ATTENDANCE MANAGEMENT SYSTEM

An Internship Report submitted in partial fulfillment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

Submitted by

PAVAN ARYAN MADDI, 121910310018

Under the esteemed guidance of

MR. RAVI SHANKAR PENDYALA

Corporate Guide, Phoenix Global



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

GITAM

(Deemed to be University)

VISAKHAPAT NAM MAY-JUNE 2022

DEPARTMENT OF COMPUTER SCIENCE AND

ENGINEERINGGITAM INSTITUTE OF

TECHNOLOGY GITAM

(Deemed to be University)

DECLARATION

We, hereby declare that the internship review entitled "ATTENDANCE

MANAGEMENT SYSTEM" is an original work done in the Department of

Computer Science and Engineering, GITAM Institute of Technology, GITAM

(Deemed to be University) submitted in partial fulfillment of the requirements for

the award of the degree of B. Tech. in Computer Science and Engineering.

The work has not been submitted to any other college or University for the

awardof any degree or diploma.

Date: 21-06-2022

Registration No: 121910310012

Name:PAVAN ARYAN MADDI

Signature: PAVAN ARYAN MADDI

ACKNOWLEDGEMENT

The satisfaction and euphoria that accompany the successful completion of any task would be incomplete without the mention of people who made it possible, whose constant guidance and encouragement crowned the efforts with success. It is a pleasant aspect that I have now the

opportunity to express my gratitude for all of them.

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evolved into this research work.

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Pavan Aryan

Maddi

121910310018

CERTIFICATE



Certificate ID

PG-2223-ETSD-632

CERTIFICATE

This is to certify that
Pavan Aryan Maddi
student of
GITAM Vizag

pursuing B.Tech., has completed Internship and Project Work from 07-05-2022 to 21-06-2022 in partial fulfilment for the award of the certificate for the degree mentioned above and that this is a bonafide of the work carried out under our guidance. The student displayed analytical capability, has innovative approach to solve problems and maintained good conduct.

Domain: Cloud and Devops Corporate Guide: Mr. Moditya

Harsha Y S Program Director





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LETTER OF RECOMMENDATION



Date: 21-06-2022

Phoenix Global

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LETTER OF RECOMMENDATION

I take immense pleasure in recommending Pavan Aryan Maddi to your prestigious organization. I had a great opportunity to evaluate the candidate's abilities, strengths, and cogency during the Summer Internship at Phoenix Global.

The candidate has maintained a highly consistent and outstanding level of performance throughout and has keen insight into the learning process while having an innovative thinking perspective.

I feel that the practical and procedural approach exhibited demonstrates competency and commitment towards work and corporate activities. I prescribe the candidate to be considered as a potential possibility for your esteemed organization. I wish the candidate all the best for the future endeavors.

Harsha Y S Program Director



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ABSTRACT

Student attendance management system deals with the maintenance of the student's attendance details. It generates the attendance of the student on basis of presence in class. It is maintained onthe daily basis of their attendance.

ABOUT

Phoenix Global is a skill-development company that helps students acquire and master professional and soft skills as per the requirements of the industry benchmarked to world's top firms, trained by top class industry professionals.

Phoenix Global is a platform having Industry professionals with esteemed alma mater including the IITs and IIMs to mentor and train students on cutting-edge skills, critical to the emerging industries while also giving them an opportunity to intern on a project under the mentorship of industry professionals from the IITs /IIMs.

Our vision is to be a national leader in skill development and industry readiness training by providing differentiated training from top-class industry experts. The mission is to be a go-to skill development platform for students, imparting skills benchmarked at global standards that help them realize their dream careers profitably

Our core values, the 4Ps – Professionalism, Punctuality, Passion, Perseverance stand for who andwhat we are as an organization.

SCHEDULE OF INTERNSHIP

| Day | Activity Plan |
|-----|------------------------------------|
| 1 | Induction Program |
| 2 | Pre-Readings/Material Distribution |
| 3 | Training Session - 1 |
| 4 | Training Session - 2 |
| 5 | Training Session - 3 |
| 6 | Training Session - 4 |
| 7 | Training Session - 5 |
| 8 | Teams formation for Project |
| 9 | Weekend Off |
| 10 | Training Session - 6 |
| 11 | Training Session - 7 |
| 12 | Training Session - 8 |
| 13 | Training Session - 9 |
| 14 | Training Session - 10 |
| 15 | Project Title Allocation |
| 16 | Weekend Off |
| 17 | Project Session - 1 |
| 18 | Project Session - 2 |
| 19 | Project Session - 3 |
| 20 | Project Session - 4 |
| 21 | Project Session - 5 |
| 22 | Project Mid Review |
| 23 | Weekend Off |
| 24 | Project Session - 6 |
| 25 | Project Session - 7 |

| 26 | Project Session - 8 |
|-----------|--|
| 27 | Project Session - 9 |
| 28 | Project Session - 10 |
| 29-4 4 | Project Working Sessions |
| 45 | Project Final Presentation and Thesis Defense |

AMS Introduction

An attendance system allows to add the attendance of the employee who is present on that day. The user has to login and swipe their identity card to mark their attendance. As the card has beenswiped, the details like id number, date, in-time, out-time are saved in the database. The databasewill be stored into the azure cloud which will form a connection between application and cloud server via internet. With the in-time and out-time data stored in cloud, the admin can calculate the working hours of the employees. The employees can view his personal details, attendance.

in-time or out-time, total working hours after he/she logs into the system. This data is retrieved from the cloud database and can be accessed any time by the employee and the admin. The admin of the system can add new employee by registering the new employee and filling up theirregistration details. The admin is authorized to view the records of all the employees. This system allows to keep up to date record of the employee. As, the project files and a database filewill be stored into the Azure cloud, the project will be accessed in the web browser through Azure link

Software Requirements:

- Windows 7 or above
- MySQL Workbench
- Visual Studio Code
- Dockers Desktop

Hardware Components:

- Processor Core i5
- Hard Disk 160 GB
- Memory 2GB
- Internet Connection

❖ Advantages:

- User can't add proxy attendance.
- The database is secured as it is stored in an Azure cloud server.

- Employee working hours is calculated systematic manner.
- Since, Employee working hours are calculated which enables user to easily calculate the salary and over time.

Disadvantages:

• Needs active internet connection or else the attendance won't be recorded.

Application:

- This application can be used to mark attendance at schools or colleges.
- Since, Employee working hours are calculated which enables user to easily calculate the salary and over time.

CREATION OF WEBSITE

Cloud based based attendance management system has replaced the previous paper based premises of attendance management system. The new system can now handle large number of attendees and events over large networks. Cloud based attendance system is easy to use and yetvery powerful attendance management system that has a firm grip over schools, laboratories, committees, offices, business organizations etc.

The main feature of cloud based attendance management system is the System Server that has been made centralized for all the branches scattered over different geographical regions. To logininto the server using cloud based attendance management system, users can create multiple password protected event manager accounts which can further create unlimited events and user accounts.

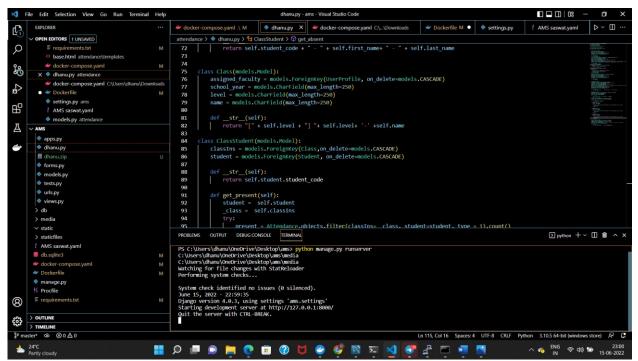
In short, cloud based attendance management system provides users an identification along withat password that allows them to login to their accounts from anywhere anytime.

This Cloud based Attendence Management System has been created for both System Administrator and Faculty. Faculty can access to the website through necessary login crediantials and the faculty can mark attendance to the students of different Departments , Classes , Courses in their respective Registration codes.

This Cloud based Attendence Management System is quite easy and flexible to use for both the System Administrator and Faculty. Through this System Faculty can Print the Attendence Report of each and every Student of any Department they wish.

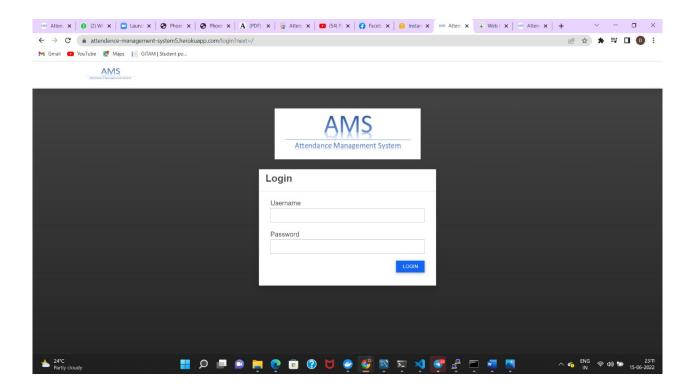
This entire website has been created through the use Visual Studio Code.

Snapshot of Visual Studio:

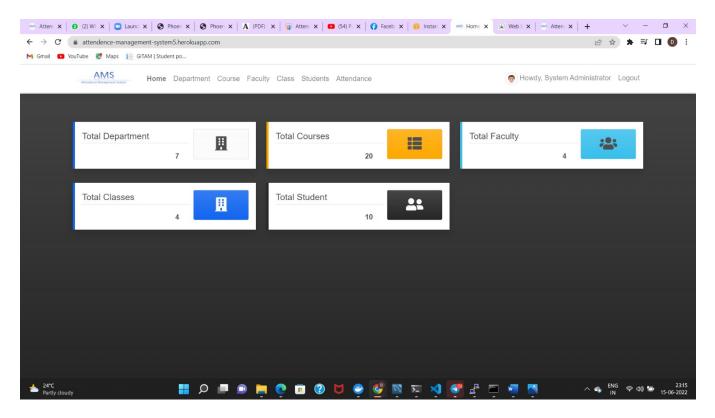


This is the Snapshot of Visual Studio Code, In this by putting appropriate commands we have executed the code to obtain the Website. https://attendence-management-system5.herokuapp.com/login?next=/. This is the link of Attendence management website for both System Administrator and Faculty. Both System Administrator and Faculty can access this site with appropriate login crediantials.

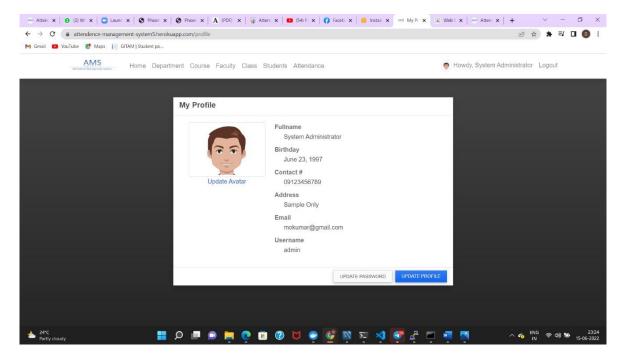
Snapshots of Website (System Administrator):



This is the Login page of our Attendence Management System. Here System Administrators canaccess with their login crediantials.



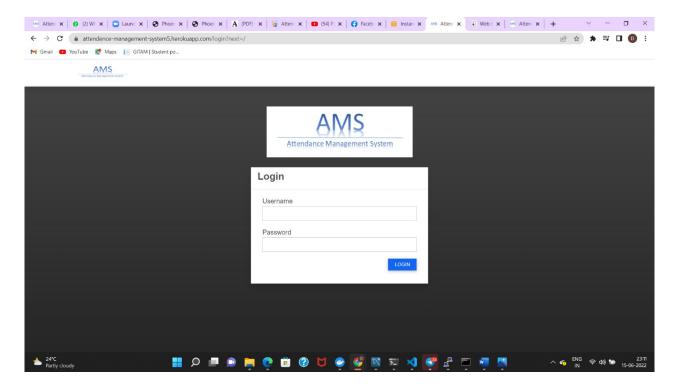
This is the System Administrator Home page to view the attendance of students by going torespective Departments, Courses and Classes.



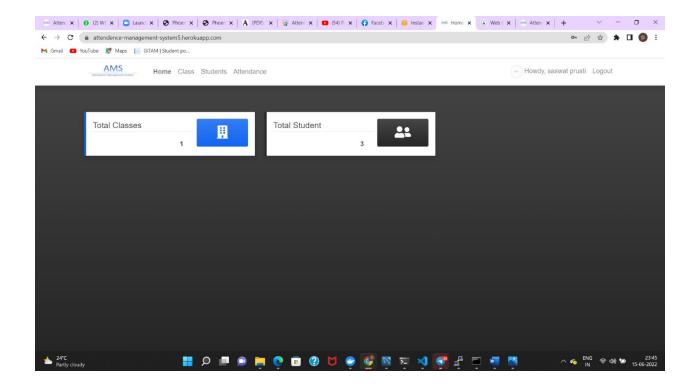
This above snapshot is the is the Profile details of System Administrator he/she can edit

orupdate their details.

Snapshot of Website (Faculty):



This is the Login page of our Attendence Management System. Here Faculty can access withtheir login crediantials.



This is the Faculty Home page to view and mark the attendence of students by going to respective Classes. And here the faculty can also Print the Attendence report of any student.

DOCKER

- Docker is an open-source containerization platform.
- It is a platform for building, deploying, and managing containerized applications.
- Developers can create containers without Docker, but the platform makes it easier, simpler, andsafer to build, deploy and manage containers.
- Docker is essentially a toolkit that enables developers to build, deploy, run, update, and stopcontainers using simple commands and work-saving automation through a single API.
- In other words, we can easily say that Docker is an alternative of a Virtual Machine.
- Using Docker, we can also run Linux platform OS like Ubuntu, CentOS and many more withinour Windows System.
- Docker images contain executable application source code as well as all the tools, libraries, anddependencies that the application code needs to run as a container.
- When you run the Docker image, it becomes one instance (or multiple instances) of the container.
- Multiple Docker images can be created from a single base image, and they'll share the commonalities of their stack.
- Docker images are made up of layers, and each layer corresponds to a version of the image.
- Whenever a developer makes changes to the image, a new top layer is created, and this toplayer replaces the previous top layer as the current version of the image
- Previous layers are saved for rollbacks or to be re-used in other projects.
- Docker containers are the live, running instances of Docker images. While Docker images are read-only files, containers are live, ephemeral, executable content.
 Users can interact with them, and administrators can adjust their settings and conditions using docker commands.

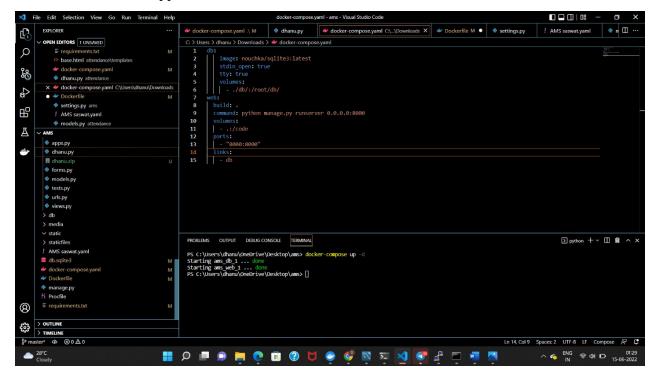
- Advantages of Docker:
- Consistency: Utilizing a platform that works the same way across multiple environments eliminates so much stress. Your entire team is working in the same way, regardless of theserver, machine or operating system they are using. There's no back-and-forth between staff working through platform issues; simply create images that will transform into containers when deployed on any device.
- Automation: There are so many tasks that, as a developer, can become repetitive and
 monotonous when done manually. Docker containers allow you to schedule a range of
 tasks to occur when they are needed, without manual intervention from a human being.
 This saves time, effort, and lightens the workload for developers. HP Phoenix Global 26
- **Stability:** Docker is based on Linux and, as such, has the Linux kernel in every container, regardless of the system it is running on. So in every system, with docker, we use only Linux commands which will be easy to use.
- Saves Space: The precursor to containers was the Virtual Machine (VM). VMs work in a similar way to containers, but take physical servers and spit them into virtual environments, using vast amounts of physical server space and tons of memory. Docker containers only use the code for the app and its dependencies and can run entirely on the Cloud, meaning they are much smaller and negate the requirement for large, physical servers.

• Disadvantages of Docker:

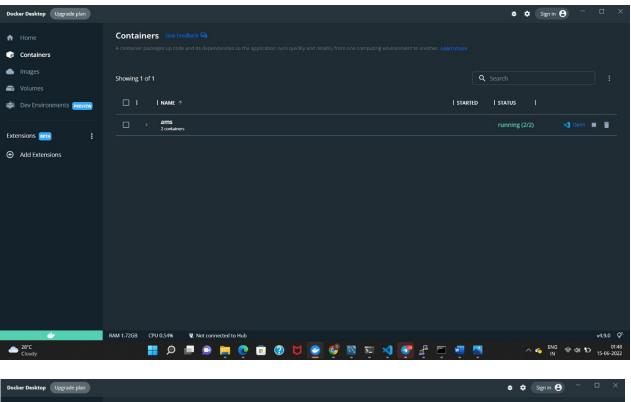
- Advances Quickly: This is sometimes problem because the associated document doesn't
 always update quickly as the technology itself. This can leave developers hunting for
 information on certain specifics, particularly within the abstract layers when using Mac
 orWindows.
- Learning Curve: Some developers find that switching to Docker containers can have quite a steep learning curve. Even those that are thoroughly familiar with VM infrastructure can find some of the Docker concepts challenging to get to grips with. That's why working with a user-friendly container-based tool can be the key to making the most out of the Docker environment.

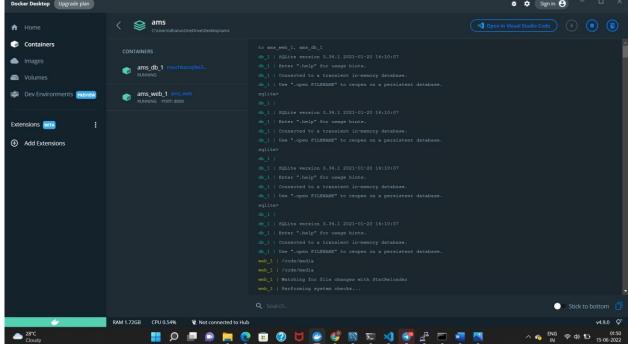
Snapshots of Docker in Visual Studio Code:

We executed Dockers in Visual Studio by applying Docker command to active our AMS containers in Docker app.

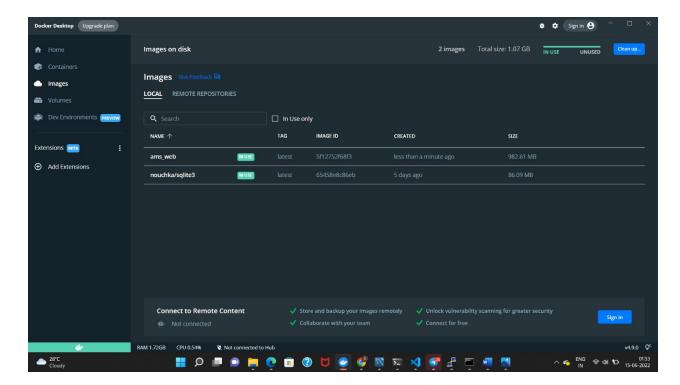


Now we seen that our Docker containers are running in the app.





In the Docker app AMS is our main container and it is in the running state. In the main container AMS there are 2 sub containers AMS web and AMS sqlite and they both are in also running state.



While in the Local there are 2 images which are remote repositories 1st is AMS web(Frontend) and 2nd is AMS sqlite (Back-end) both are in use in the Dockers app.

In this entire process we seen that the Dockers is connected with the Visual studio with a command **docker-compose up -d**

Relational Database Service

- Amazon Relational Database Service (RDS) is a managed SQL database service provided by Amazon Web Services (AWS). Amazon RDS supports an array of database engines to store and organize data. It also helps with relational database management tasks, such as data migration, backup, recovery and patching.
- Amazon RDS facilitates the deployment and maintenance of relational databases in the cloud. A cloud administrator uses Amazon RDS to set up, operate, manage and scale a relational instance of a cloud databse. Amazon RDS is not itself a database; it is a serviceused to manage relational databases.

Working of RDS:

- Databases are used to store large quantities of data that applications can draw on to help them perform various functions. A relational database uses tables to store data. It is calledrelational because it organizes data points with defined relationships.
- Administrators control Amazon RDS with the AWS Management Console, AmazonRDS API calls or the AWS They use these interfaces to deploy database instances to Command Line Interface. which users can apply specific settings.
- Amazon provides several instance types with different combinations of resources, such as CPU, memory, storage options and networking capacity. Each type comes in a variety of sizes to suit the needs of different workloads.
- RDS users can use AWS Identity and Access Management to define and set permissions for who can access an RDS database.

Benefits of RDS:

The main benefit of Amazon RDS is that it helps organizations deal with the complexity ofmanaging large relational databases. Other benefits include the following:

• Ease of use. Admins don't need to learn specific database management tools. They also can manage multiple database instances using the management console. RDS iscompatible with database engines that users may already be familiar with, such as MySQL and Oracle And it automates manual backup and recovery processes.

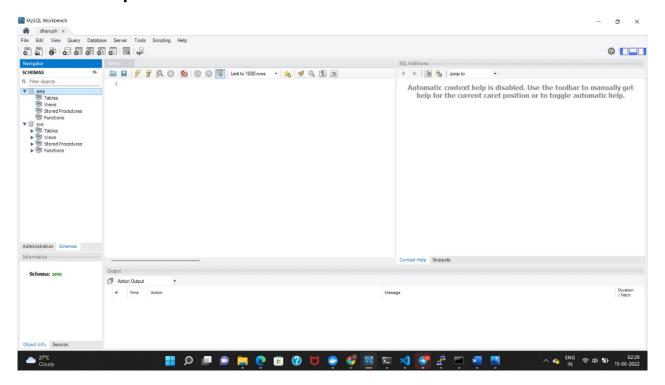
- Cost-effectiveness. According to AWS, customers only pay for what they use. Also, the time spent maintaining instances is reduced, because maintenance tasks, such as backups and patching, are automated.
- The use of read replicas routes read-heavy traffic away from the main databaseinstance, reducing the workload on that one instance.
- RDS splits up compute and storage so admins can scale them independently.

Drawbacks of RDS:

Some downsides of using Amazon RDS include the following:

- Lack of root access. Because it is a managed service, users do not have root access to the server running RDS. RDS restricts access for certain procedures to those withadvanced privileges.
- **Downtime.** Systems must go offline for some patching and scaling procedures. The timing on these processes varies. With scaling, compute resources need a few minutesdowntime on average.

Snapshot of RDS:



RDS for MySQL is compatible with the MySQL opensource RDBMS. RDS is connected withMy SQLWorkbench.

Here, AMS is the main schema followed by system. In AMS schema there are no. of databases and they are Tables, Views, Stored Procedures and Functions.

Heroku

Heroku is a container-based cloud Platform as a Service (PaaS). Developers use Heroku todeploy, manage, and scale modern apps. Our platform is elegant, flexible, and easy to use, offering developers the simplest path to getting their apps to market.

Heroku is fully managed, giving developers the freedom to focus on their core product without the distraction of maintaining servers, hardware, or infrastructure. The Heroku experience provides services, tools, workflows, and polyglot support—all designed to enhance developer productivity.

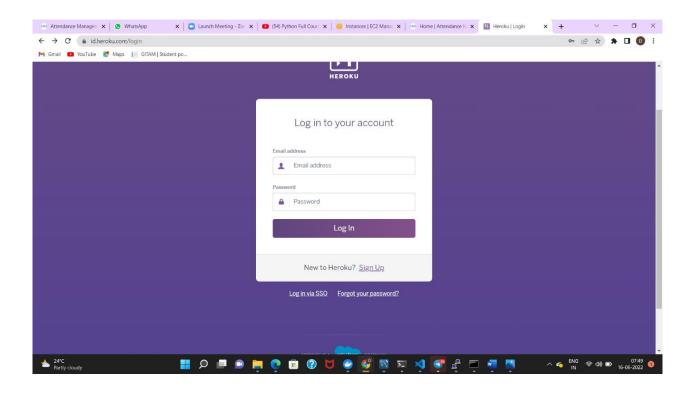
Advantages of Heroku:

- Allows the developer to focus on code instead of infrastructure.
- Enhance the productivity of cloud app development team.
- Offers single billing for all projects broken down by team.
- Heroku operation and security team is instantly ready to help you 24/7.
- The Heroku Enterprise architecture offers minimal or no downtime during the systemupdates.

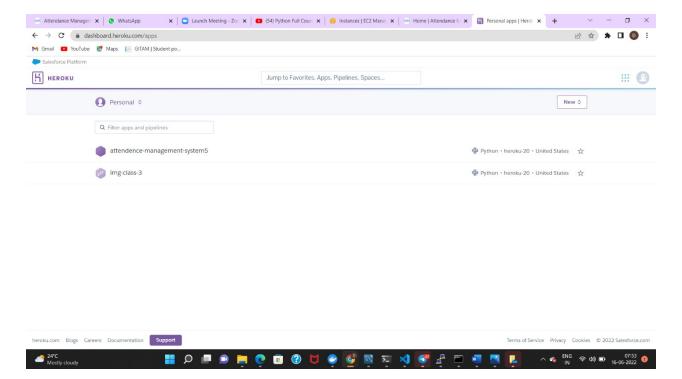
Disadvantages of Heroku:

- Heroku dynos are frequently unreachable for various reasons
- Inbound and outbound latency is high.
- It offers low network performance.
- Heroku does not allow you to run any other services on dynos.
- To purchase additional dynos/workers, you need to pay \$35 a month which is quitecostly.

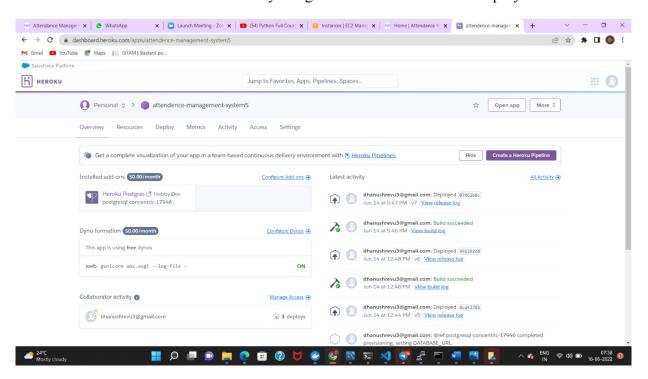
Snapshots of Heroku:

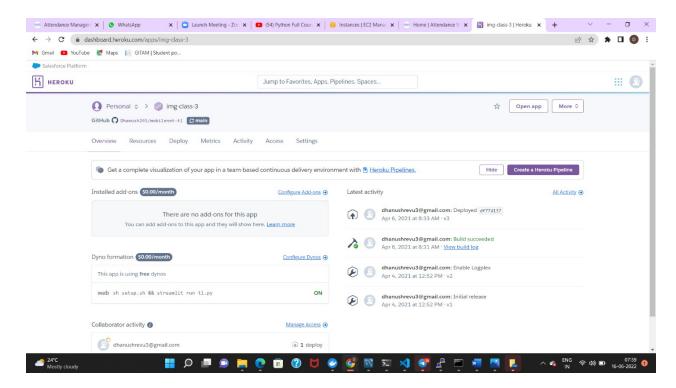


This is the Login page of Heroku. Here the user can access the site through login crediantials.

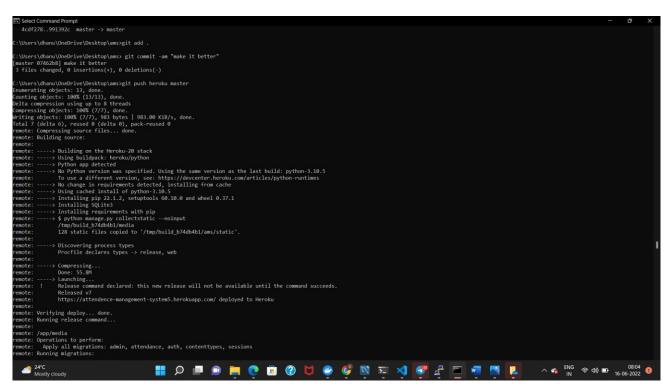


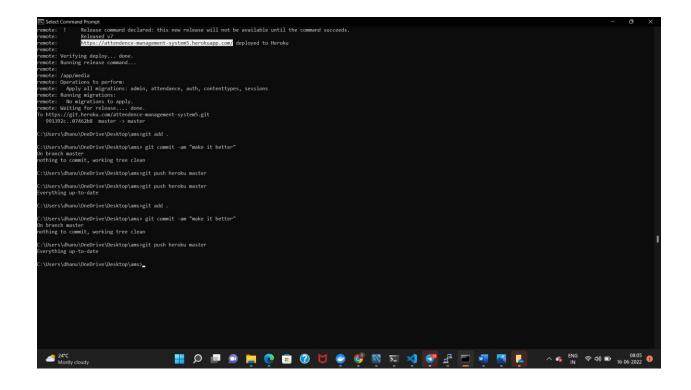
Dashboard of Heroku app. Attendence Management System and Image class are the 2 containers. In this main file the necessary things has been initialized and deployed.





Snapshot of Command Prompt:





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https://dashboard.heroku.com/apps

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