

Human Resource Management System (HRMS)

1. Introduction

The Human Resource Management System (HRMS) is a modular, web-based application developed using Python's Flask framework. It enables organizations to manage their employee information, attendance tracking, leave applications, and basic HR functions in a centralized platform. It ensures data consistency, real-time updates, and ease of access.

2. Objective

To streamline and automate HR operations such as:

- Employee data management
- Attendance logging
- Leave application and approval
- Profile updates and role-based access

This system eliminates manual processes, reduces errors, and increases operational efficiency.

3. Core Features

- Authentication System
 - Role-based login (Admin/Employee)
 - Password recovery/reset
- Dashboard
 - Admin: Overview of employees, leave stats, and attendance
 - Employee: View attendance, leaves, and announcements
- Employee Management

- o Admin: Add, edit, or delete employees
- o Employees: Update personal profile
- Attendance Management
 - o Check-in/Check-out with timestamp
 - o IP-based logging (optional)
 - o Picture capture on check-in (optional)
 - o Manual attendance edit (admin)
 - o Monthly attendance calendar
- Leave Management
 - o Apply/Track leave by type (Casual, Sick, Paid, Unpaid)
 - o Admin: Approve/Reject/Report leaves

4. Technologies Used

Frontend: HTML5, CSS3, JavaScript, Bootstrap

Backend: Python 3.x (Flask Framework)

Database: SQLite (easy migration to MySQL)

Templates: Jinja2 templating engine

ORM: SQLAlchemy

5. Project Directory Structure

/HRMSManager/

- ├─ app.py # Entry point of the application
- ├─ routes.py # Flask routes (endpoints)
- ├─ models.py # SQLAlchemy database models
- ├─ forms.py # Flask-WTF form classes

```
├── utils.py      # Utility/helper functions
├── setup_mysql.py # Initial database setup
├── /static/      # CSS, JS, images
├── /templates/   # HTML templates using Jinja2
└── requirements.txt # Python package dependencies
```

6. Database Models

- User: Stores user profile (name, email, phone, department, role, etc.)
- Attendance: Tracks daily time logs with timestamps and image if captured
- Leave: Stores leave type, reason, status (Pending, Approved, Rejected)

7. Roles and Permissions

Role	Permissions
------	-------------

Admin	Manage users, attendance, leaves, announcements, and dashboard stats
-------	--

Employee	View dashboard, mark attendance, apply for leave, update personal profile
----------	---

8. How to Set Up the Project

Prerequisites:

- Python 3.9 or higher
- pip
- Virtualenv (optional but recommended)

Setup Instructions:

Step 1: Create virtual environment

```
python -m venv venv
```

Step 2: Activate virtual environment

source venv/bin/activate # macOS/Linux

venv\Scripts\activate # Windows

Step 3: Install dependencies

pip install -r requirements.txt

Step 4: Setup database (run only once)

python setup_mysql.py

Step 5: Start the application

python app.py

Then visit: <http://127.0.0.1:5000> in your browser.

9. Future Enhancements

- Face recognition-based attendance
- SMS/Email alerts for leave updates
- Payroll system integration
- Analytics dashboard (charts/graphs)
- Multi-language and timezone support
- Two-factor authentication

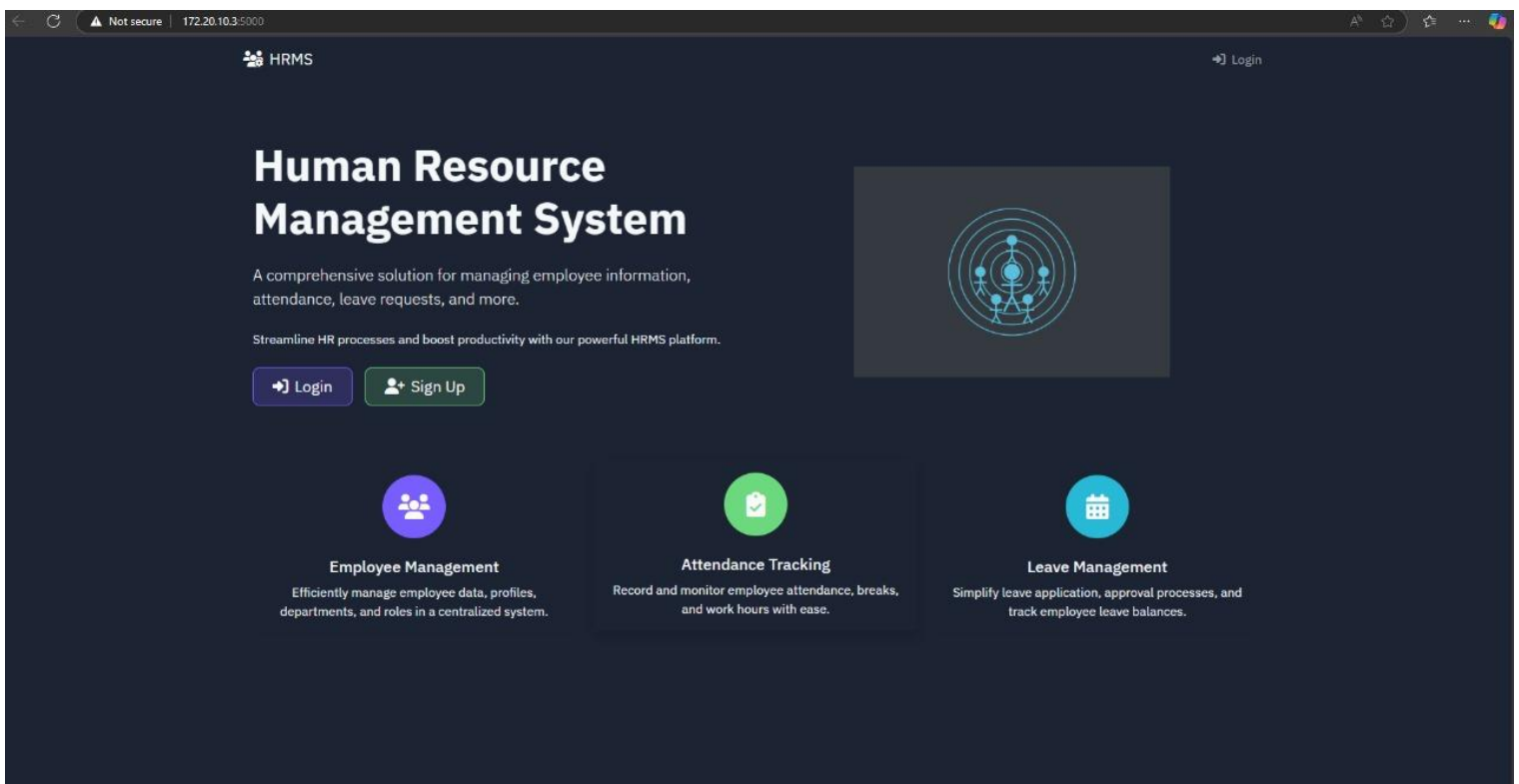
10. Conclusion

The HRMS project provides a full-stack web application with role-based control and a clean, responsive interface. It is designed to support future upgrades like facial

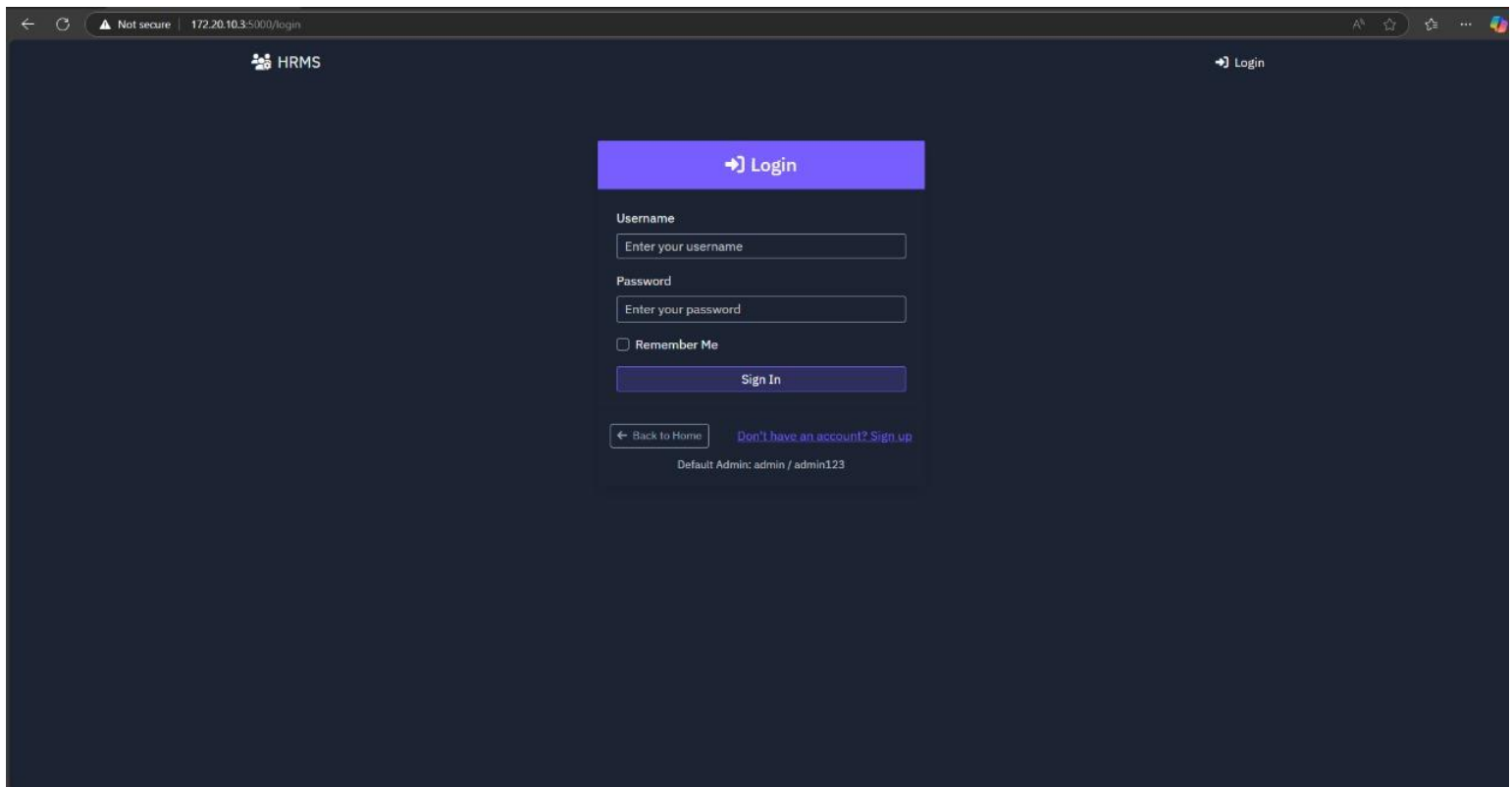
recognition or notification systems. This solution serves as an effective starting point for any modern HR digital system.

11. Screenshots of the project

1. Welcome Page.



2. Login Page



A screenshot of a web browser displaying the HRMS Login page. The browser's address bar shows "172.20.10.3:5000/login" with a "Not secure" warning. The page has a dark blue background. At the top left is the "HRMS" logo, and at the top right is a "Login" link. The main content is a white login form with a blue header bar that says "Login" with a key icon. The form contains fields for "Username" and "Password", a "Remember Me" checkbox, and a "Sign In" button. Below the form are links for "Back to Home" and "Don't have an account? Sign up", and a note about default admin credentials.

HRMS

Login

Login

Username
Enter your username

Password
Enter your password

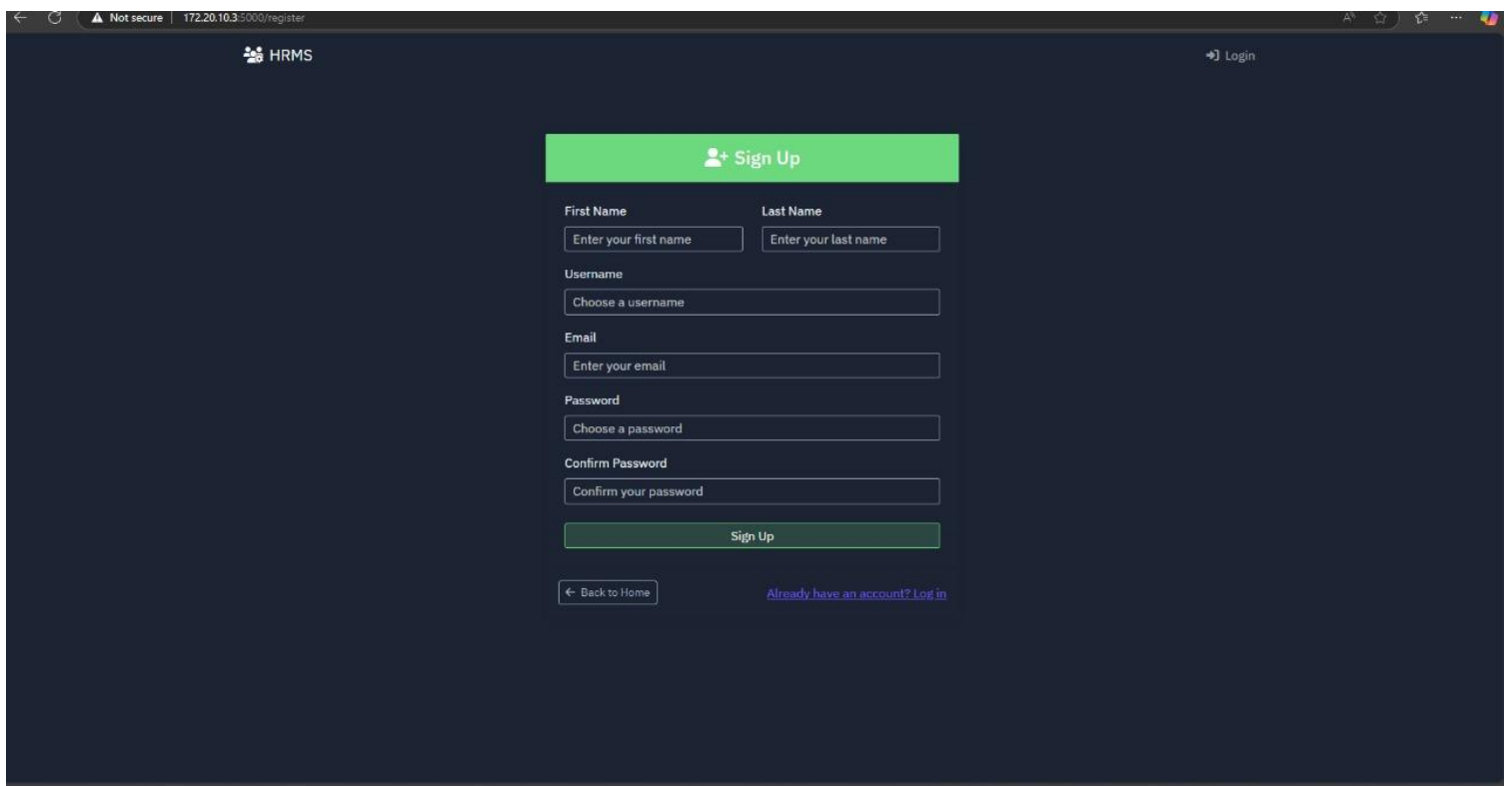
☐ Remember Me

Sign In

[← Back to Home](#) [Don't have an account? Sign up](#)

Default Admin: admin / admin123

3. Sign-up Page



A screenshot of a web browser displaying the HRMS Sign-up page. The browser's address bar shows "172.20.10.3:5000/register" with a "Not secure" warning. The page has a dark blue background. At the top left is the "HRMS" logo, and at the top right is a "Login" link. The main content is a white sign-up form with a green header bar that says "Sign Up" with a person icon. The form contains fields for "First Name", "Last Name", "Username", "Email", "Password", and "Confirm Password", each with a placeholder text. There is a "Sign Up" button at the bottom of the form. Below the form are links for "Back to Home" and "Already have an account? Log in".

HRMS

Login

Sign Up

First Name
Enter your first name

Last Name
Enter your last name

Username
Choose a username

Email
Enter your email

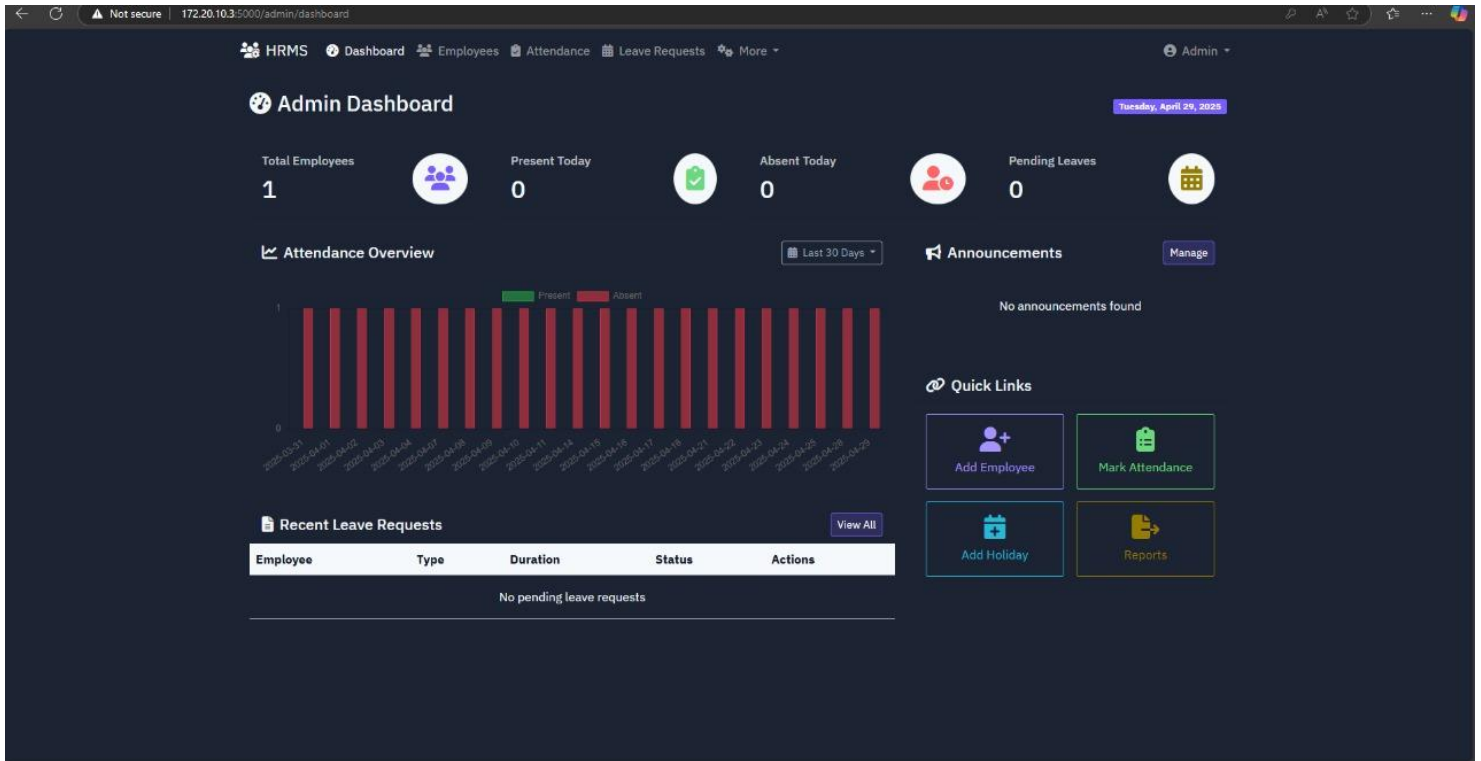
Password
Choose a password

Confirm Password
Confirm your password

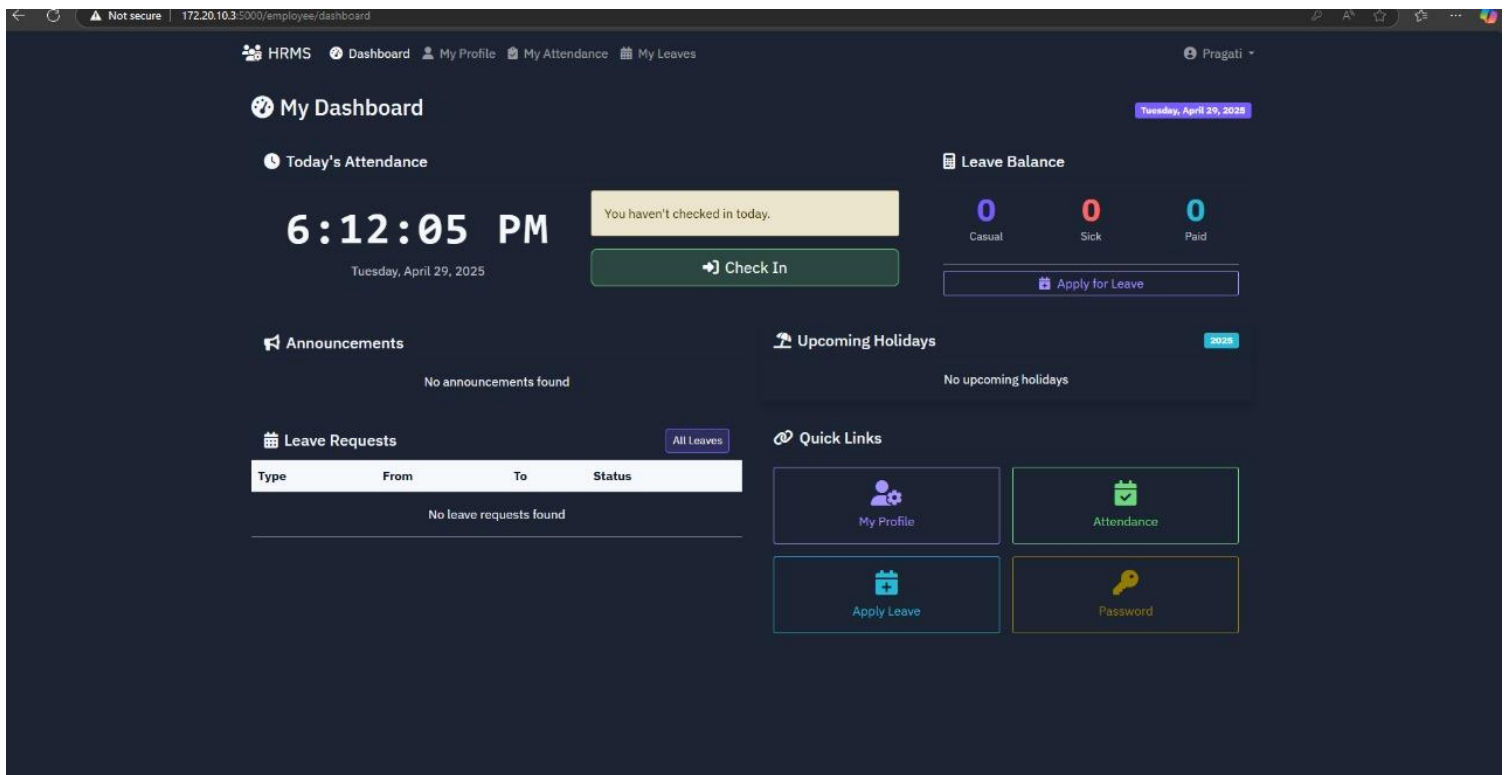
Sign Up

[← Back to Home](#) [Already have an account? Log in](#)

4. Admin Dashboard Page



5. Employee Dashboard Page



6. My Profile Page

HRMS | Dashboard | My Profile | My Attendance | My Leaves | Pragati

My Profile

Profile

Pragati girase
None

[Edit Profile](#) [Change Password](#)

Email: pragatigirase13@gmail.com
Phone: 07447590855
Department: None
Joined: 29 Apr, 2025

Edit Profile Information

First Name: Last Name:

Email:

Phone:

Department and designation can only be updated by admin.

[Update Profile](#)

7. Employee Management Page

HRMS | Dashboard | Employees | Attendance | Leave Requests | More | Admin

Employee Management

[Add Employee](#)

Employee List

Search employees...

ID	Name	Email	Department	Designation	Joining Date	Status	Actions
1	Admin User ~in @admin	admin@hrms.com	HR	HR Manager	26 Apr, 2025	Active	Actions
2	Pragati girase ~ti @pragati	pragatigirase13@gmail.com	None	None	29 Apr, 2025	Active	Actions