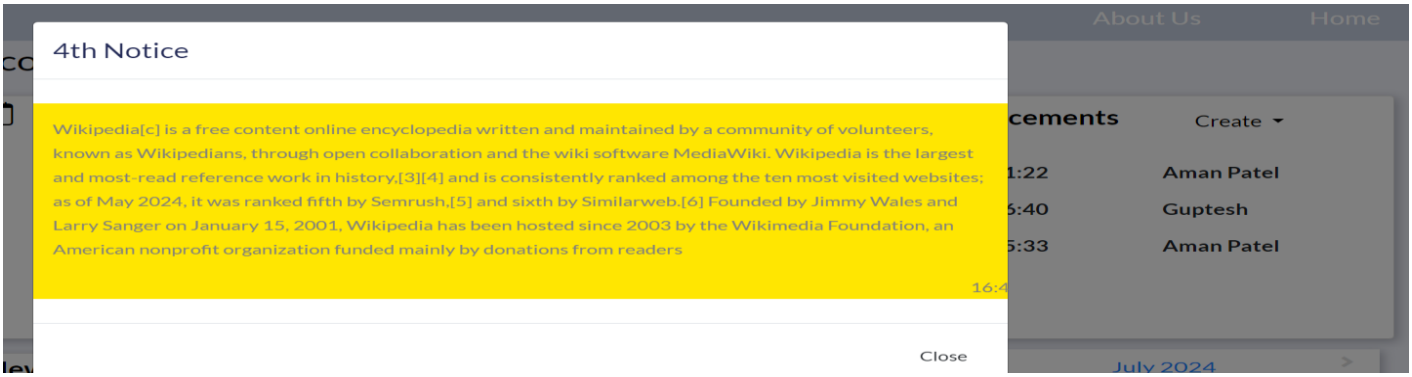
3.1 HR Dashboard (Overview):-

3.1.1 Schedule meetings

HR can create meetings by clicking on create dropdown and then filling meeting details like meeting link, agenda, date-time, duration and project id and then click on create button then scheduled meeting will be visible on HR dashboard as well as employee dashboard who are part of this project.

3.1.2 Notices and Announcements

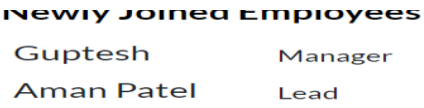
It gives details of notice by clicking on its name we can see the complete expanded notice



Also, HR can create a notice by clicking on the create button and giving notice title and agenda which will be visible on all employee's dashboard.

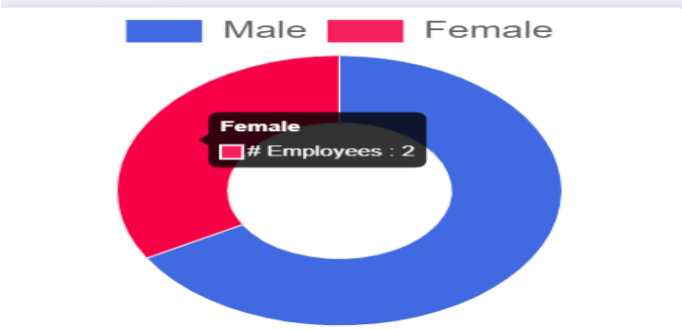
3.1.3 Newly joined employees

This section newly joined (5 latest) employees names and designations.



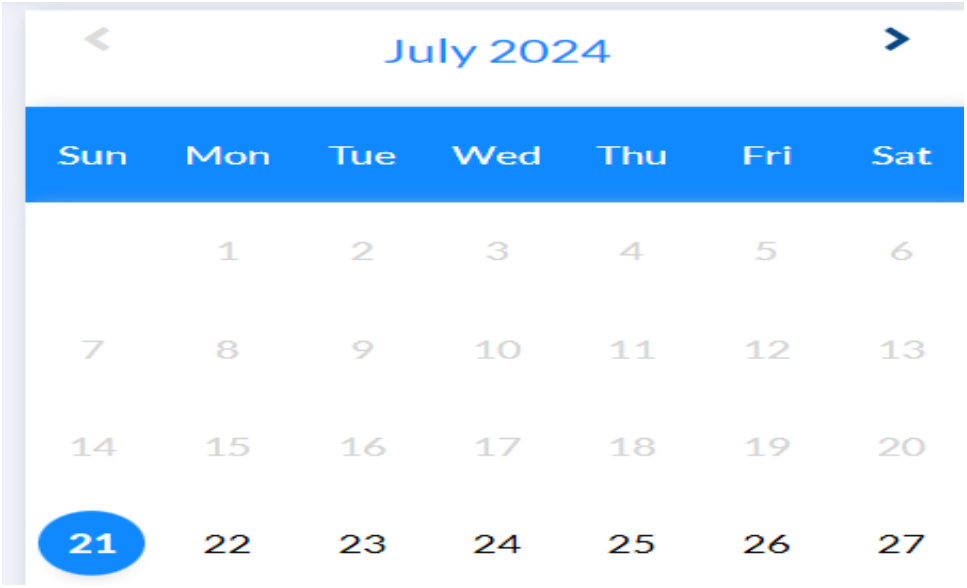
3.1.4 Diversity graph

This is a pie graph showing the distribution of employees of various genders in the company. When hover upon red section it gives no. of female employees and blue section gives no. of male employees



3.1.5 Calendar

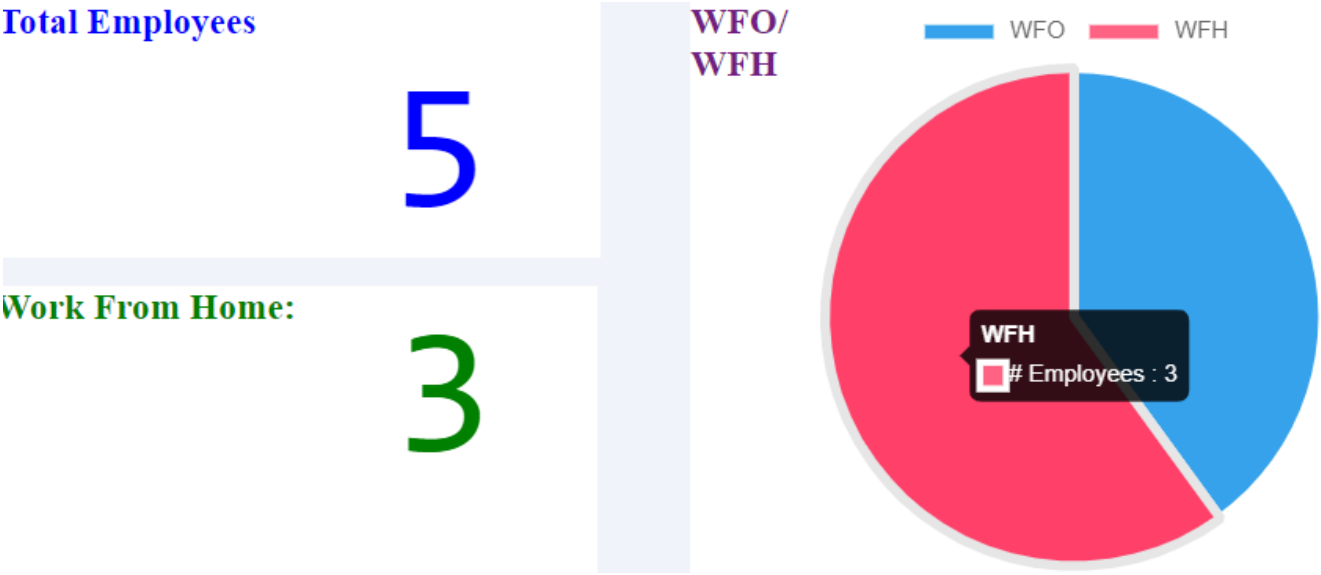
We have included a dynamic calendar for HR so that he can schedule meetings, notice keeping a check on current dates.



3.2 Employees: -

3.2.1 No. of employees WFH/WFO

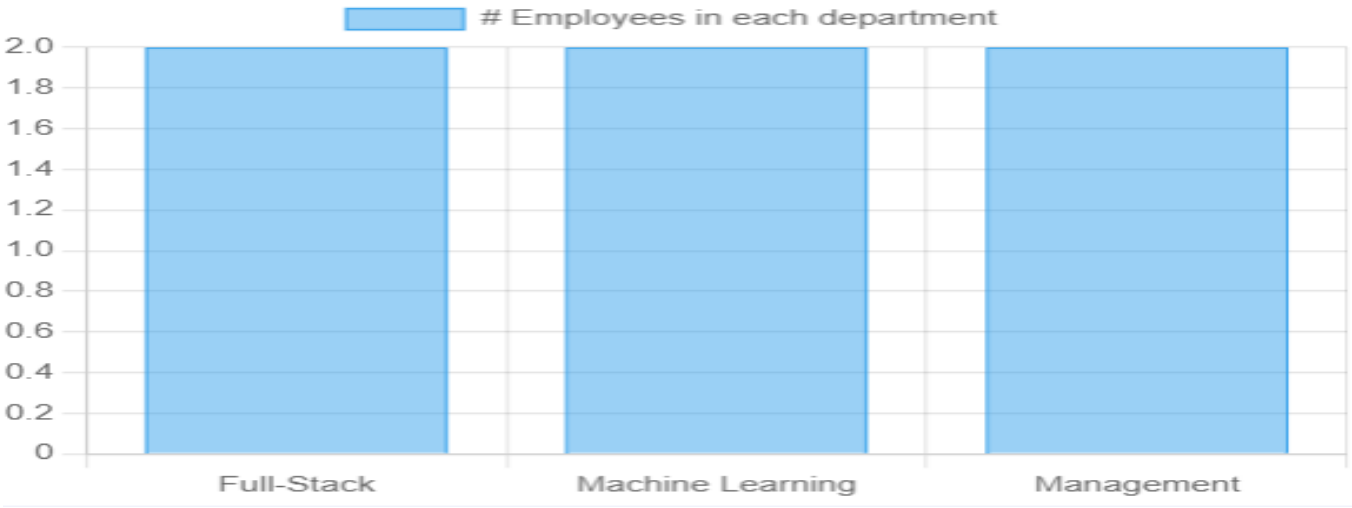
This graph shows distribution of current working employees from home or office. Hover upon the red section of pie graph to see no. Of employees working from and blue and blue for working from office.



3.2.2 Employees in each department

This is a dynamic bar graph showing no. of employees in each department

(x axis- department name, y axis-no. Of employees). You can hover upon them to see exact no.



3.2.3 Employee details table

It gives all the information about current working employees to HR like Name, designation, work status etc. Also, can HR sort the table data in ascending or descending by clicking on corresponding dropdowns. A search box is also provided for ease of data visibility.

Show 10 entries Search: 0

Employee Id	Name	Login Id	DOJ	Gender	Designation	Contact Number	Department	Work Status
4	Aadityaraj	f20221384@hyderabad.bits-pilani.ac.in	04/07/10	Male	Junior developer	987654321	Machine Learning	Work from home
2	Aman Patel	f20220152@pilani.bits-pilani.ac.in	04/09/03	Male	Lead	1212121212	Machine Learning	Work from office
1	Guptesh	gupteshmaster@gmail.com	24/06/01	Male	Manager	1234567890	Full-Stack	Work from home
5	HR1	hr1@indobits.in	24/07/01	Female	Overall manager	101010101	Management	Work from office
3	Rachit	f20221642@hyderabad.bits-pilani.ac.in	04/07/01	Male	Senior developer	1111122222	Full-Stack	Work from home

Previous 1 Next

Showing 1 to 5 of 5 entries

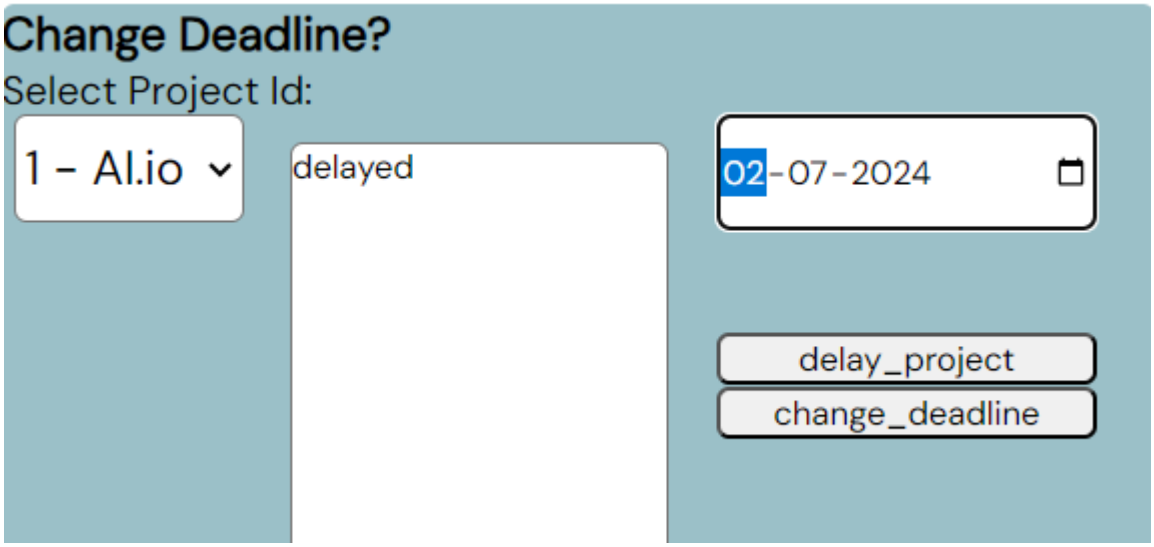
3.3 Projects: -

3.3.1 Ongoing latest added projects

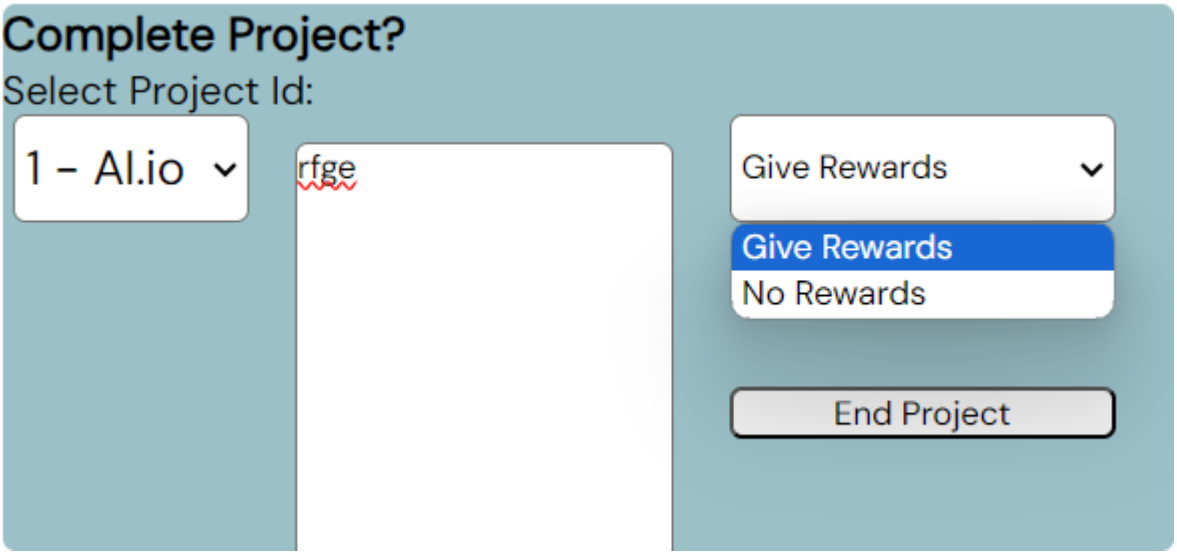
This section gives details of top 2 latest added projects in company by date-time

3.3.2 Change deadline

HR can change deadlines of an ongoing project by selecting project id from dropdown, typing reason and selecting new date. now he can either change the deadline or delay the project by clicking respective buttons.



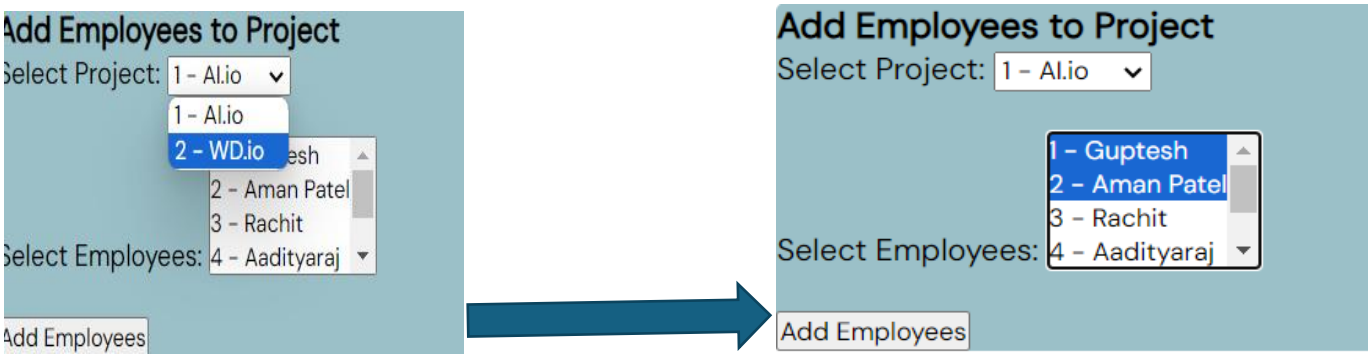
3.3.3 Complete project



HR can complete a project before its deadline has reached through this section by selecting project id from dropdown. Also, he can give remarks in text box and give rewards/no rewards from dropdown. Finally click on the end project button.

3.3.4 Add Employees to Project

From this section HR can add employees to an ongoing project which will be visible on employee portal's project module. He can select project id from **dropdown** then click on **one/multiple** employee names by pressing **ctrl and selecting** them simultaneously. And then finally click on **the Add Employees** button to add selected employees.



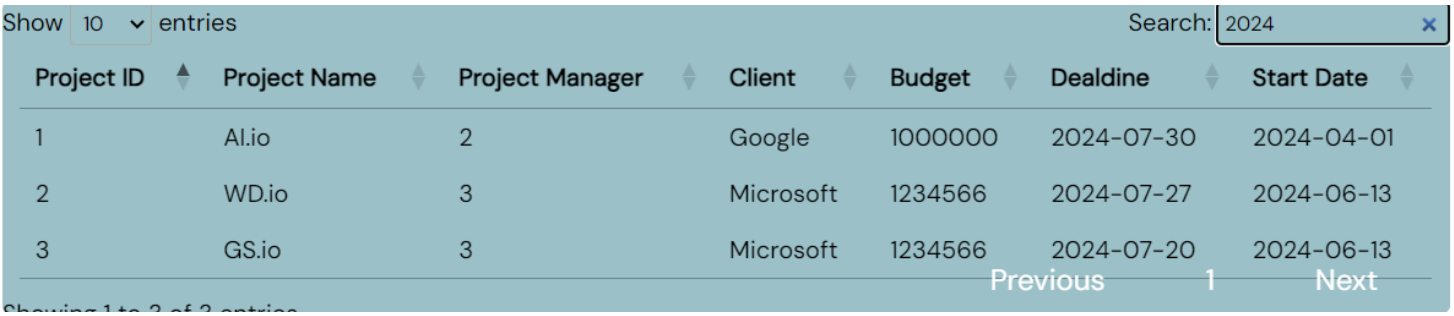
3.3.5 Project details table

This table contains a record of all the projects completed/ongoing in the company. It has three main features: -

Universal search box: - HR can filter project based on id, name, manager, client budget, deadline and start date.

Sorting functionality: -HR can use dropdowns corresponding to each column heading – up for ascending and down for descending for sorting.

Also previous, page no. and next button for easily navigating a particular set of records of projects in the table.



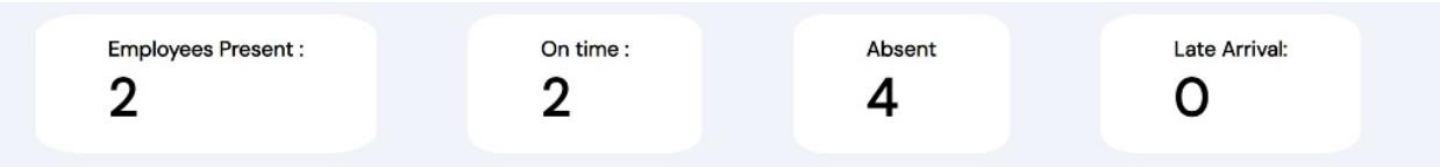
3.4 Attendance Page

The attendance page has two pages in it namely: Statistics and Approval.

Statistics Page

Attendance Statistics:

This part shows that day how many employees are present out of that how many were on time and how many were late. It also shows how many of the employees are absent on that day all in real time.



Attendance Graphs:

The graph on the right is the company's total attendance throughout the month in percentage. The graph on the right shows the attendance of employees' department wise which is how many people are present in each department.

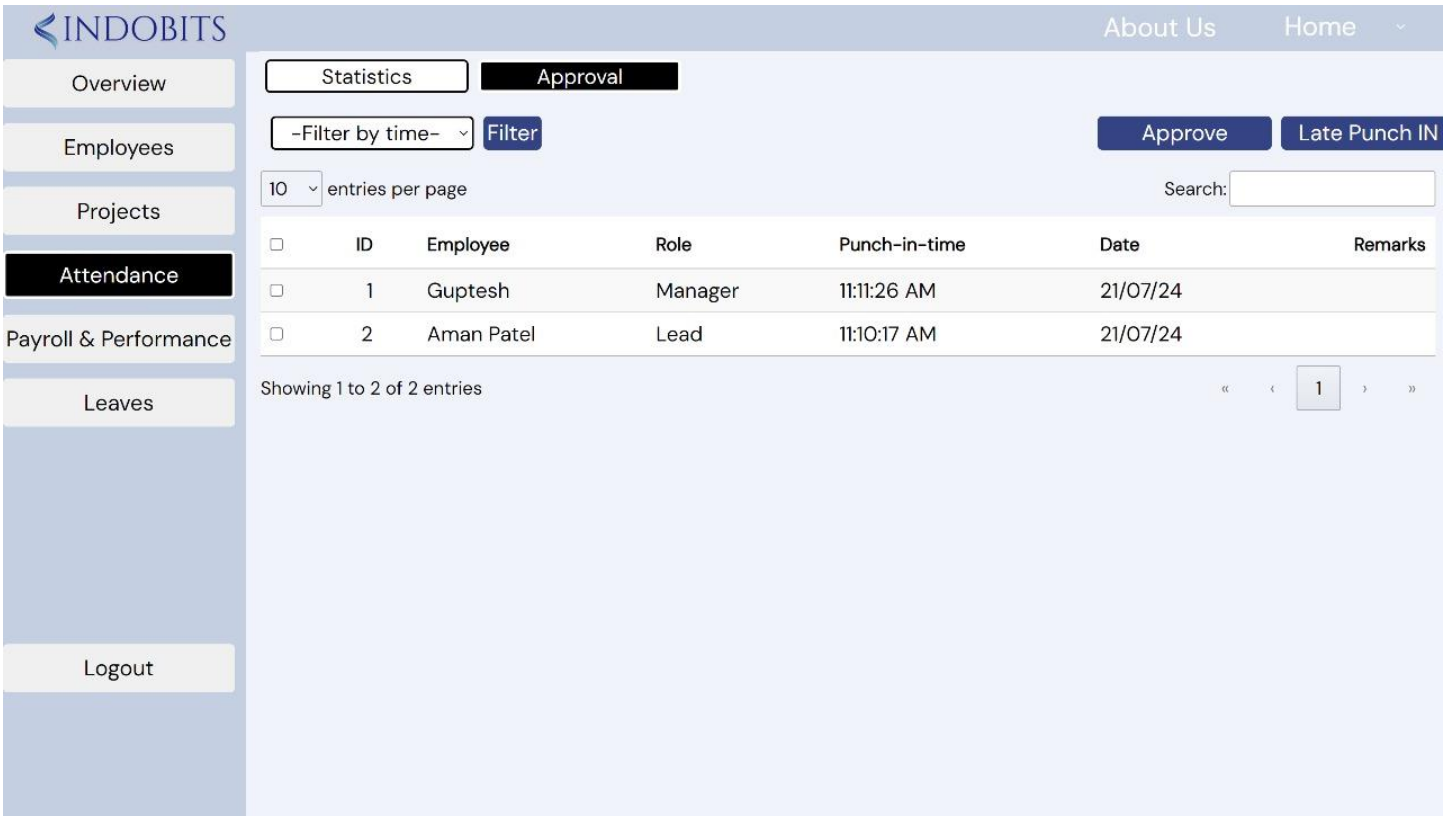
Attendance Table:

This shows the punch in times of the employees and the status of their attendance. If some employee as late attendance so it shows if the HR has approved, it or not.

Approval page

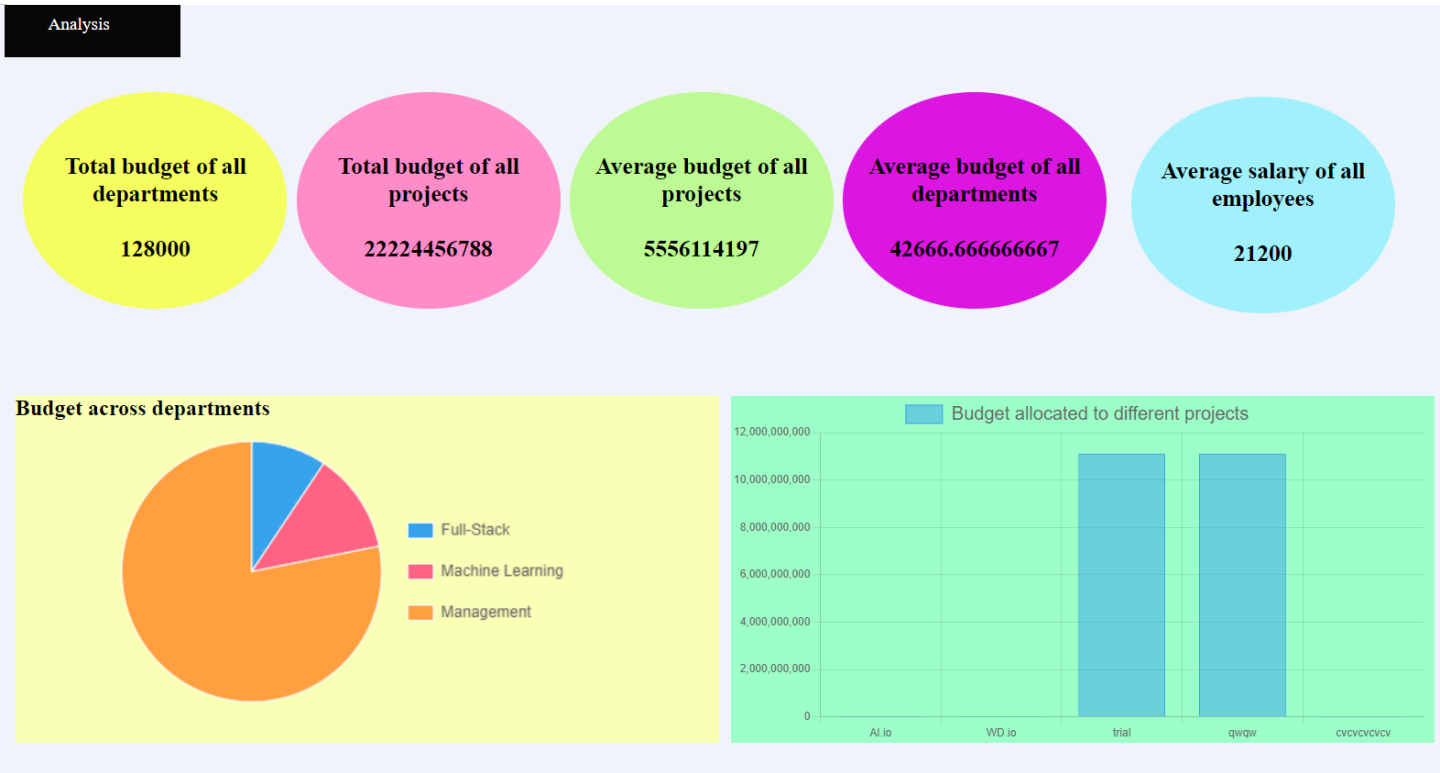
Approval Table:

This table contains the requests of all employees late today, and HR can approve the request or mark it as a late punch-in. There is a search function on the right where HR can search anything specific. It also has a filter by time to see every punch-in which is after a specific time.



3.5 Payroll and Performance Page

This page lets HR see the complete analysis of total budgets and the averages of departments and projects along with their distribution. The HR can also see what the average salary of an employee is in the organization. All these works dynamically so if there is a change it will automatically be reflected here.



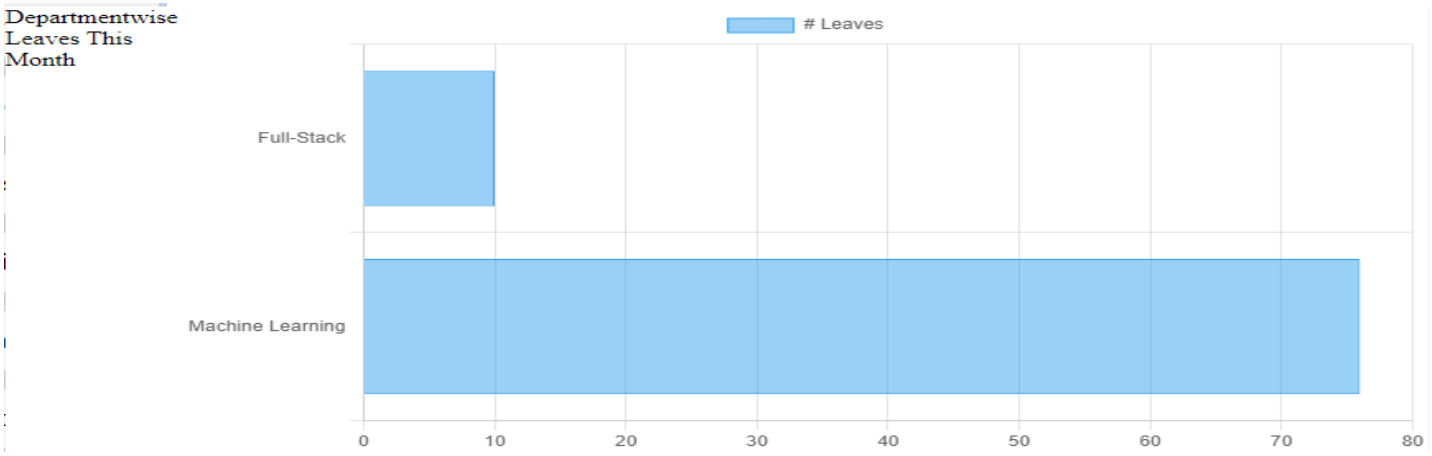
3.6 Leaves Page

This page lets HR see how many leaves this month are there department-wise and distribution wise.

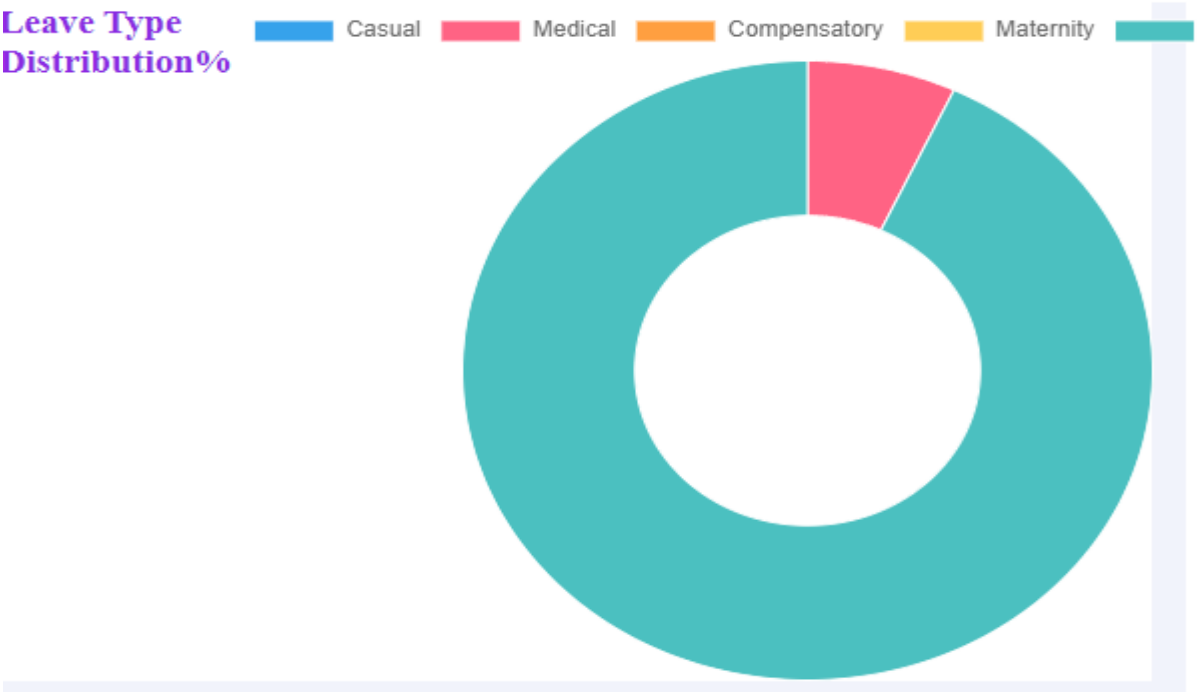
Also, there is a table where HR can see the list of names of employees who have applied for leave.

This graph on the upper left corner shows the total number of employees leaving taken by that department.

It is dynamic in nature that it automatically adds a new bar for a new department if a new department is created.



Now this pie graph shows the leave type distribution of the whole company. As of now we have kept 5 types of leaves which are mentioned in the photo: Causal, Medical, Compensatory, Maternity and Extra Vacation.



The photo below shows the table through which the HR can see all the leave requests of the employees with the type and reason for their leave and then the HR can select the leave requests and then approve or reject them. If he does either the PENDING status changes to required one and the requests move out of the table. After this process the same thing is reflected in the employee side also.

Employee Portal Manual: -

1.Navigation bar: -

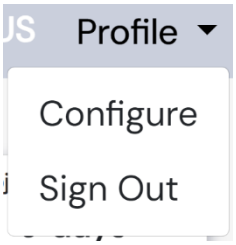
The **Navigation Bar** is a common **add on** for the **Employee portal** which mainly comprise of 2 main features namely, **About Us** & **Profile** Dropdown, the workflow to using these is mentioned below,

1.1 About Us

This is a side option functionality of our software that allows redirection to a site where **Company Info** and **Policies** are listed down.

1.2 Profile Dropdown

This dropdown allows the employee to **Sign Out** and exit back to Login page Go to **Configuration** Tab. Where further Customization of website can be made.



2.Side bar: -

The **Side Bar** is also a necessary **common add on** for the **Employee portal** which mainly facilitate movement of User from One module to Another,

4 distinct modules have been provided for easy piloting through the site. These are-

1.**Dashboard**

2.**Personal**

3.**Schedule**

4.**Project**

3.Content Screen: -

It is the **main screen** of the website, that showcases **all the features** of the **modules** mentioned above.

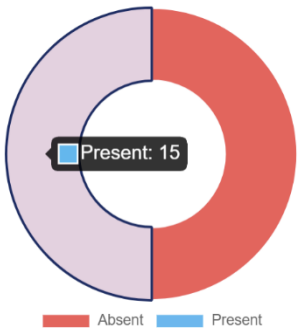
3.1 Dashboard

This page acts as a summary page for all other modules and comprises of **5 important tabs- Attendance, Project Statistics, Meetings, Project Detail, Digital Clock**.

The complete working flow of these pages is provided below.

3.1.1 Attendance

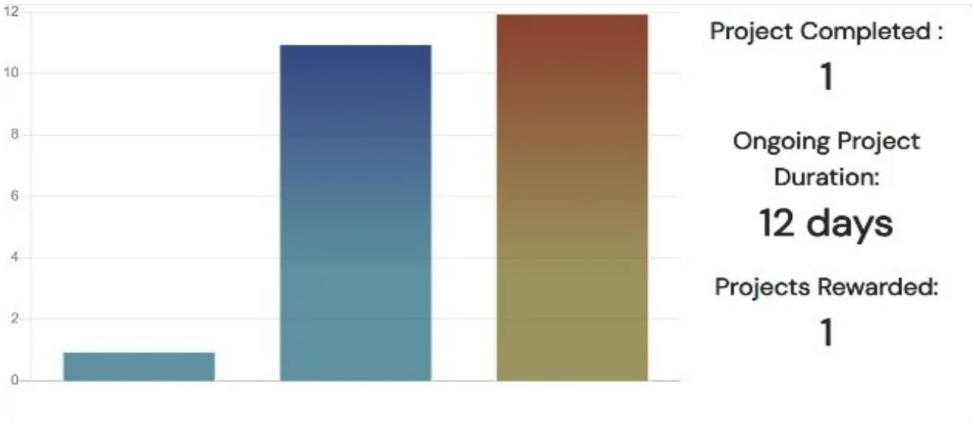
This chart provides details of the **total attendance** marked by the employee. The attendance chart depicts the **total absent and present days** of the respective employee in the **current month only**. It tracks back onto **schedule page** on click.



3.1.2 Project Statistics

This tab allows an employee to look at the **statistics** of the Projects he has done So far taken so far. It also provides the details on the **Project Duration on the Y-Axis** and **Projects on the X-Axis**. Note the **Ongoing Project** shows a distinct **orange red** color. Assumption is taken no employee can work in more than one project at a time.

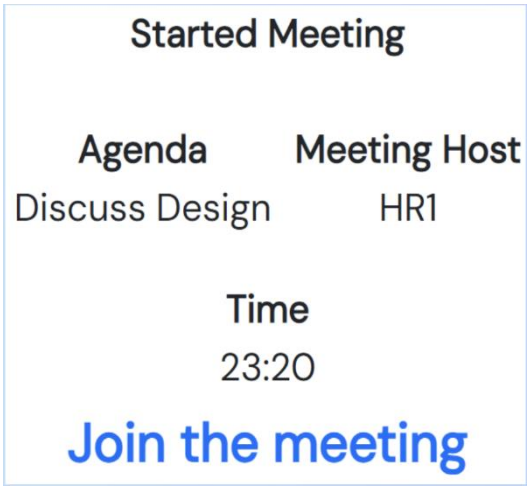
Along with these **numerical statistics** on project completed, project duration and project rewarded is also provided.



3.1.3 Meetings

Meetings tab is one of the most widely used functionality which enables the employee to get track of all his meetings for the today, it showcases: -

Agenda, **Host**, **date & time** along with **status** of meeting (with appropriate colors), **Direct link** to join the started or upcoming meetings

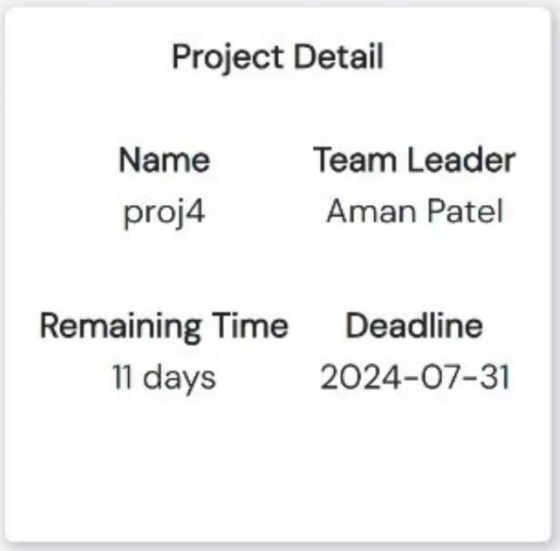


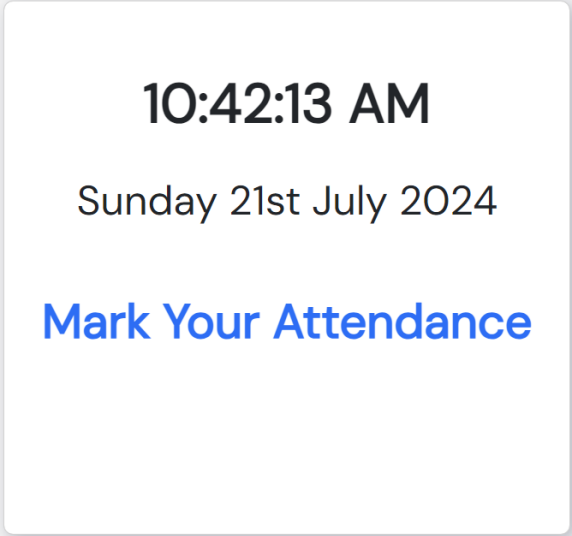
NOTE: - This page does not show the employee old Meetings whose duration is completed as specified by the HR, instead shows a message of **no Upcoming Meetings**.

3.1.4 Project Detail & **3.1.5 Digital Clock**

This page lets an employee see his/her ongoing Project details, which includes its **name**, Team **leader**, **Remaining Time** and **Deadline.** To investigate **furthermore Details** Employee can click on it and get **redirected to Projects Module** for proper view.

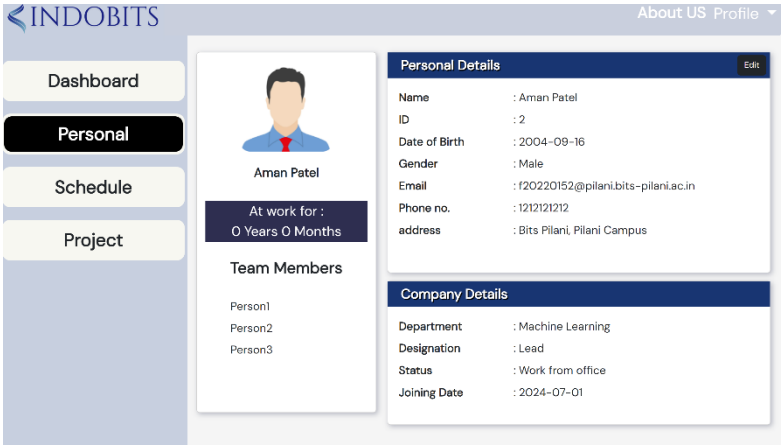
Towards the End right corner, a Real time **Digital Clock** with Local **Time zone (Asia/Calcutta)** is provided, This Employee to Keep track of Times in case of Meetings and it is also Provided with a **button** redirects you to **Mark you Attendance** on the Schedules-Attendance Page.





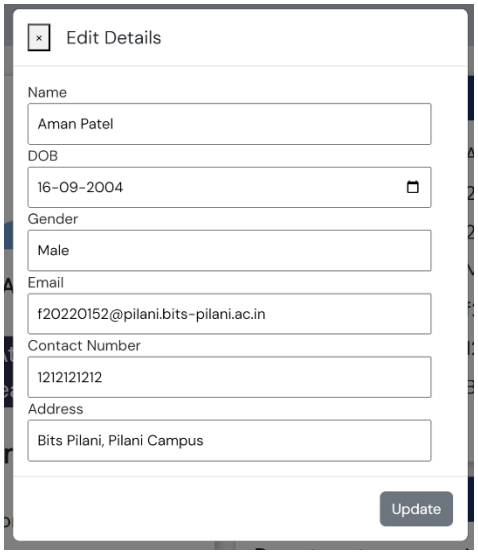
3.2 Personal Page

This page lets an employee see his/her **personal and company details**. It also includes the company photo of the employee along with the time duration they had been associated with the company. Below are the names of the managers and leaders of the ongoing project which the employee is enrolled on.



3.2.1 There is also an edit option given at the top right corner of the personal details to update any of the fields without any hassle.

It asks an employee to enter the new value in the placeholder of the old ones and click on the update button. The pop-up of **"Edit"** option looks like,



NOTE: - This page does not allow the employee to change any of the company details as this needs to be done under certain approval of the appropriate manager of the department or HR.

3.3. Schedule

This page consists of **3** main important tabs namely **Overview, Attendance and Leaves**. The complete working flow of these pages is mentioned below.

3.3.1 Overview

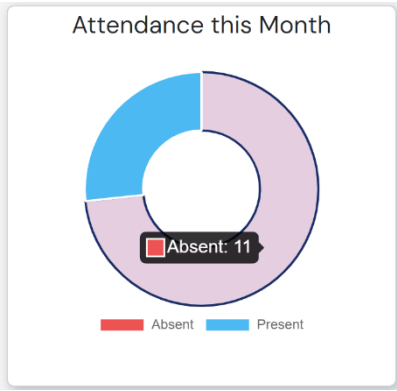
This page allows an employee to briefly look at the **ongoing statistics** of the attendance and leaves taken so far. It also provides the details of the company meetings for the projects. Below is also a section for the notices related to any announcements or events in the company.

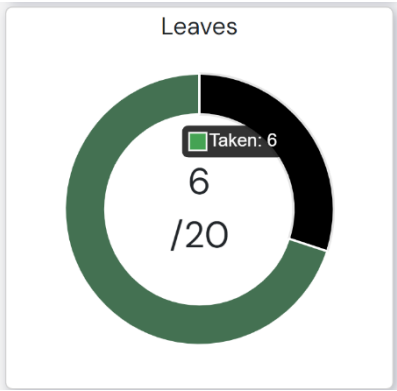
3.3.1.1 Attendance Statistics

This chart provides detailed statistics of the **total attendance** marked by the employee. Note that the attendance chart depicts the **total absent and present days** of the respective employee in the **current month only**. The weekends are not included in the absent percentage.

3.3.1.2 Leaves Statistics

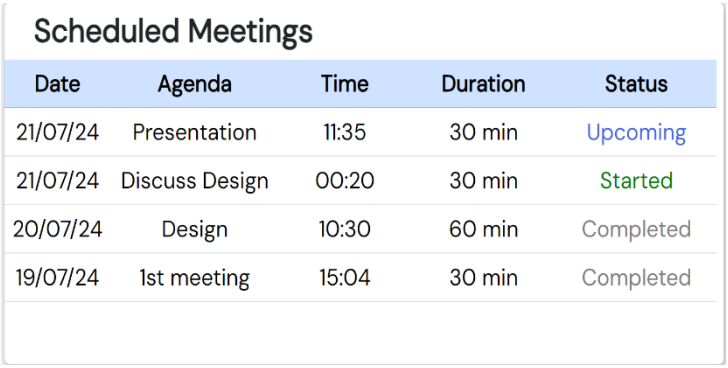
The leaves chart gives an employee the data of the **total number of leaves** that he/she has taken so far **this year**. It sums up all the types of leaves with the maximum number set by the respective company. To look for the **distribution of individual leaves**, the employee can navigate to the **leaves tab**.





3.3.1.3 Scheduled Meetings

This gives an employee brief insight into the meetings scheduled by the manager of the ongoing project. The meetings are restricted to the project group only. The date-time of the meeting, agenda, and approx. duration are also displayed. It displays all the past meetings too along with the status like **upcoming meetings**, the meetings which have **started** and the **completed meetings**. To join any meeting, the employee can directly click on the status (in case of upcoming or started) and would be redirected to **associated URL**.



Scheduled Meetings

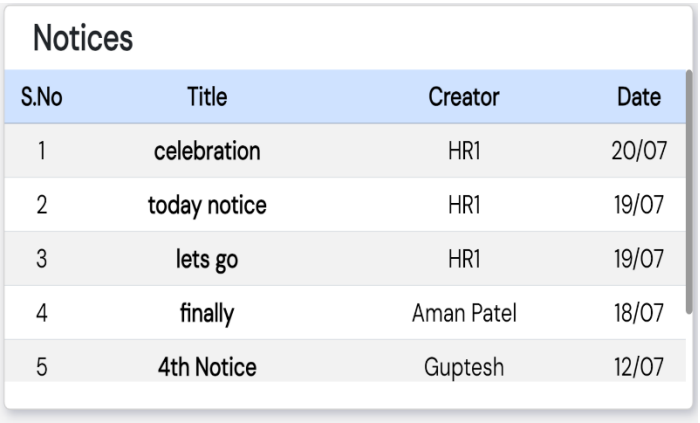
Date	Agenda	Time	Duration	Status
21/07/24	Presentation	11:35	30 min	Upcoming
21/07/24	Discuss Design	00:20	30 min	Started
20/07/24	Design	10:30	60 min	Completed
19/07/24	1st meeting	15:04	30 min	Completed

NOTE: - The upcoming meetings are shown in blue, started in green and completed meetings in gray color.

3.3.1.4 Notices and Announcements

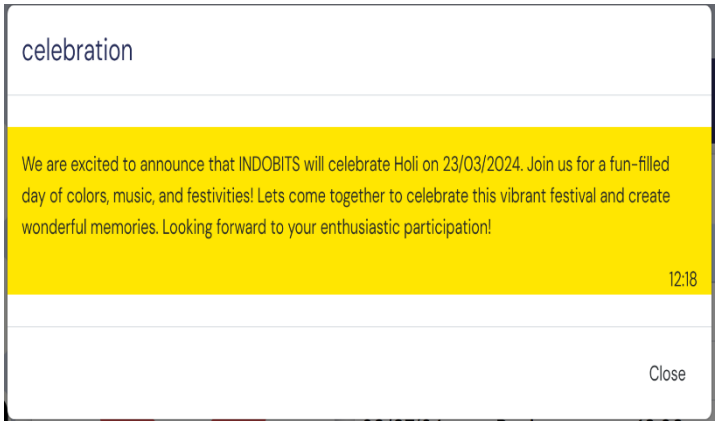
This is an added functionality of our software that allows HR teams to publish any **new notice** or **announcements** concerning the whole company in an easier and faster way.

Any notice related to any accomplishment or event can be seen here with the details including the title, the sender of the meeting and the date.



Notices

S.No	Title	Creator	Date
1	celebration	HR1	20/07
2	today notice	HR1	19/07
3	lets go	HR1	19/07
4	finally	Aman Patel	18/07
5	4th Notice	Guptesh	12/07

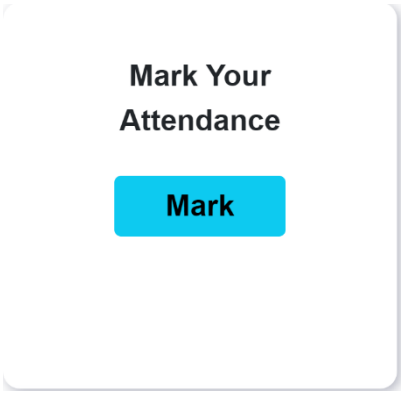


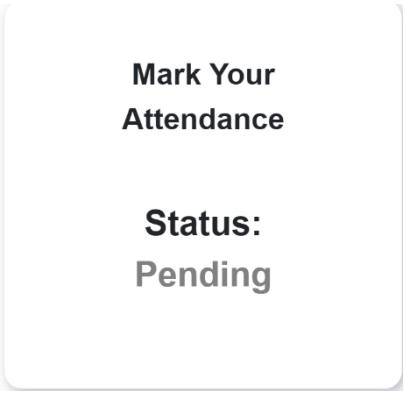
NOTE: - To view the content of the meeting, the employee can click on the notice title, which would show up the modal including the detailed content of it along with the timestamp.

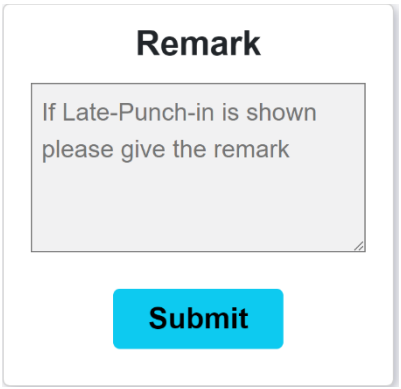
3.3.2 Attendance

This page facilitates the employee giving the option to mark the attendance of the present day by just clicking on the **“Mark”** button. The status would initially be shown as ‘Pending’ which could later be shown as either ‘**Approved**’ or **‘Late Punch-in**’ on consideration of HR.

There is a separate section for **‘Remarks-Tab’** which employee may need to justify the reason in case of ‘Late Punch-in’ shown as the result of status by the HR.





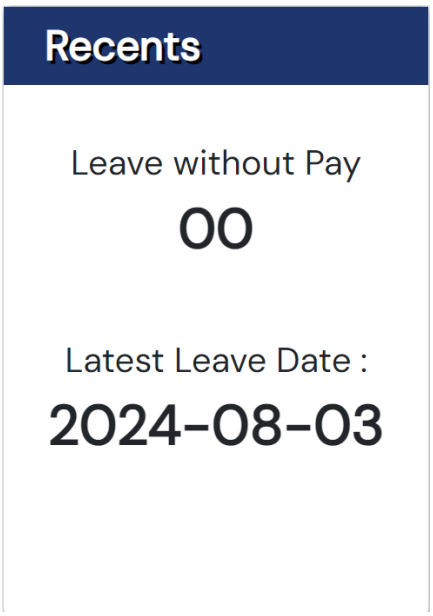


The right shown is a modified **calendar** specific to a company highlighting the timely holidays, the current day, late punch-in days and the days on which the employee was absent. Below are the specifications given for that and functionality to jump to any state of calendar.

NOTE: - Sundays, Holidays and Late punch-ins are marked as Red, Current Day is marked as Green and Leaves is marked by Yellow.

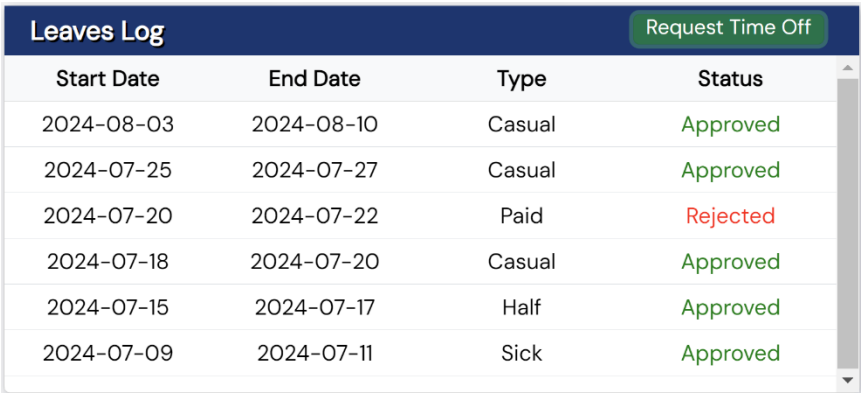
3.3.3 Leaves

This page lets an employee see his Leave Statistics, which is shown as Distinct Pie Charts for each kind of leave namely Casual, Paid, Half and Sick leaves, along with this a recent with show give info on the Number of Leaves without pay and Latest Leave date.



3.3.3.1 Leaves Log

This tab is a Leave Log **specific to employees highlighting the** Leave Requests made by Employee till date, Along with **Start Date**, **End Date**, **Type of Leave** and Its Current **Status**. Color Specific Status is provided i.e. (Red- Rejected, Green-Approved, Grey-Pending)

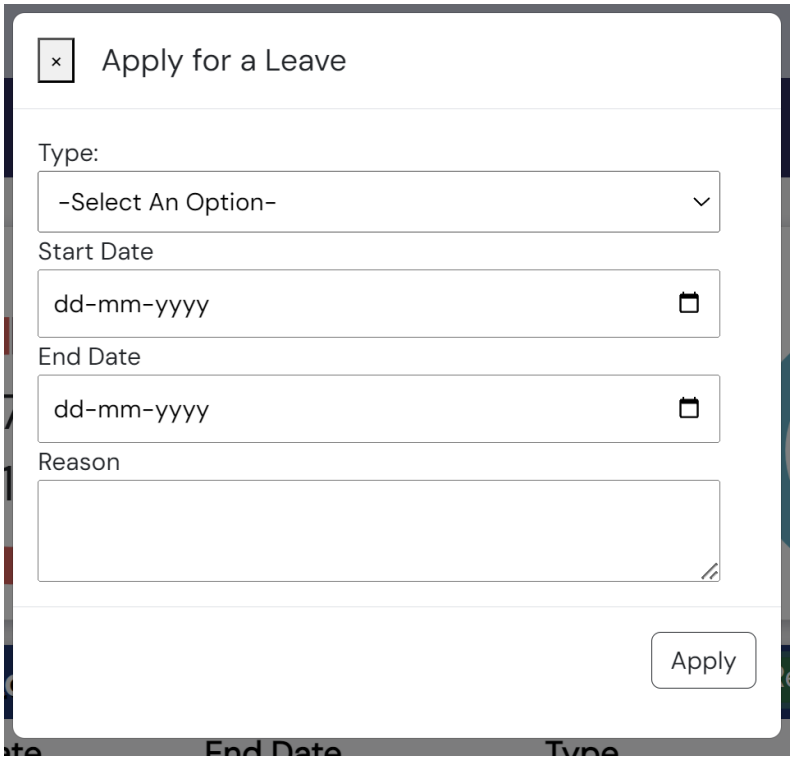


Start Date	End Date	Type	Status
2024-08-03	2024-08-10	Casual	Approved
2024-07-25	2024-07-27	Casual	Approved
2024-07-20	2024-07-22	Paid	Rejected
2024-07-18	2024-07-20	Casual	Approved
2024-07-15	2024-07-17	Half	Approved
2024-07-09	2024-07-11	Sick	Approved

3.3.3.2 Request Time Off

There is also a Request Time off option given at the top right corner of the Leaves log tab to apply for leaves with no issues.

It asks an employee to enter the type of Leave, Start and End Date and the reason for it, Next click on the Apply button. The pop-up of **“Request Time off”** option looks like,



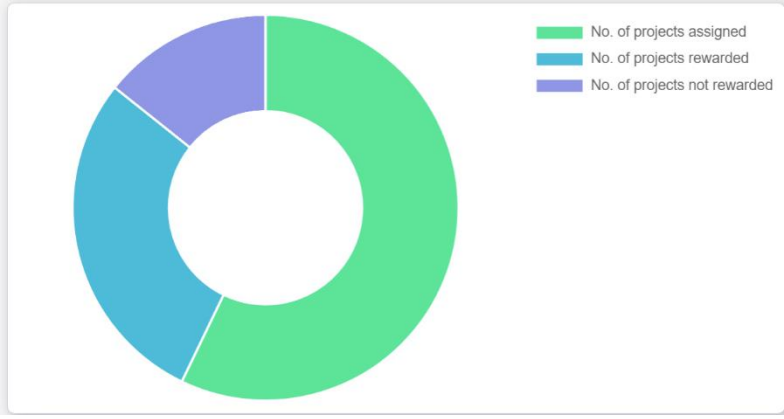
NOTE: -All Options except for Reason is Compulsory to fill when applying for a Leave, Except for Half Leave where End Date gets Disabled.

3.4 Project Page

This page lets an employee see his Project Details in a comprehensive manner. It includes 3 parts: **Project Statistics**, **Project Details**, **Projects Log**. The complete working flow of these pages is mentioned below.

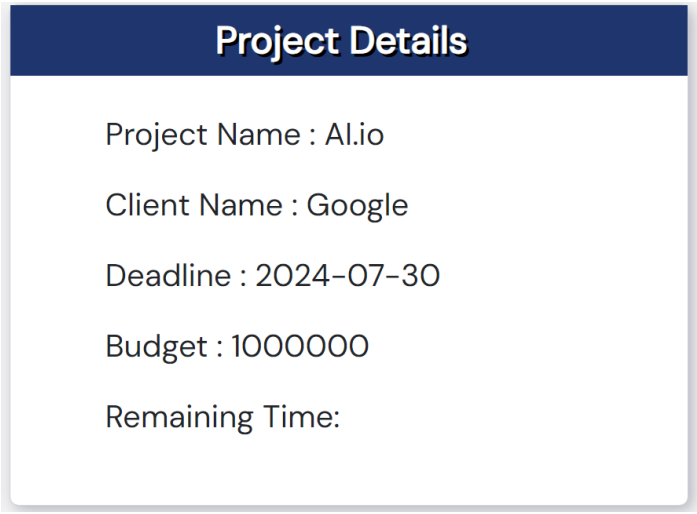
3.4.1 Projects Statistics

The Project chart gives an employee the data of the **number of projects** that he/she has **taken so far,** along with those **which are rewarded and non-rewarded.** To look for the exact **Status** of every project refer to the **Project log.**



3.4.2 Project Details

This tab allows an employee to briefly look at the **ongoing Latest Project Details** among the projects taken so far. It provides data on **Name**, **Client**, **Deadline**, **Budget** and **Remaining time.**

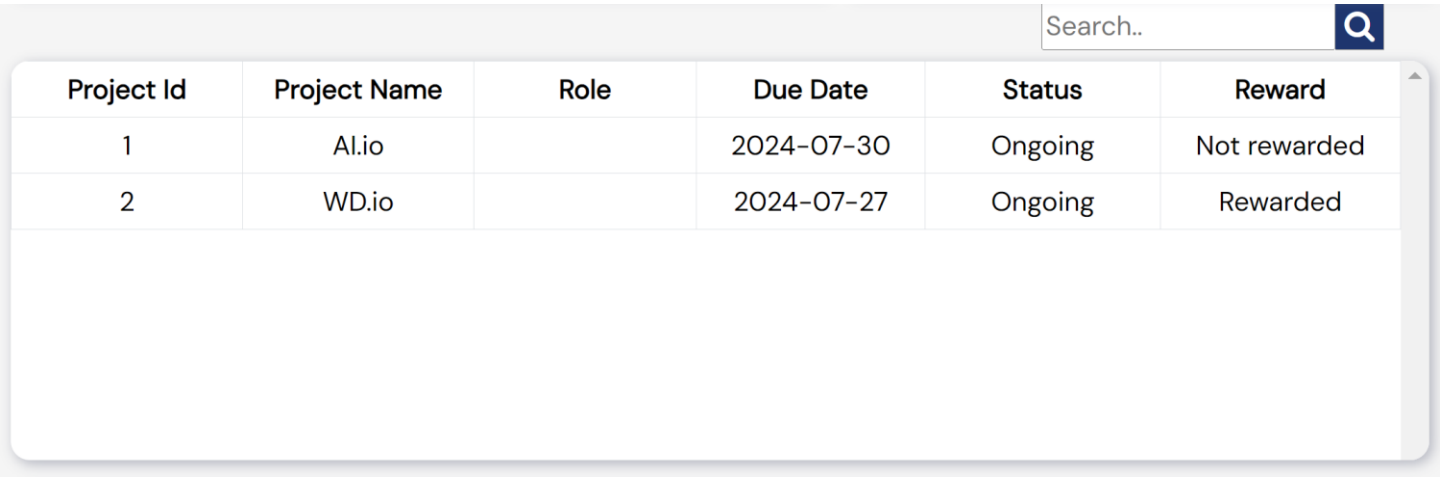


Note: - The table returns no value when there is no ongoing project.

3.4.2 Projects Logs and 3.4.2.1 Search

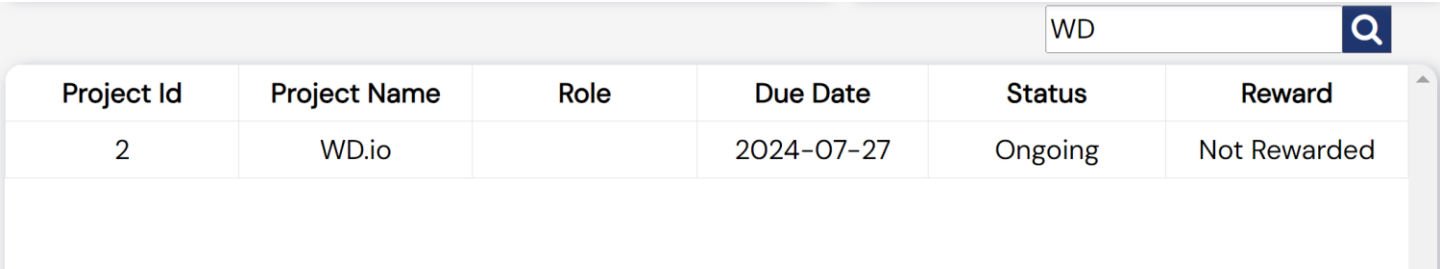
This tab is a log **specific to employees** highlighting the **brief project details** done by employee, along with **ID**, **Name**, **Role**, **Due-Date** and it displays all the **past projects** with their **status** too. The table is scrollable and can hover on it.

There is a separate column for **'Reward'** which shows if the employee has received Any rewards form HR via HR portal for any Project.



Search: -

Hover over the **Search button** and click on the Search tab. User can choose to search on 3 parameters: - **project ID**, **Name** and **Rewards.** Then Clicking on the search button will give the Search result as shown in the picture below.



Frontend implementation

Frontend Implementation relies on 2 main languages namely **HTML**, which serves as the foundation for web pages and **defines the structure** and semantics of content. Helping add text, to elements like buttons and dropdowns, and **CSS** whose work is to **enhance the visual appearance** and layout of HTML content allowing Functionality in 3 main categories – **Styling, Layout and Animations.**

Being **Old Languages** it is very difficult to implement things like **high level forms and modals,** as well as, due to **lack pre –defined styling features** it is time consuming to develop **new user-friendly elements.** Here we make use **Bootstrap 5 framework** to **provide pre-designed components**, responsive layouts, and CSS utilities. It allows developers to create modern**, laptop-friendly websites** with ease.

But as these are **very Basic of the languages** it has its own down points including the difficulty of Adding **nonstandard elements like Shapes** and **Timing those elements**. To Tackle this issue A relatively new language **JavaScript** was utilized which allowed Functioning of **Several widgets** in the projects, below are some those Widgets and their usage in **HRMS web-app.**

Graphs: -

Our website contains many dynamic graphs like pie, line, doughnut, horizontal bar and vertical bar. All these have been implemented by using JavaScript and chart.js.

By importing certain pre-defined libraries and frameworks from chart.js these graphs can be implemented and with JavaScript we can adjust their size, type, shape and color etc.

Below are the source files of libraries to be imported

```
<script src="https://cdn.jsdelivr.net/npm/chart.js"></script>

<script src="https://code.jquery.com/jquery-3.7.0.js"></script>

<script src="https://cdn.datatables.net/1.13.4/js/jquery.dataTables.min.js"></script>
```

Below is the required JavaScript code to implement them

```
<div id="box2"><h3 style="color:rgb(115, 30, 130);">WFO / WFH</h3>

    <div id="bar"></div>
    <canvas id="myChart2"></canvas>

    <script>
        const ctx2 = document.getElementById('myChart2');

        new Chart(ctx2, {
          type: 'pie',
          data: {
            labels: ['WFO', 'WFH'],
            datasets: [{
              label: '# Employees ',
              data: [<?php echo $num-$num2;?>, <?php echo $num2;?>],
              borderWidth: 5
            }]
          },
          options: {

          }
        });
      </script>
```

- To change the labels enter names of labels in square brackets of label tag
- To change type of chart just enter chart type in type label like doughnut, bar, pie
- To change colour and size use the options tag provided

Data tables :-

For displaying records stored in database we made tables using HTML for structure like defining rows and column names, CSS for styling and JavaScript for functionalities like sorting and searching.

We also used pre-defined libraries available in datatables.net for smooth implementation of functionalities.

Below are the source code of imported libraries

```
<script src="https://cdn.datatables.net/1.13.4/js/dataTables.bootstrap5.min.js"></script>
<link rel="stylesheet" href="https://cdn.datatables.net/1.13.5/css/jquery.dataTables.min.css"/>
```

Below is the html and JavaScript code snippet

```
<script>
    $(document).ready( function () {
      $('#example').DataTable();
    });
  </script>

<table id="example" width="82vw" >

    <thead>
        <tr>
            <th>Employee Id</th>
            <th>Name</th>
            <th>Login Id</th>
            <th>DOJ</th>
            <th>Gender</th>
            <th>Photo</th>
            <th>Phone No.</th>
            <th>Department Id</th>
            <th>Work Status</th>
        </tr>
    </thead>
```

Calendar

HRMS uses **Pre-coded JavaScript Calendar** based on **Bootstrap** Framework. Its key features being highlighting Events like Late Punch-ins, Leaves and Current Date.

To facilitate this PHP was used along with JavaScript, To **Input all the Dates** to highlighted into an array and the **Array be passed onto the loop** with conditions to assign a **New HTML Class** to it, in turn using **CSS to colour** the cells of the dates with the required tint.

Below is the Code snippet of the JS along with the passing array: -

```
    // Function to jump to a specific month and year
    function jump() {
        currentYear = parseInt(selectYear.value);
        currentMonth = parseInt(selectMonth.value);
        showCalendar(currentMonth, currentYear);
    }

    // Function to display the calendar
    function showCalendar(month, year) {
        let firstDay = new Date(year, month, 1).getDay();
        tbl = document.getElementById("calendar-body");
        tbl.innerHTML = "";
        monthAndYear.innerHTML = months[month] + " " + year;
        selectYear.value = year;
        selectMonth.value = month;
     // console.log('leavelength'+leave.length);
        let date = 1;
        for (let i = 0; i < 6; i++) {
            let row = document.createElement("tr");
            for (let j = 0; j < 7; j++) {
                if (i === 0 && j < firstDay) {
                    cell = document.createElement("td");
                    cellText = document.createTextNode("");
                    cell.appendChild(cellText);
                    row.appendChild(cell);
                } else if (date > daysInMonth(month, year)) {
                    break;
```

```
<?php

    $stat = "SELECT start_date, end_date from leave_requests where employee_id = "

    $quer = mysqli_query($conn, $stat);


    while($run = mysqli_fetch_object($quer)){
        $diff = date_diff(date_create($run->end_date),date_create($run->start_date

 ?>

var no_days = <?php echo $diff; ?>;

startdate = new Date('<?php echo date("m-d-Y", strtotime($run->start_date)); ?>');
for (let i = 0; i <= no_days; i++) {
if(i===0){
    new_date=new Date(startdate.setDate(startdate.getDate()));
leave.push(new_date);
}
else{
    new_date=new Date(startdate.setDate(startdate.getDate()+1));
leave.push(new_date);

 }
}
```

Digital Date-Time Clock:

Clock is implemented using basic **PHP functions** but, **updation** of this Clock every Second without reload is necessary to act as a useful widget, hence we used Using **AJAX libraries** and **jQuery** to import a Clock file into the Division holding Clock and refresh it with a interval of **1000**, i.e. 1000 times in 8 minutes, allowing to Keep track of current time with **millisecond accuracy.**

```
<html>
<head>
        <script src="jquery-3.7.1.js"></script>
        <script language="javascript">
                $(document).ready(function(){
                        setInterval(function(){
                                $('#clock').load('Dash_el/clock.php');
                        },1000);
                });
        </script>
</head>
```

```
<?php date_default_timezone_set("Asia/Kolkata");
        ?>
<div style="padding: 0.5vw;font-size: 4vh; font-weight: 700;"><?php echo date("h:i:s A")?></div>

<div style="padding: 0.5vw;font-size: 3vh;"><?php echo date("l jS  F Y")?></div>
```

Backend Implementation

PHP, a server-side scripting language, is widely used for web development due to its ability to **embed directly into HTML**, ease of use, and powerful capabilities. One of its primary uses is to **handle backend operations and database interactions**, which are crucial for dynamic websites and web applications.

In the context of an **HRMS** (Human Resource Management System), PHP can manage various tasks such as user authentication, session management, and **CRUD** (Create, Read, Update, Delete) operations with databases. By **connecting to databases** like MySQL through **phpMyAdmin**, PHP scripts can efficiently retrieve, store, and manipulate data, providing a **seamless user experience and robust data management.**

The **database connection** to our database hosted on **localhost server** includes configuring your root id and password and database name.

The code snippet of database connection (**config.php**) look like,

```php
<?php

define('BASE_URL','http://localhost/hrms/');
define('BASE_DIR','C:\xampp\htdocs\hrms');

$username = "root";
$password = "";
$server = 'localhost';
$db = 'hrms';

$conn = mysqli_connect($server,$username,$password,$db);

?>
```

Most importantly, our **index.php** page implements the **logic of our landing page** and facilitates the functionality to **redirect the user to their respective dashboards** on the basis of company's email-id. There is a separate feature stored in the database to differentiate between HR and employees.

The username and password **verifying logic of login page** look like,

```php
include 'connection.php';

if(isset($_POST['form_submit'])){
  $user_email = $_POST['User_mail'];
  $user_password = $_POST['User_password'];

  $get_query = "select * from employee where login_id = '$user_email';";
  $res = mysqli_query($conn, $get_query);

  if($res->num_rows > 0){

    $user = mysqli_fetch_object($res);
    $pass = $user->password;

    if($user_password == $pass){
      $_SESSION['employee_id'] = $user->employee_id;
      $_SESSION['login_id'] = $user_email;
      $_SESSION['name'] = $user->name;
      if($user->if_employee == 1) header('location:dashboard.php');
      else header('location:HR/DashHR.php');
    }

  }

}
```

Some of the logic implementations of pages were quite **challenging**, which included using **datetime** functions and simultaneous updating of databases using concept of **triggers**.

Below is a detailed example given for **leaves.php for HR dashboard**,

The **leaves table** was a big task to be implemented, it had to contain all the pending leave requests.

Step involved in the **coding**:

14. Check the **Pending requests** and show them
15. Change their status accordingly and save them by their **‘leave_id’**
16. If Approved **save the number of leave days** using Start and End date and save their **type**
17. If the employee has not taken a leave till now insert its id in the database of leaves and if it exists, then add its leave and update the table.
18. To Show the data in table use a SQL query to merge 3 tables to take different data and display it.

```php
if ($_SERVER['REQUEST_METHOD'] === 'POST') {
    if (isset($_POST['approve']) || isset($_POST['reject'])) {
        $status = isset($_POST['approve']) ? 'Approved' : 'Rejected';
        if (isset($_POST['select_employee'])) {
            foreach ($_POST['select_employee'] as $leave_id) {
                // Update the leave_requests table
                $update_sql = "UPDATE leave_requests SET status='$status' WHERE leave_id='$leave_id' AND status='Pending'";
                $conn->query($update_sql);

                if ($status === 'Approved') {
                    // Get leave details
                    $leave_sql = "SELECT employee_id, start_date, end_date, type FROM leave_requests WHERE leave_id='$leave_id'";
                    $leave_result = $conn->query($leave_sql);

                    if ($leave_result->num_rows > 0) {
                        $leave_row = $leave_result->fetch_assoc();
                        $employee_id = $leave_row['employee_id'];
                        $start_date = $leave_row['start_date'];
                        $end_date = $leave_row['end_date'];
                        $type = $leave_row['type'];

                        // Calculate the number of leave days
                        $start = new DateTime($start_date);
                        $end = new DateTime($end_date);
                        $interval = $start->diff($end);
                        $leave_days = $interval->days + 1; // Include the end date
```

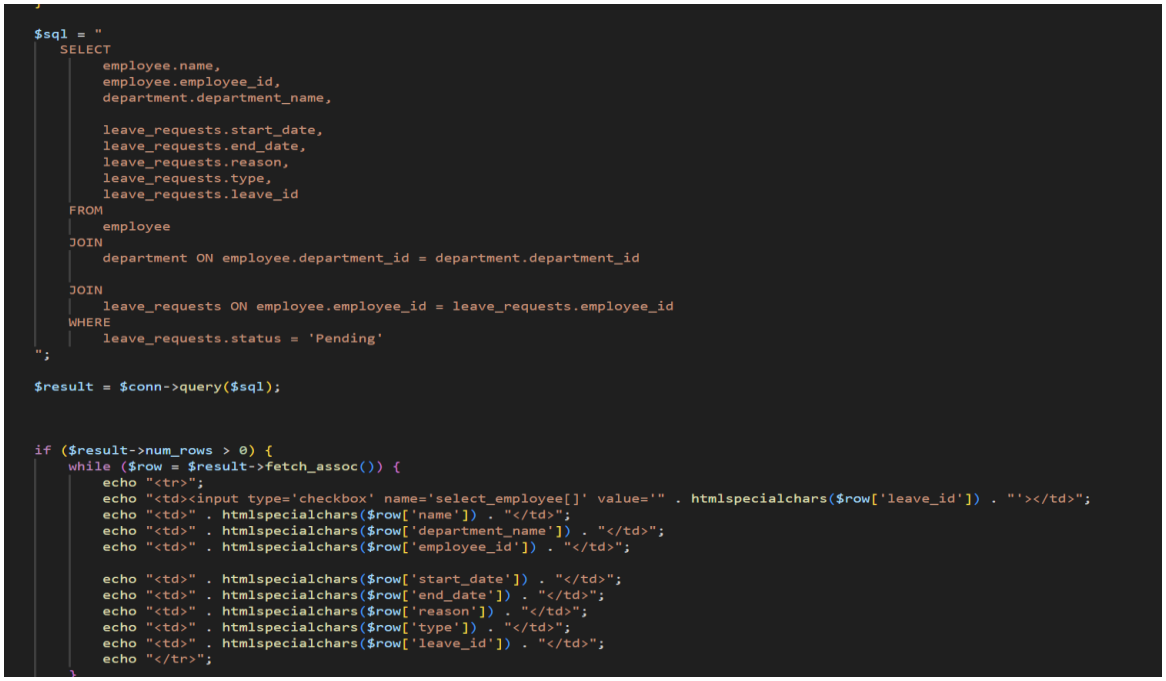
The code snippet for **approve and reject functionality** of **pending leaves request** and simultaneously updating the leave type for that employee look like,

```php
// Map leave type to corresponding column
$leave_column = '';
switch ($type) {
    case 'Casual':
        $leave_column = 'cl';
        break;
    case 'Sick':
        $leave_column = 'sl';
        break;
    case 'Half':
        $leave_column = 'hl';
        break;
    case 'Paid':
        $leave_column = 'pl';
        break;
    case 'lwp':
        $leave_column = 'lwp';
        break;
}

if (!empty($leave_column)) {
    // Update or insert the leave_type record
    $check_sql = "SELECT * FROM leave_type WHERE employee_id='$employee_id'";
    $check_result = $conn->query($check_sql);

    if ($check_result->num_rows > 0) {
        // Update the existing record
        $update_leave_sql = "UPDATE leave_type SET $leave_column = $leave_column + $leave_days WHERE employee_id='$employee_id'";
        if (!$conn->query($update_leave_sql)) {
            echo "Error updating record: " . $conn->error;
        }
    } else {
        // Insert a new record
        $insert_leave_sql = "INSERT INTO leave_type (employee_id, cl, sl, hl, pl, lwp) VALUES ('$employee_id', 0, 0, 0, 0, 0)";
        if ($conn->query($insert_leave_sql)) {
            $update_leave_sql = "UPDATE leave_type SET $leave_column = $leave_days WHERE employee_id='$employee_id'";
            if (!$conn->query($update_leave_sql)) {
                echo "Error updating record: " . $conn->error;
            }
        } else {
            echo "Error inserting record: " . $conn->error;
        }
    }
```

The **code snippet for SQL query** to get all the entries of recent pending leave requests and **filling the table in php** look like,



```php
$sql = "
    SELECT
        employee.name,
        employee.employee_id,
        department.department_name,

        leave_requests.start_date,
        leave_requests.end_date,
        leave_requests.reason,
        leave_requests.type,
        leave_requests.leave_id
    FROM
        employee
    JOIN
        department ON employee.department_id = department.department_id

    JOIN
        leave_requests ON employee.employee_id = leave_requests.employee_id
    WHERE
        leave_requests.status = 'Pending'
";

$result = $conn->query($sql);


if ($result->num_rows > 0) {
    while ($row = $result->fetch_assoc()) {
        echo "<tr>";
        echo "<td><input type='checkbox' name='select_employee[]' value='" . htmlspecialchars($row['leave_id']) . "'></td>";
        echo "<td>" . htmlspecialchars($row['name']) . "</td>";
        echo "<td>" . htmlspecialchars($row['department_name']) . "</td>";
        echo "<td>" . htmlspecialchars($row['employee_id']) . "</td>";

        echo "<td>" . htmlspecialchars($row['start_date']) . "</td>";
        echo "<td>" . htmlspecialchars($row['end_date']) . "</td>";
        echo "<td>" . htmlspecialchars($row['reason']) . "</td>";
        echo "<td>" . htmlspecialchars($row['type']) . "</td>";
        echo "<td>" . htmlspecialchars($row['leave_id']) . "</td>";
        echo "</tr>";
    }
```

Database Creation

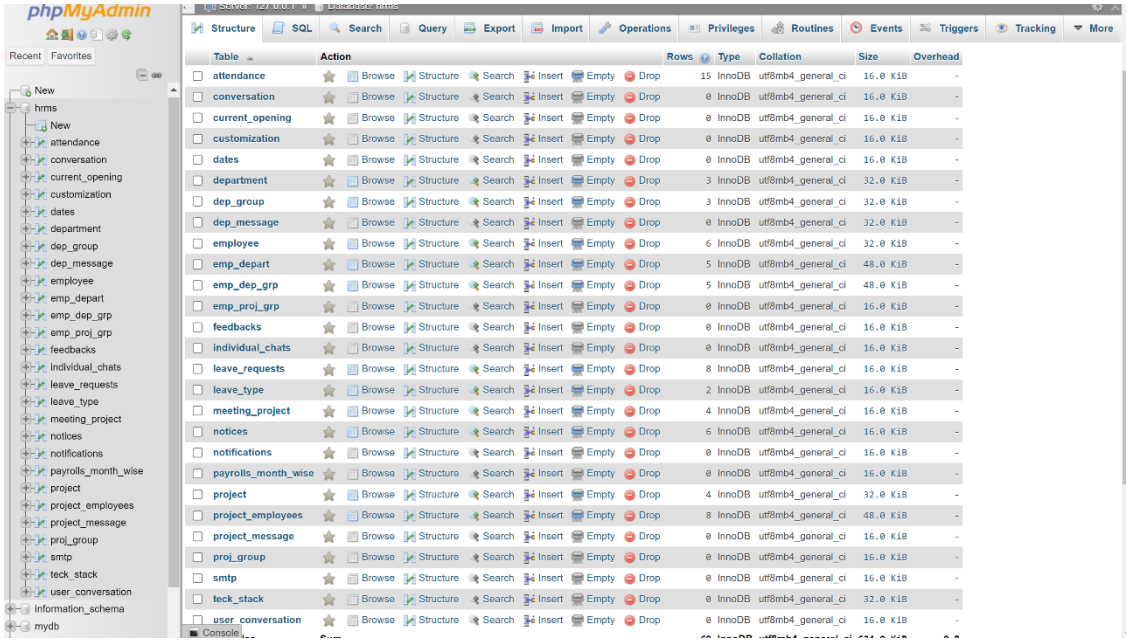
MySQL is a popular open-source relational database management system (RDBMS) that is widely used for storing and managing data in various applications, including websites, web applications, and software systems. A relational database is a type of database that stores data in tables, which are organized into rows and columns. Each table represents a specific entity or object, and the columns within the table represent the attributes or properties of that entity.

MySQL is a relational database because it follows the relational model, which is based on the principles of relational algebra and set theory. In a relational database like MySQL, data is organized into tables, and relationships between tables are established using keys (primary keys and foreign keys).

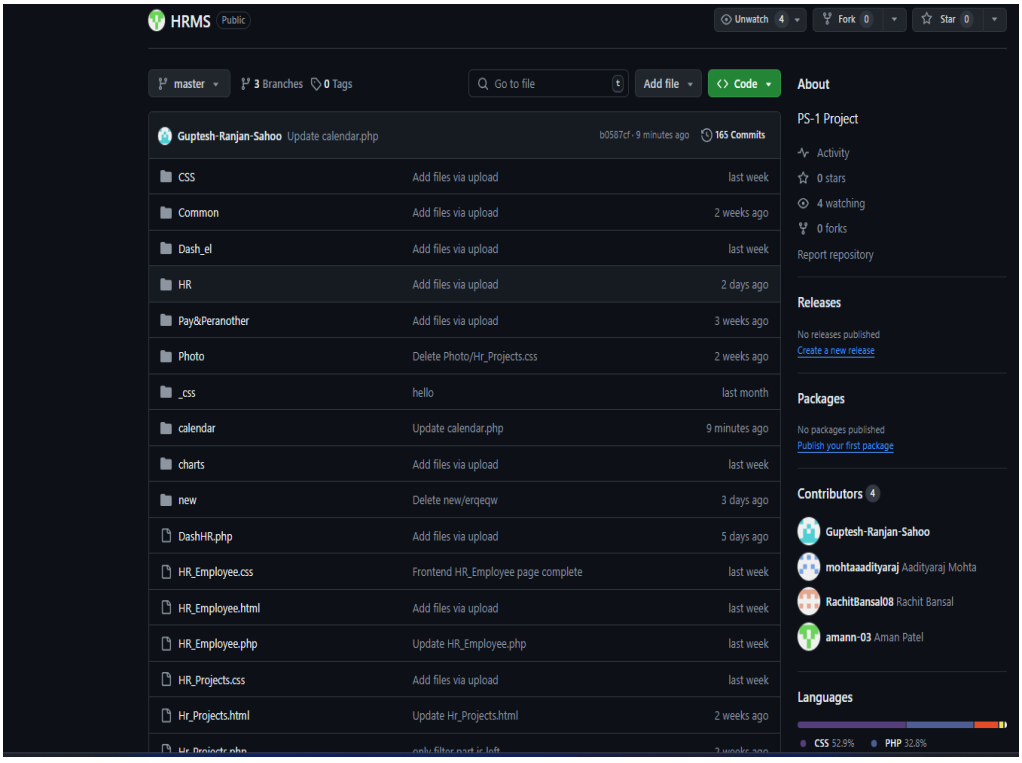
Here’s how we typically used MySQL to store data and make ER diagram;

- Defining entities
- Defining attributes
- Identifying primary and foreign keys and other constraints
- Establishing relationships
- Inserting and Querying Data

Below are the **Tables Snippet** created using **PhpMyAdmin: -**



Below is the **GitHub** repo we created for **code handling** and **collaboration** among team members



Repo link: - [GitHub]

CONCLUSION

In conclusion, our Human Resource Management System (HRMS) serves as a comprehensive and powerful tool designed to streamline and optimize various HR processes within an organization. This robust system includes many features including employee database management, recruitment and applicant tracking, leave and attendance tracking, and training and development modules.

The implementation of our Human Resource Management System (HRMS) demonstrates a comprehensive approach to both front-end and back-end development, resulting in a robust and user-friendly application.

On the front end, we leveraged a combination of HTML, CSS, and JavaScript, enhanced by the Bootstrap 5 framework, to create a responsive and visually appealing user interface. The integration of advanced features such as dynamic graphs, interactive data tables, and real-time clocks using libraries like Chart.js, DataTables, and jQuery significantly improved the user experience and functionality of the system.

The backend, powered by PHP, efficiently handles critical operations such as user authentication, session management, and database interactions. Our implementation of complex logic for features like leave management and attendance tracking showcases the system's capability to handle intricate HR processes seamlessly.

The detailed software manual provides a clear and comprehensive guide for both HR personnel and employees to navigate and utilize the system effectively. It covers all major modules including the dashboard, personal information management, scheduling, project management, and leave requests, ensuring that users can maximize the benefits of the HRMS.

In essence, this project has been about more than just writing code or designing interfaces. It's about creating a tool that we hope will streamline HR processes, improve communication, and ultimately contribute to a more efficient and harmonious workplace. As we look to the future, we're excited about the potential for further enhancements and the positive impact this system can have on organizations.

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https://www.javatpoint.com/dbms-er-model-concept
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Books

1. Database System Concepts, by Silberschatz, Sudarshan, and Korth
2. Designing and Prototyping Interfaces with Figma: Learn Essential UX
3. SQL QuickStart Guide: The Simplified Beginner's Guide to Managing, Analyzing, and Manipulating Data With SQL by Walter Shields
4. Automating Workflows with GitHub Actions
5. Classes held by Dinesh Sir.

GLOSSARY

Figma:-

Frame: A container that holds elements like shapes, text, and images within an artboard. Frames can be used for grouping and organizing content.

Components: Reusable elements like buttons, icons, or entire sections of a design that can be saved and reused across different files or projects.

Auto Layout: A feature that allows you to create responsive designs by automatically adjusting the layout of elements within a frame based on content, constraints, or padding.

Prototype: Creating interactive experiences by linking frames together to simulate user flows. Prototypes can include transitions, overlays, and interactions.

Plugins: Extensions that add additional functionality to Figma, such as generating placeholder content, exporting designs, or integrating with other tools.

Comments: Annotations and feedback left directly on the design by collaborators or stakeholders. Comments can be used for discussing changes or providing feedback.

2. Figjam:-

Shapes: Basic geometric shapes that can be used to create diagrams or visual elements on a Fig Jam board.

Connectors: Lines or arrows used to visually connect different elements on the Fig Jam board, helping to create flowcharts, diagrams, or other visual structures.

Cursor Chat: A feature that shows participants' cursors in real-time, enabling synchronous collaboration and communication during Fig Jam sessions.

Comments: Annotations and feedback left directly on elements within the Fig Jam board by collaborators or stakeholders.

Toolbar: The set of tools and options available at the top of the Fig Jam interface, providing quick access to features like drawing tools, sticky notes, shapes, and connectors.

3. Entity-Relation(ER diagram):-

Entity: A distinct object, concept, or thing in the real world represented in the database. For example, entities can be customers, products, employees, etc.

Relationship: Describes how entities are related to each other within the database. Relationships can be one-to-one, one-to-many, or many-to-many. They are represented by lines connecting entities in the ER diagram.

Primary Key: An attribute (or combination of attributes) that uniquely identifies each instance (row) of an entity. It ensures that each entity instance can be uniquely identified and distinguishes it from other instances.

Foreign Key: An attribute (or set of attributes) in one table that refers to the primary key in another table. It establishes a link between tables and is used to enforce referential integrity between related tables.

Normalization: The process of organizing data in a database to reduce redundancy and improve data integrity. It involves breaking down large tables into smaller, related tables and applying specific rules to ensure data integrity.

4. MySQL:-

Database: A structured collection of data organized for efficient access and management. In MySQL, databases contain tables, views, stored procedures, and other objects.

Table: A structured representation of data organized in rows and columns. Tables in MySQL store data related to a specific entity, with each row representing an instance (or record) and each column representing an attribute (or field).

Constraint: Rules that define the allowable values and relationships for columns within a table. Constraints ensure data integrity and enforce business rules in the database schema (e.g., NOT NULL, UNIQUE, CHECK, FOREIGN KEY).

Data Type: Specifies the type of data that can be stored in a column (e.g., integer, varchar, date, boolean). MySQL supports various data types for storing different kinds of data efficiently.

Trigger: A set of SQL statements associated with a table that automatically execute in response to specific events (e.g., INSERT, UPDATE, DELETE). Triggers are used to enforce business rules, maintain data integrity, or automate repetitive tasks.

5.MySQLworkbench:-

MySQL Workbench: A unified visual tool for database architects, developers, and DBAs that provides data modeling, SQL development, and comprehensive administration tools for MySQL databases.

Schema: A logical container within a database that represents the structure and organization of objects (such as tables, views, procedures) and their relationships.

Reverse Engineering: The process of generating a database model (ER diagram) in MySQL Workbench from an existing MySQL database schema. It allows visualization and documentation of the database structure.

Forward Engineering: The process of generating SQL scripts (CREATE statements) from a database model (ER diagram) in MySQL Workbench. It converts the visual model into actual database objects.

Stored Procedure Debugger: A debugging tool in MySQL Workbench for debugging stored procedures. It allows step-by-step execution, variable inspection, and breakpoint setting within.

Success Story of HRMS software (INDOBITS):-

Station Name: Indovision

Project Domain: IT (Web Development)

Project Title: HRMS (Human resource management system)

Student(s) Name:

Guptesh Ranjan Sahoo

Rachit Bansal

Aman Kirtikumar Patel

Aadityaraj Mohta

Typical benefits to PS station: Leave Module, Graphs and notification module can be used as products at Indovision Services.

Any other information: The HRMS system developed by us is fully working and have been instructed by the company that our development could be used by them in future.