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School of Information Technology and Engineering

PROJECT REPORT

HOSTEL MANAGEMENT SYSTEM USING AZURE

CLOUD COMPUTING – SWE4002

(E1)

By

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Under the guidance of

Prof. SUDHA M

Winter semester 2022-23

HOSTEL MANAGEMENT SYSTEM USING AZURE

ABSTRACT:

Hostel management system is designed to provide hostel related services to students using cloud computing techniques. This system can provide features like booking of hostel rooms, checking roommates information, leave request and checking leave request status for students. The hostel administration is provided with a better control over the transactions like checking the details of the student, modifying the details of the students, approving or rejecting the leave of the student. The admin has various features he can look at the details of the students, Admin can add/delete hostel employees. Hostel employees can approve/reject leave of students and can view details of the students. Admin can monitor the hostel bookings which are going on. He even has the right to approve or reject the leave. Whenever the leave of a student is approved or rejected then the student can immediately see the status of his leave in his leave status section. Cloud computing became the most used and powerful invention in recent days. It has many advantages if we use and incorporate in our project. We can avail many benefits if we use cloud services instead of normal traditional techniques. The main benefits are computational load and high availability. Therefore, the entire Hostel Management System project was created with distributed client-server computing in mind. The main intention of this project is to deploy the website in cloud platform. This can improve the performance of the website and it can reach to more audience.

Keywords:

Cloud computing, Client-Server architecture, Performance, Load balancing, Scalability, Flexibility, web app, availability.

PROBLEM STATEMENT:

The number of educational institutions has been substantially expanding in recent years. The number of hostels available to house students studying at this university is growing. As a result, the person in charge of the hostel is under a lot of stress, and software isn't working well. It is very difficult to locate student records, mess bills, and information on those who have left the hostel. At the moment, all of the hostels are run by hand by the hostel office. Manually verifying the registration form for various data processing is done. As a result, there are several repetitions that can be easily avoided. As a result, the person in charge of the hostel is under a lot of stress, and software is not typically used in this situation. This approach deals with the difficulties of running a hostel and avoids the complications that arise when things are done manually. The records are kept manually due to that reason finding records is very difficult. Even students have to face lot of difficulties while booking a room in the hostel. They need to wait in the lines and do everything manually. All these became hectic work for the administration. To avoid all there we are going to develop hostel management system in which students can book hostel from their mobile and records are easy to fetch from the database.

INTRODUCTION:

The Hostel Management System is developed for automating the activities of hostel. The software will be great relief to the employees like the hostel owners and administrators and also the users like students This software will help user in case of reporting, registration and searching the information about residents and facilities not only about the rooms but also about other facilities. The administrators can see the allottees and the aim of the Hostel Management System is to carry out the activities of Hostel in an efficient way and this system is also useful to pay the fees by the students and also the owner can collect the payments from the students It will take the operations of Hostel to an upper level by providing faster access to data and allowing addition, upgradation, modification, and deletion of data in a very systematic and reliable manner.

LITERATURE REVIEW:

[1] The paper is a comprehensive study of the Azure platform and its cognitive services. It provides an in-depth analysis of the features and capabilities of Azure and its various components, including Azure Cognitive Services. The study aims to provide insights into how Azure and its cognitive services can be used to solve real-world problems and improve business operations. Cloud-based: The system is hosted on the cloud, which makes it accessible from anywhere with an internet connection. Dependence on technology: The system relies on technology, so it may not work properly if there are technical issues or if the internet connection is poor. **[(Ankita Verma, 2019)]**

[2] The application streamlines the process of registering residents by providing an online platform for residents to complete their registration and make payments. The application includes features such as real-time data validation, automated confirmation of residency, and secure payment options. The implementation of the enhanced hostel registration application is expected to improve the efficiency and accuracy of the registration process, reducing the risk of manual errors and providing a convenient solution for both residents and staff User-friendly: The mobile app is designed to be user-friendly, making it easy for guests to access information and perform tasks. Limited customization: The system may not be easily customizable to meet the unique needs of different hostels**. [(Muhamad Firdaus, 2019)]**

[3] The purpose of the system is to improve the management and administration of various academic and administrative tasks within the university. The system was designed to User authentication: The system includes robust user authentication mechanisms, Technical skills required: Setting up and using the system may require technical skills, which could be a Cloud Computing Bundelkhand University" be user-friendly and accessible through a web based interface, allowing faculty, staff, and students to access relevant information and perform various tasks such as course management, student information management, and hostel management. The implementation of the cloud management system has led to increased efficiency, reduced manual errors, and improved decision-making. The results of the case study demonstrate the potential benefits of using cloud technology in the management of academic institutions and the potential for other universities to adopt similar solutions which helps to prevent unauthorized access to sensitive information. barrier for some hostel staff and guests. **[(Lalit Kumar Gupta, 2019)]**

[4] Investigated potential security risks in hostel management systems and proposed solutions using cloud computing to mitigate these risks. They may have also evaluated the effectiveness of their proposed solutions through experiments or simulations. The goal of the paper could have been to show that cloud computing can provide better security for hostel management systems compared to traditional systems. Real-time monitoring: The system provides real-time monitoring of the hostel, allowing staff to quickly detect and respond to any security incidents Cost: Implementing the system may require a substantial initial

investment, and ongoing costs such as cloud storage and software updates may add up over time**. [(Zhang, 2020)]**

[5] Conducted surveys and interviews with hostel owners to understand their attitudes and behaviors towards the adoption of these systems. Enhanced security: The use of blockchain technology provides enhanced security Lack of real world implementation: The study may not have conducted real-System. The results show that hostel owners are increasingly recognizing the benefits of cloud-based systems, such as improved efficiency and cost savings, but face challenges such as lack of technical knowledge and security concerns. The authors conclude that efforts should be made to educate hostel owners and address their concerns in order to facilitate wider adoption of cloud-based hostel management systems. for sensitive data and transactions in the hostel management system. world implementation, which could limit its ability to accurately represent the strengths and weaknesses of the system in a real-world setting**. [(Irene Lee, 2022)]**

[6] The paper is about cloud computing services and focuses on Microsoft Azure. It explores the reasons for choosing Microsoft Azure as a cloud computing platform. The paper provides a detailed analysis of Azure's features and capabilities, comparing it to other cloud service providers. The study concludes that Microsoft Azure offers a range of unique features, including strong security measures and a large network of global data centers, which make it a leading choice for organizations looking to adopt cloud computing services. Improved decision-making: The integration of big data in the system provides improved decision making by allowing for the analysis of large amounts of data to identify patterns, trends, and insights Limited scope: The study may have a limited scope, only focusing on hostel management systems using cloud computing and not considering other types of hostel management systems. **([Mehedi Hassan, 2022)]**

[7] The system streamlines the process of requesting, approving, and tracking leave, improving efficiency and reducing the risk of manual errors. It includes features such as online leave Integration of cloud and machine learning: The study proposes a hybrid system that combines the benefits of cloud Complexity: The integration of cloud computing and machine learning may result in a complex system that is difficult to application, automated notification and approval workflow, and a centralized database for easy access and reporting. The implementation of the system is expected to enhance the leave management process in hostels, providing a convenient and organized solution for both residents and staff. computing and machine learning, offering a solution with improved functionality and efficiency. implement, maintain, and use, especially for nontechnical users. **[(Haumshini, 2020)]**

[8] Virtualization allows multiple virtual machines to run on a single physical machine, providing cost-effectiveness and resource utilization benefits. The paper outlines the process of setting up the cloud platform, including the selection of virtualization software, network design, storage setup, and security considerations. The end goal is to provide the campus with a centralized and scalable cloud infrastructure to support the needs of various departments and organizations. Enhanced user experience: Integrating virtual reality technology with a cloud based hostel management system can provide an immersive and interactive user experience for guests, allowing them to virtually tour the hostel and make bookings from the

comfort of their own homes. Cost: Incorporating virtual reality technology can be expensive and may require significant investment in hardware, software, and infrastructure**. [(Kun Huang, 2021)]**

[9] Machine learning can be used to enhance various aspects of hostel management, such as decision making, customer service, and resource allocation. They may have also evaluated the performance and efficiency of their proposed system through experiments or simulations. The goal of the paper could have been to demonstrate the potential benefits of using Improved user experience: The focus on enhancing the user experience of the hostel management system makes it more user friendly and efficient for both hostel managers and guests Lack of comparison with other systems: The study does not compare the proposed system with other existing systems, which could limit its ability to demonstrate its superiority over other systems. Machine learning in conjunction with cloud computing in hostel management, and to provide a solution that integrates these technologies. **[(Yating Wang, 2021)]**

[10] Big data can be used to enhance various aspects of hostel management, such as decision making, customer service, and resource allocation. They may have also evaluated the performance and efficiency of their proposed system through experiments or simulations. The goal of the paper could have been to demonstrate the potential benefits of using big data in conjunction with cloud computing in hostel management, and to provide a solution that integrates these technologies. Integration of cloud computing and IoT: The use of both cloud computing and IoT enables the hostel management system to provide real-time updates and increased efficiency Security concerns: The use of IoT and cloud computing raises security concerns, as sensitive information, such as guest information and payment details, could be at risk of being compromised. **[(Chaowei Yang, 2019)]**

[11] The paper compares and evaluates three major cloud platforms: Microsoft Azure, Google Cloud Platform, and Amazon EC2. It compares these platforms on various parameters such as performance, cost, security, and reliability. The aim of the paper is to provide a comprehensive comparison of these cloud platforms to assist users in choosing the right platform for their needs. Scalability: The use of cloud computing and microservices enables the system to easily scale to meet changing demands, making it more suitable for hostels of varying sizes and needs. Dependence on internet connection: The use of cloud computing requires a stable and fast internet connection, which may not be available in all locations and could limit the system's practicality in some areas. **[(Pallavi Wankhede, 2020)]**

[12] Cloud computing can be used to enhance various aspects of the user experience, such as user interface design, user Improved reliability: The use of microservices architecture Limited scope: The study only focuses on the scalability of hostel Management System using Cloud Computing interactions, and system responsiveness. They may have also evaluated the performance and efficiency of their proposed system through experiments or simulations. The goal of the paper could have been to demonstrate the potential benefits of using cloud computing in improving the user experience of hostel management systems, and to provide a solution that incorporates these benefits. ensures that the system can continue to function even if one component fails, improving its overall reliability management systems using

cloud computing and microservices, and its potential weaknesses in other areas may not have been considered. **[(Wenjuan, 2021)]**

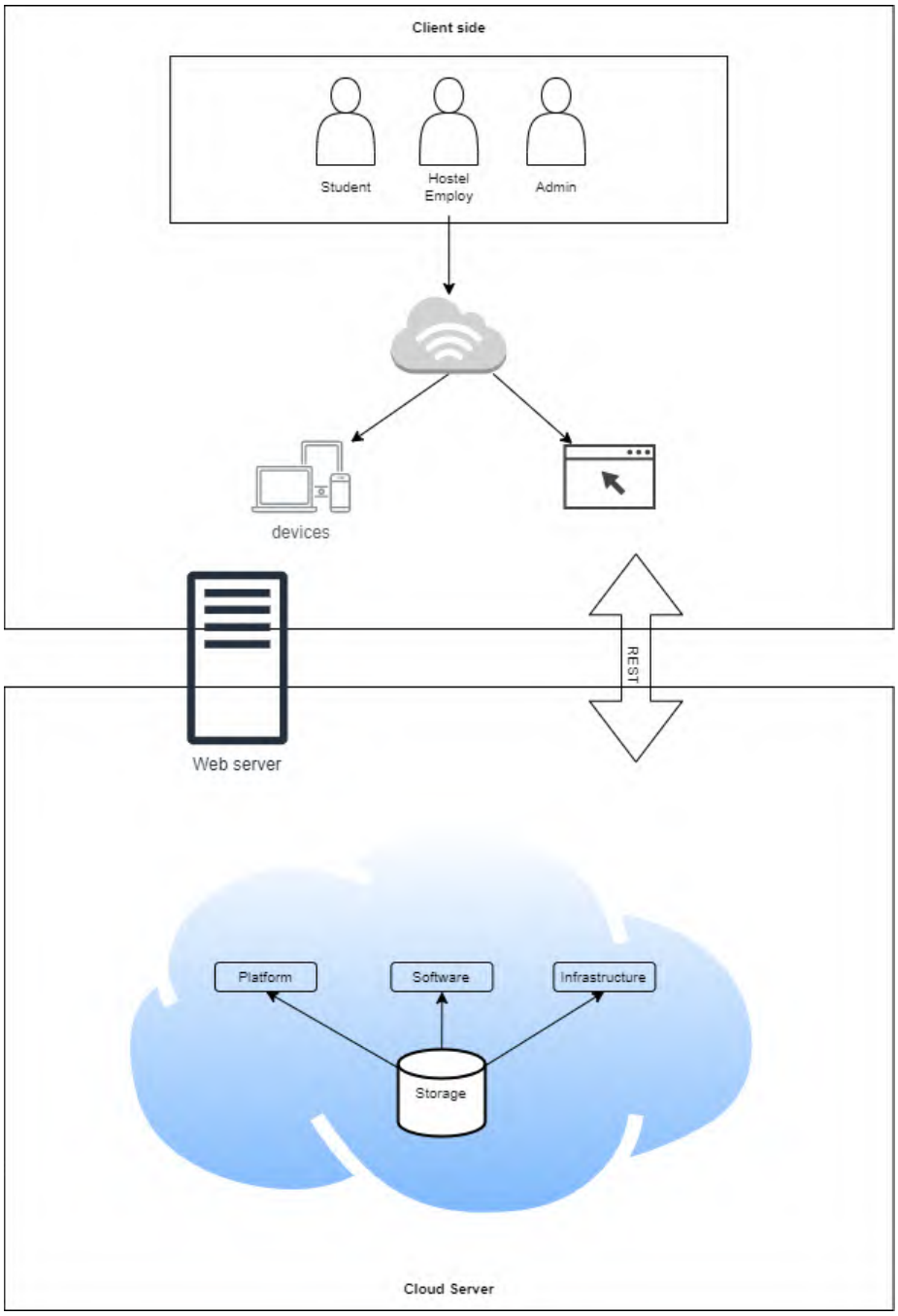
[13] The system was created to improve the management of accommodation services, including room allocation, record keeping, and reporting. The design of ASHAMS includes modules for student registration, room allocation, record management, and reporting. The implementation of the system has led to increased efficiency, reduced manual errors, and improved decision making. The results of the case study demonstrate the potential benefits of using a centralized system for the management of accommodation services and the potential for other organizations to adopt similar solutions. Relevance to industry: The study specifically focuses on the adoption of cloudbased hostel management systems by hostel owners, making it highly relevant to the industry. Lack of generalizability: The findings may not be generalizable to other populations or settings if the sample is not diverse or if the data was collected from a specific geographic location. **[(Md Hasnat Riaz, 2022)]**

[14] The Hi-Q system was implemented to improve the quality of services offered at the hostel and to meet the needs and expectations of the guests. The implementation Empirical research: The study is based on empirical research, using data collected from a sample of Lack of control group: If the study does not have a control group, it may be difficult to determine process involved training the staff, creating and updating standard operating procedures, and conducting internal audits. The paper reports that the implementation of the Hi-Q system has led to improvements in guest satisfaction, increased efficiency and reduced costs. The results demonstrate the benefits of using a quality management system in the hostel industry and the potential for other hostels to adopt similar approaches hostel owners, making the findings more representative and reliable causality and the impact of the cloud-based hostel management system on the hostel owners. **[(Elias Suominen, 2018)]**

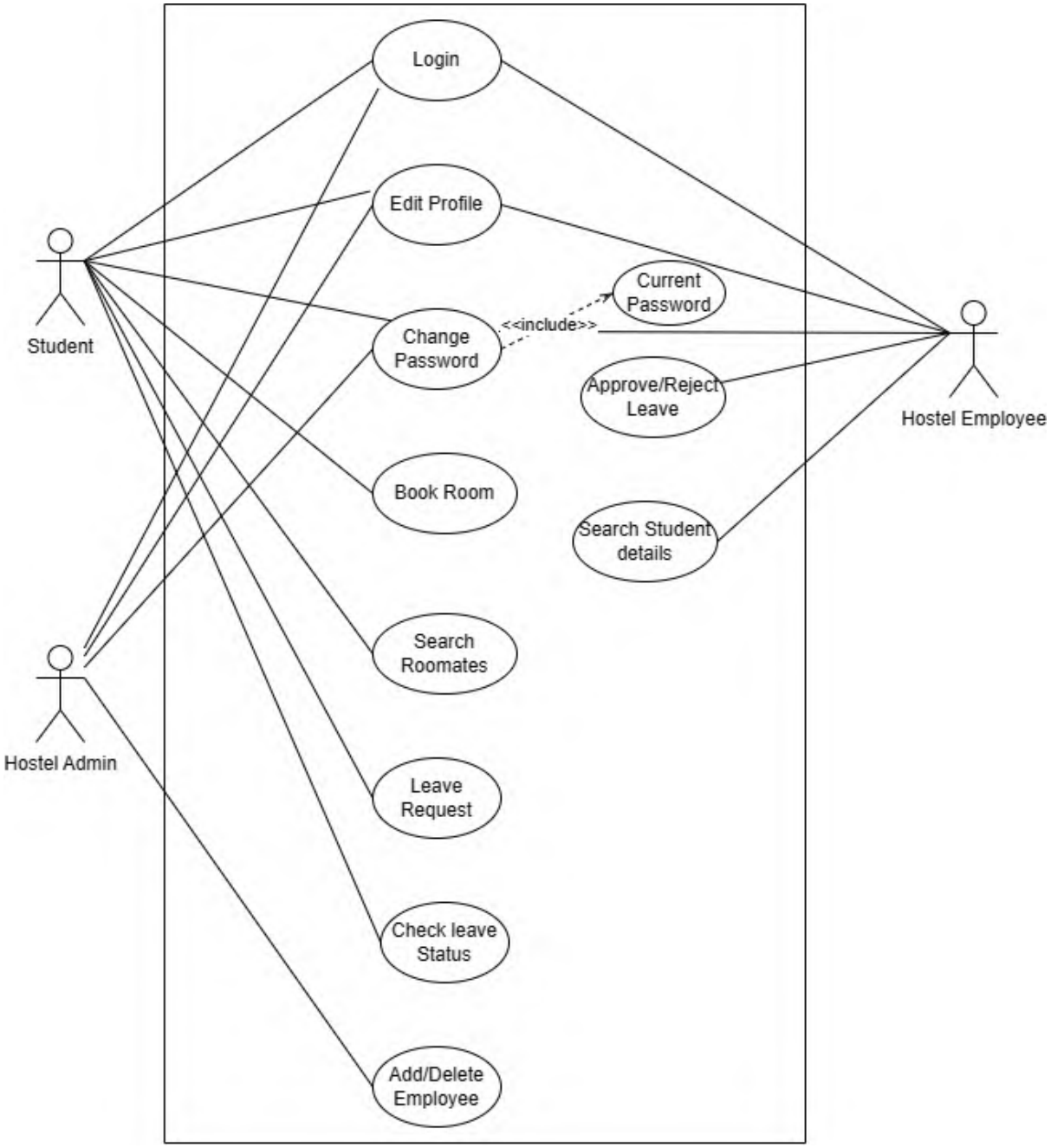
[15] Integrating robotics technology with cloud-based management systems, hostel operations can be automated, leading to improved efficiency and cost savings. The system would automate tasks such as room cleaning, maintenance, and guest services, and would also provide real-time monitoring and control of hostel facilities. The authors argue that this approach would result in a more efficient and cost effective hostel management system, while also improving the guest experience through enhanced services and facilities Integration of multiple technologies: If the study successfully integrates cloud computing and robotics in a hostel management system, it could be considered a strength as it demonstrates the feasibility of using cutting-edge technologies in practical applications. Technical complexity: If the study describes a complex technical implementation for the hostel management system, it could be considered a weakness as it may limit the ease of use and adoption of the system by hostel owners and managers. **[(Chaowei Yang, 2019)]**

PROPOSED DESIGN:

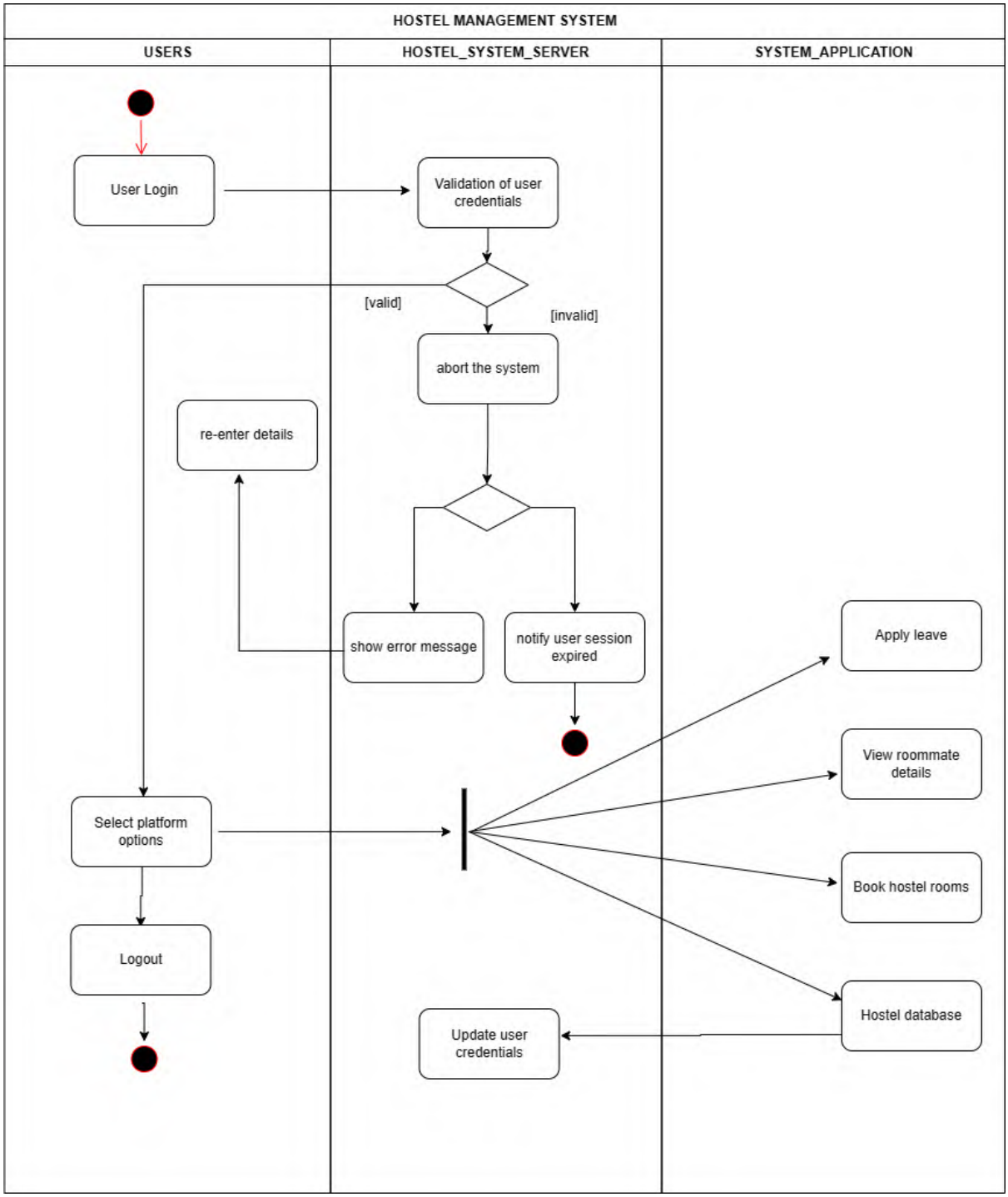
System Architecture:



Use case diagram:



Activity Diagram:

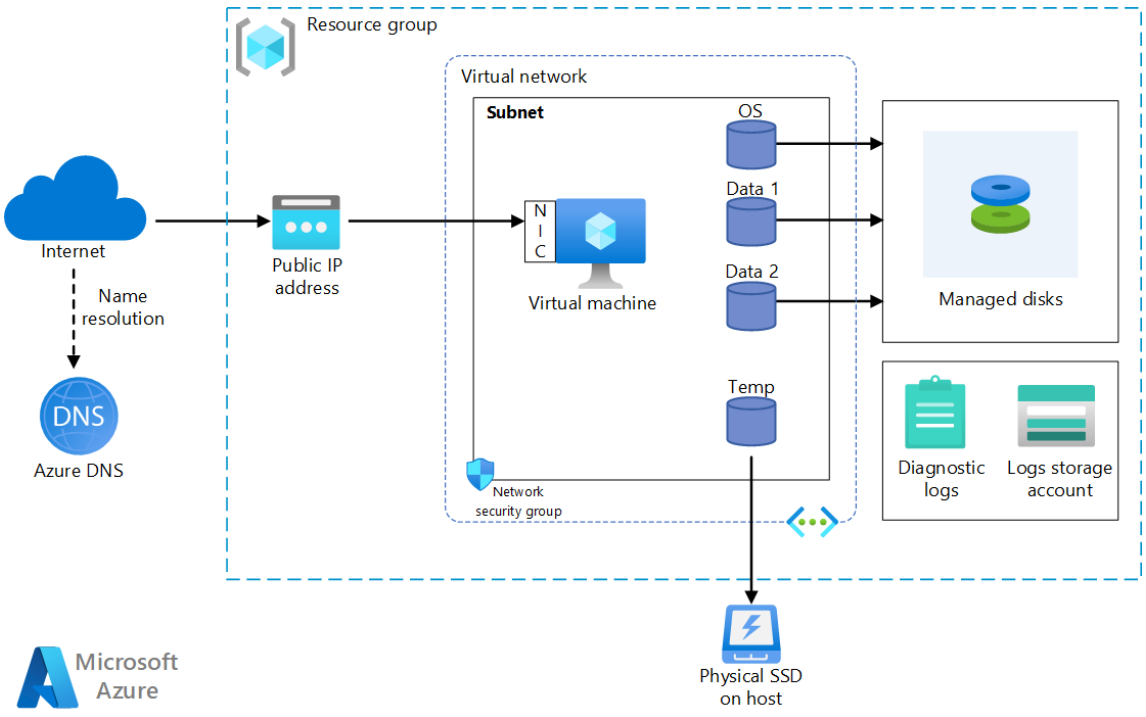


PLATFORM:

Visual Studio Code, also commonly referred to as VS Code, is a source-code editor made by Microsoft with the Electron Framework, for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git.

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. We used HTML & CSS as Frontend & PHP as Backend.

Microsoft Azure is a cloud computing platform & infrastructure created by Microsoft for building, deploying, and managing applications and services through a global network of Microsoft-managed data-centers. It provides a variety of services including virtual machines, web and mobile app development, data storage and management, and much more. Azure supports a range of programming languages, tools, & frameworks and integrates with a variety of third-party services.



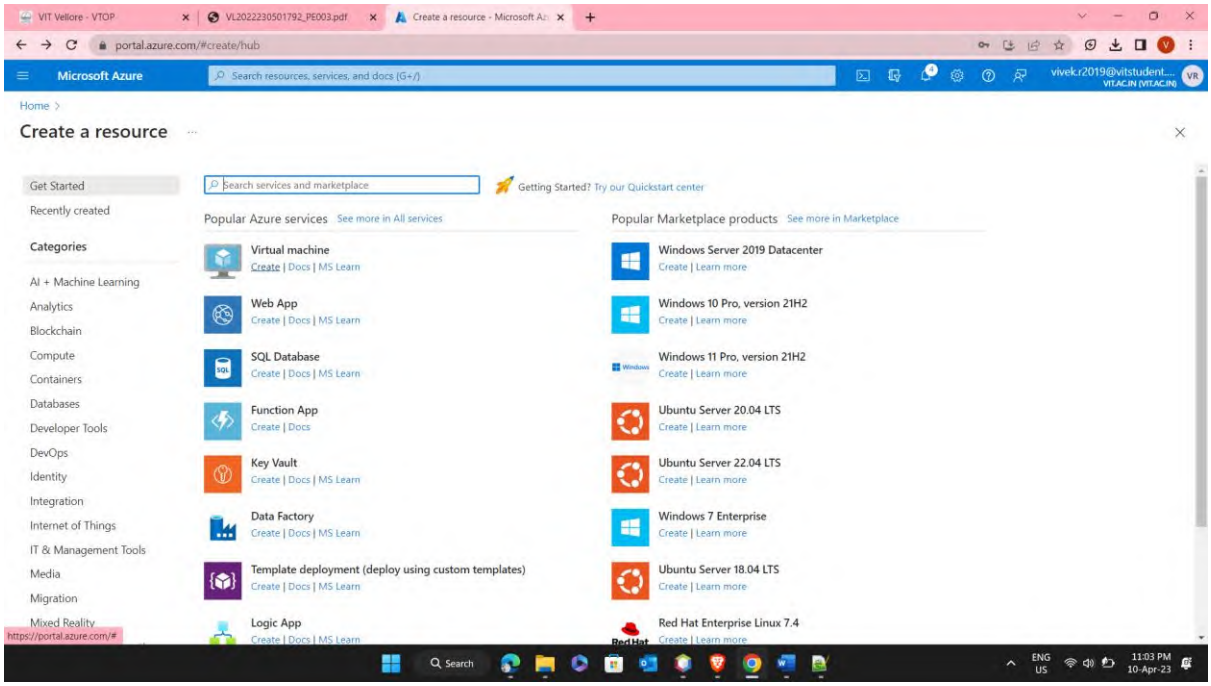
SOURCE CODE:

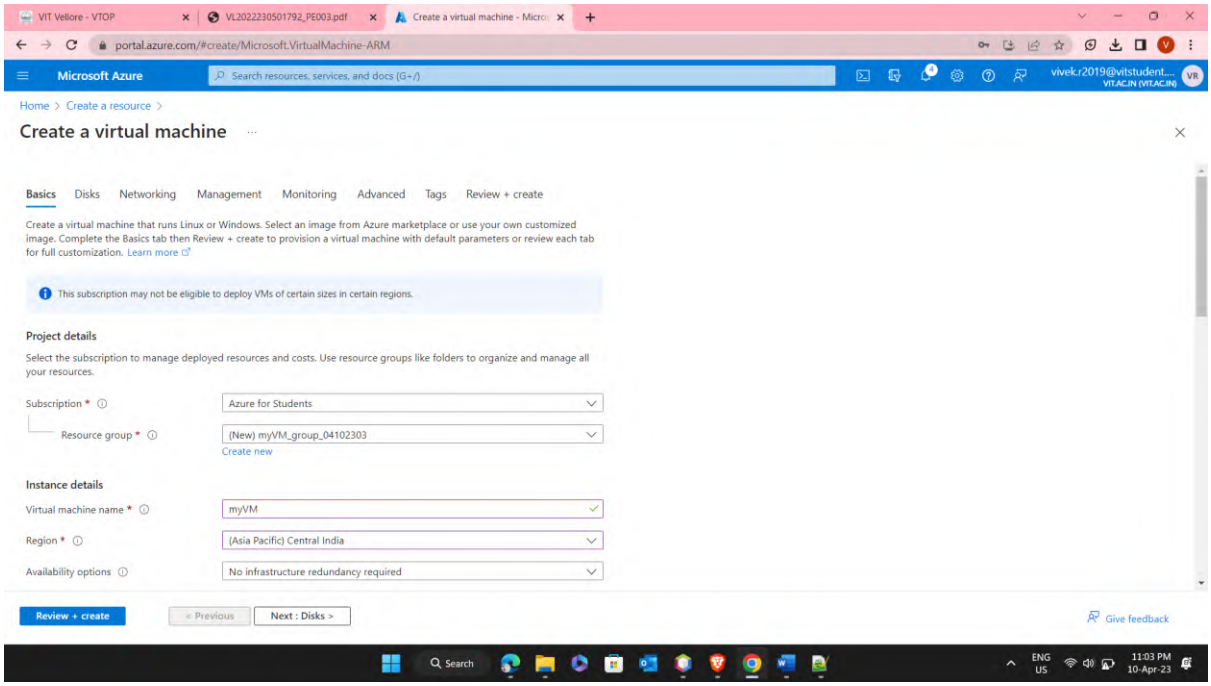
```
<!DOCTYPE html>
<html lang="en" dir="ltr">
   <head>
      <meta charset="utf-8">
      <title>Admin login</title>
      <link rel="stylesheet" href="..\css\signin.css"> <?php
$errmsg="";
 if ($_SERVER['REQUEST_METHOD']=='POST'){
 session_start();
 $employeeid = $_POST['employeeid'];
 $password = $_POST['password'];
 require_once('../dbConnect.php');
 $sql= "SELECT * FROM admin WHERE employeeid = '$employeeid' AND
password = '$password' ";
 $result = mysqli_query($conn,$sql);
 $check = mysqli_fetch_array($result);
 if(isset($check)){
 $_SESSION['employeeid'] = $employeeid;
 header('Location: admindashboard.php');
 }
 else{
 $errmsg="*Username or password is wrong";
 }
 }
 ?>
   </head>
   <body>
      <div class="center">
         <h1>Admin Login</h1>
         <form action="adminlogin.php" method="post">
            <div class="txt_field">
```

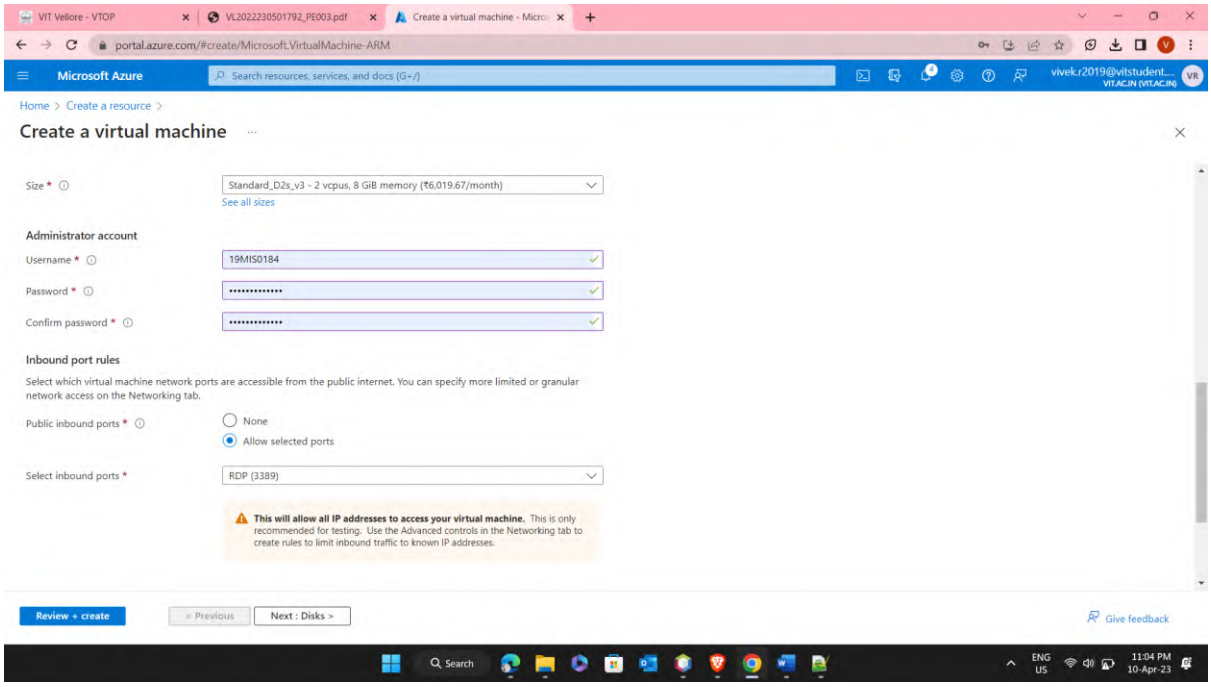
```
                <input     id="employeeid"     name="employeeid"
type="text" pattern="[0-
9]{5}" required>
                <span></span>
                <label>Employee ID</label>
            </div>
            <div class="txt_field">
                <input       id="password"       name="password"
type="password" required>
                <span></span>
                <label>Password</label>
            </div>
            <div class="pass">Forgot Password?</div>
            <input   type="submit"   name="submit"   id="submit"
value="submit">
            <div      class="signup_link">      Forgot?      <a
href="#">Contact</a>
            </div>
         </form>
         <span style="color:red;margin-left: 15px;"> <?php echo
"$errmsg";
?> </span>
      </div>
   </body>
</html>
```

IMPLEMENTATION:

Creating Virtual Machine:



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Create a virtual machine - Micro
portal.azure.com/#create/Microsoft.VirtualMachine-ARM
Microsoft Azure
Search resources, services, and docs (G+/)
Home > Create a resource >
Create a virtual machine
Size * Standard_D2s_v3 - 2 vcpus, 8 GiB memory (₹6,019.67/month)
See all sizes
Administrator account
Username * 19MIS0184
Password *
Confirm password *
Inbound port rules
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.
Public inbound ports * None
Allow selected ports
Select inbound ports * RDP (3389)
This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.
Review + create
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Give feedback
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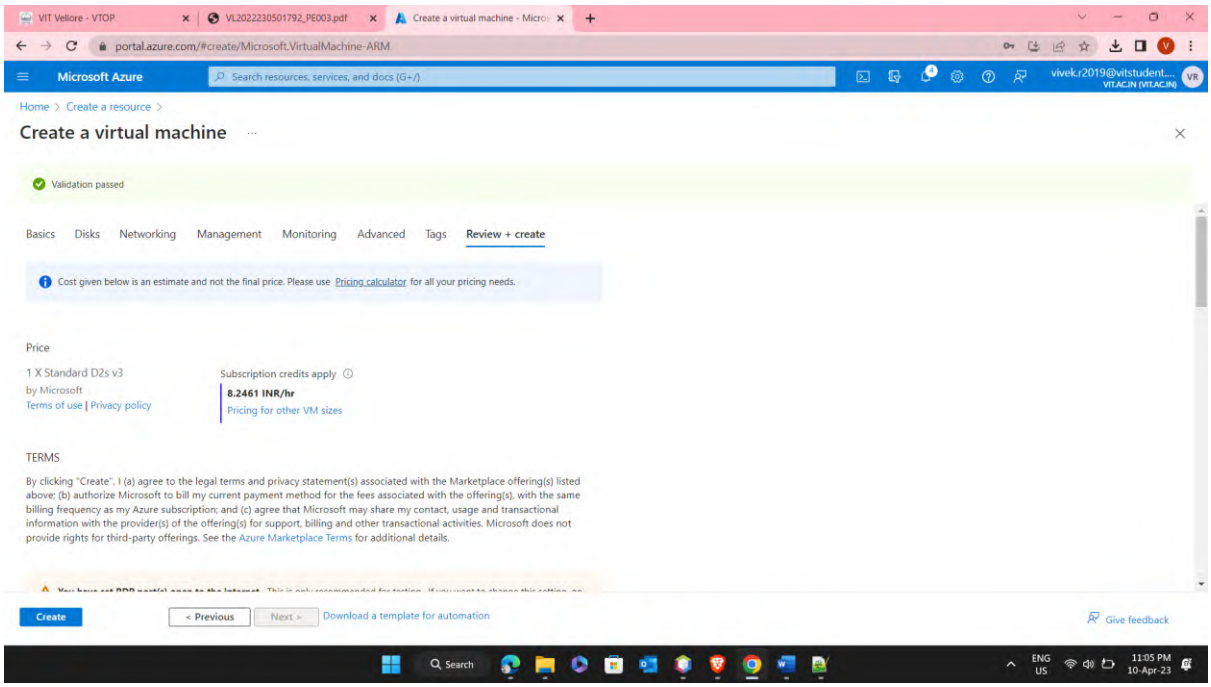
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Microsoft Azure
Search resources, services, and docs (G+/)
Home > Create a resource >
Create a virtual machine
Validation passed
Basics Disks Networking Management Monitoring Advanced Tags Review + create
Cost given below is an estimate and not the final price. Please use Pricing calculator for all your pricing needs.
Price
1 X Standard D2s v3
by Microsoft
Terms of use | Privacy policy
Subscription credits apply
8.2461 INR/hr
Pricing for other VM sizes
TERMS
By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the Azure Marketplace Terms for additional details.
Create
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Download a template for automation
Give feedback
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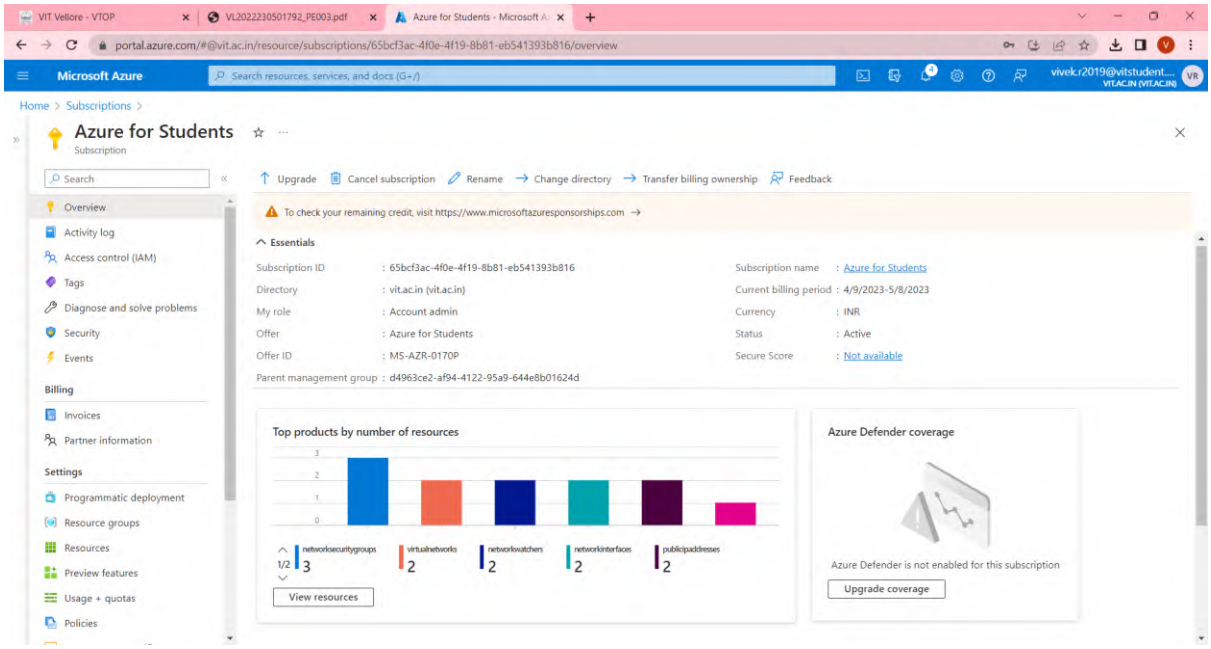
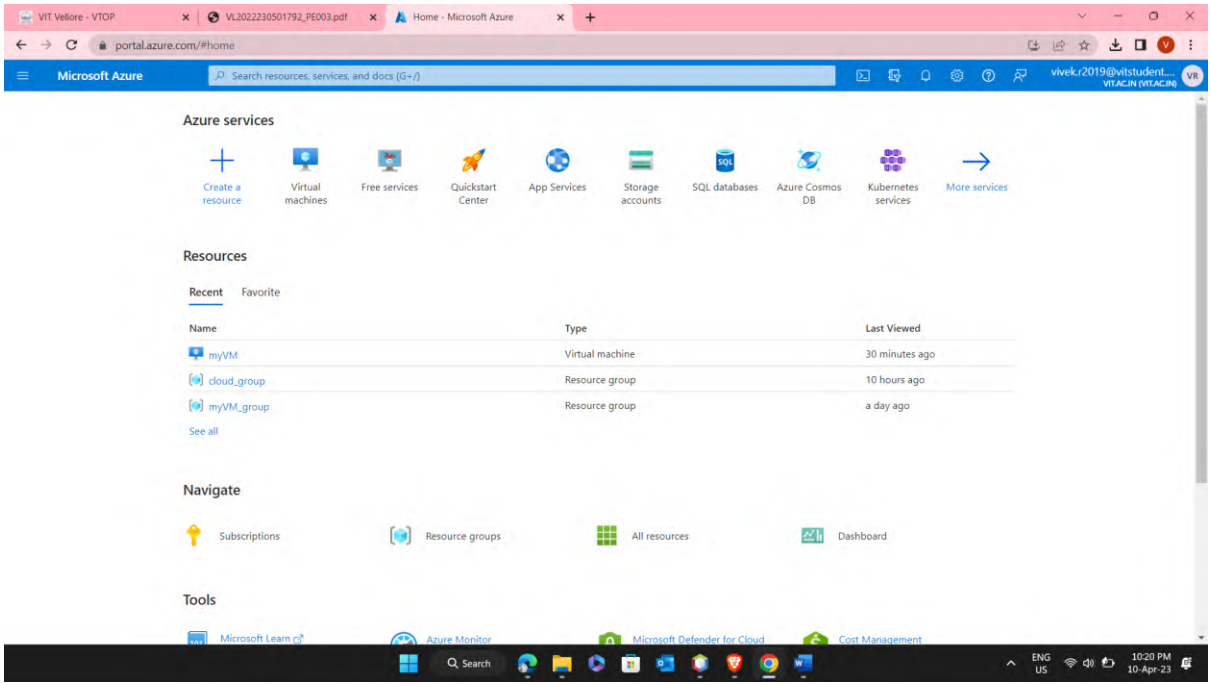
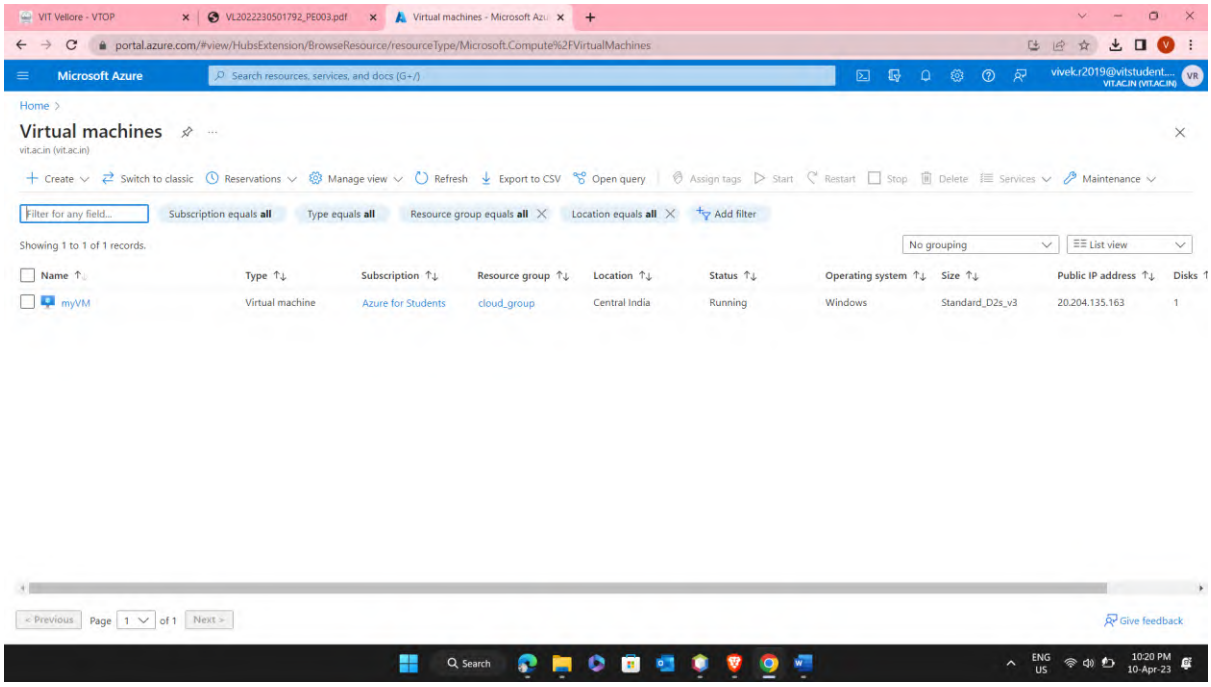
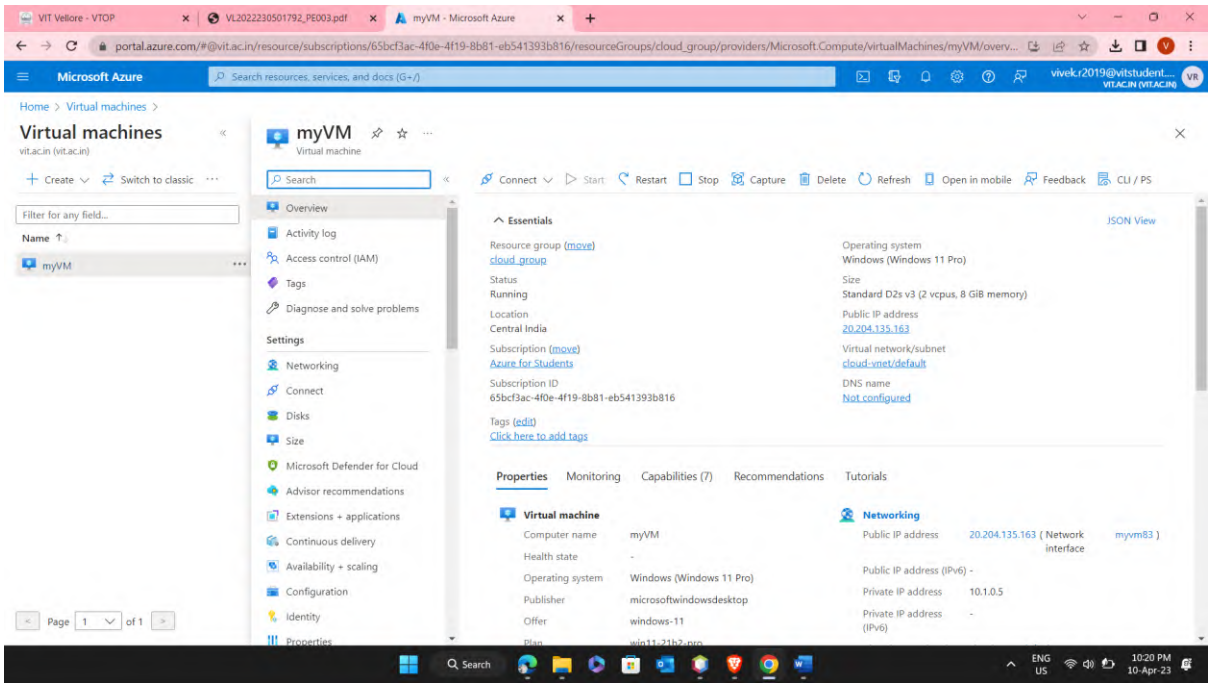
Azure student credit:



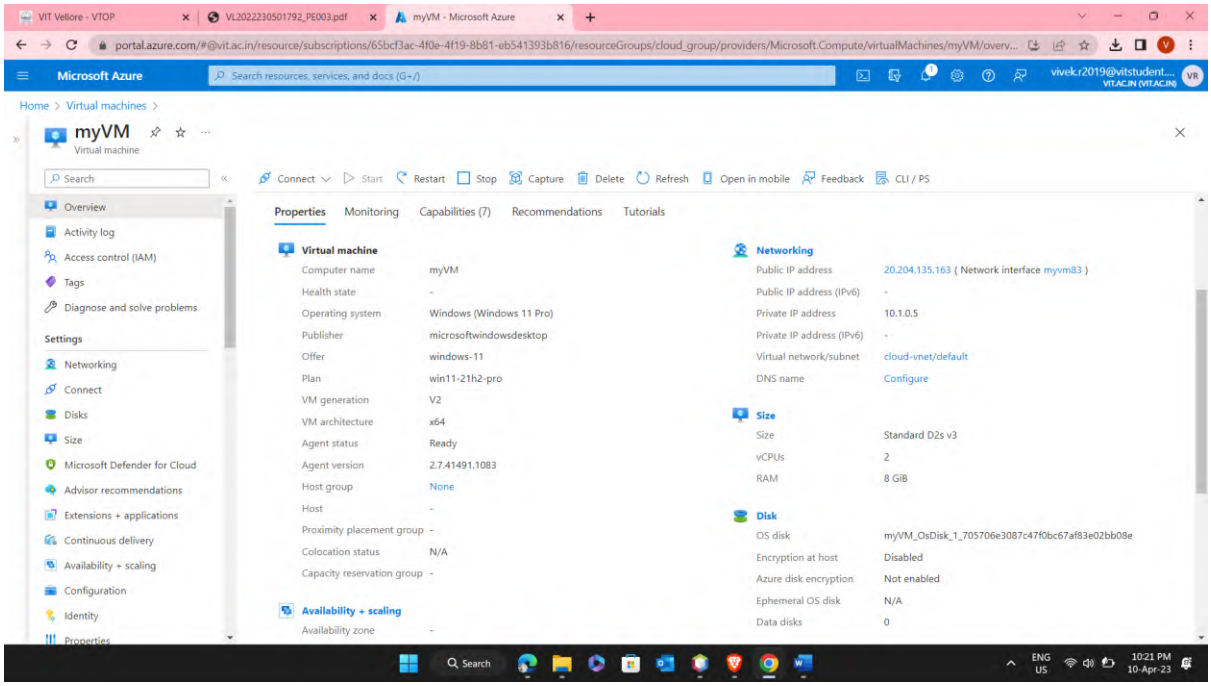


Virtual Machine:

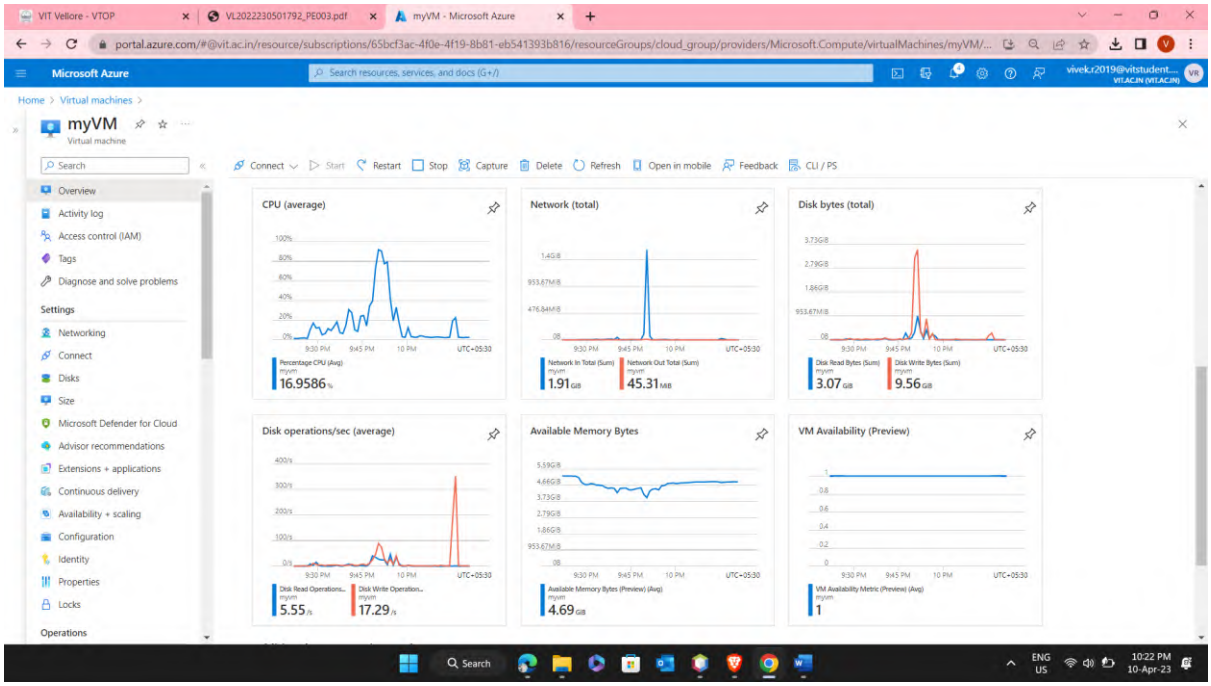




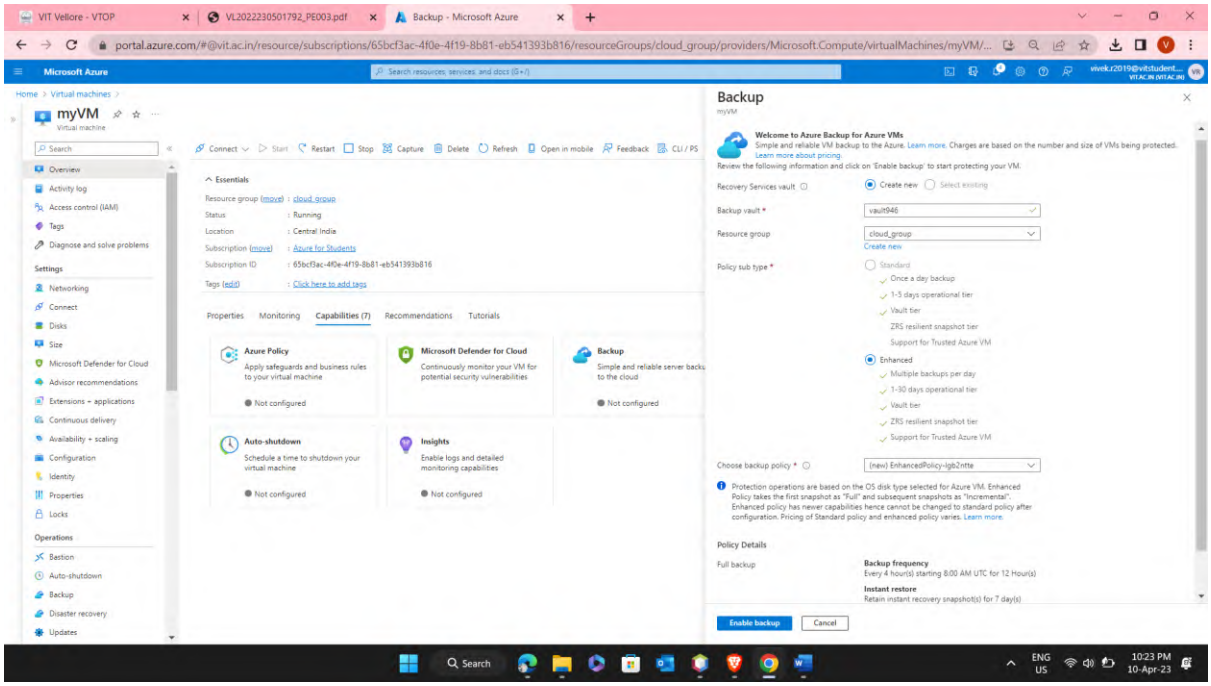
Virtual Monitor - Properties:



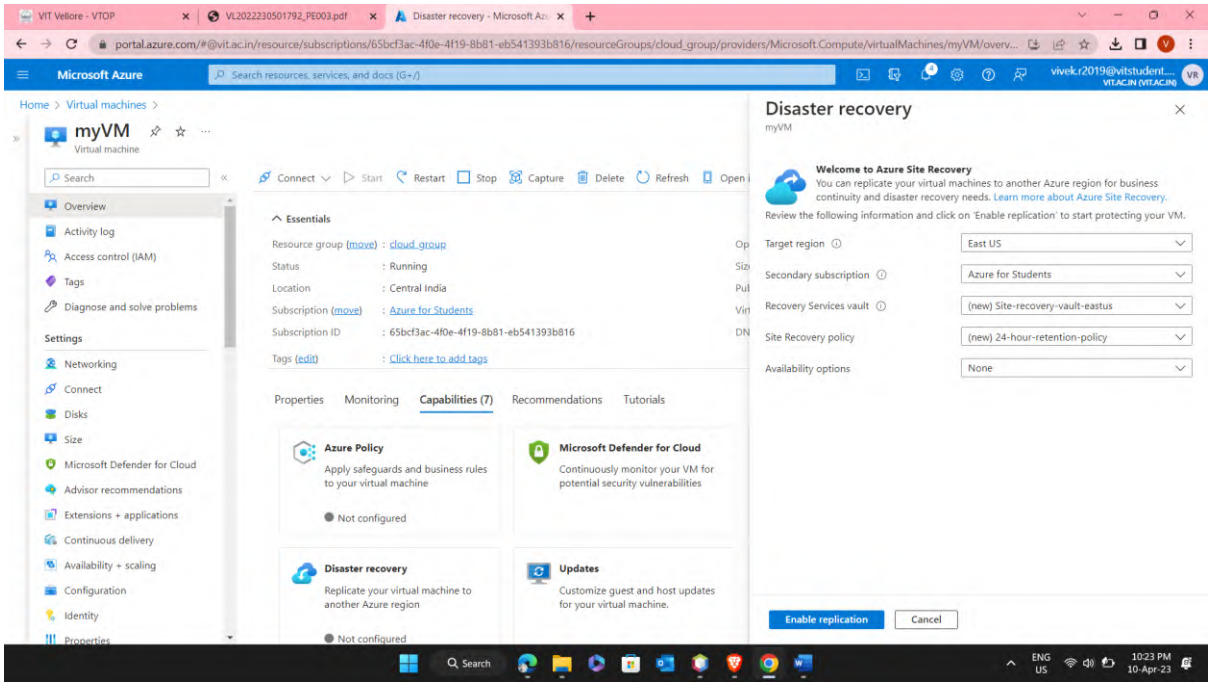
Virtual Monitor - Monitoring:

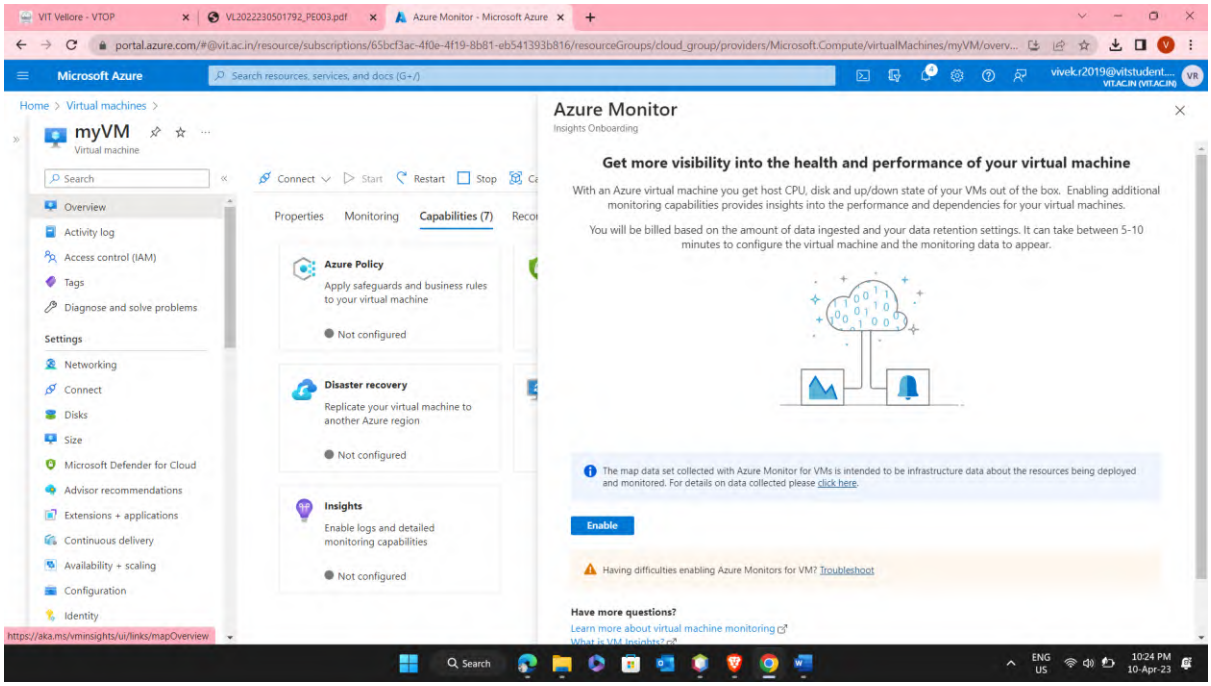


Virtual Monitor - Backup:

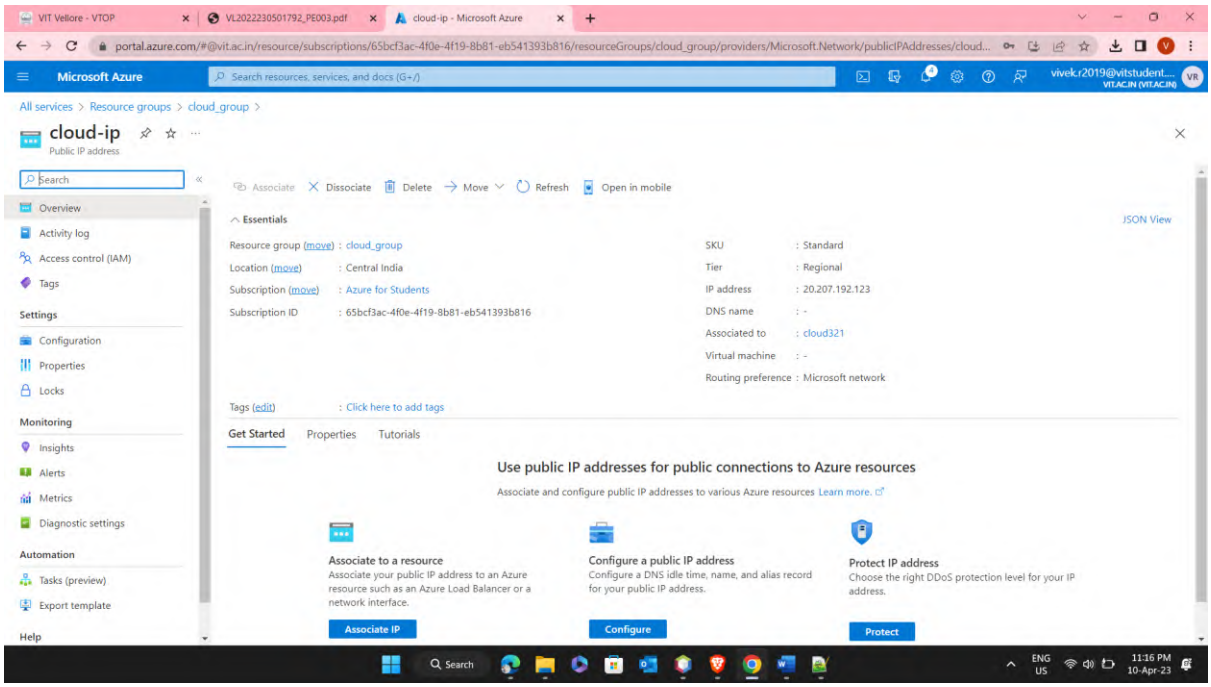


Virtual Monitor - Recovery:

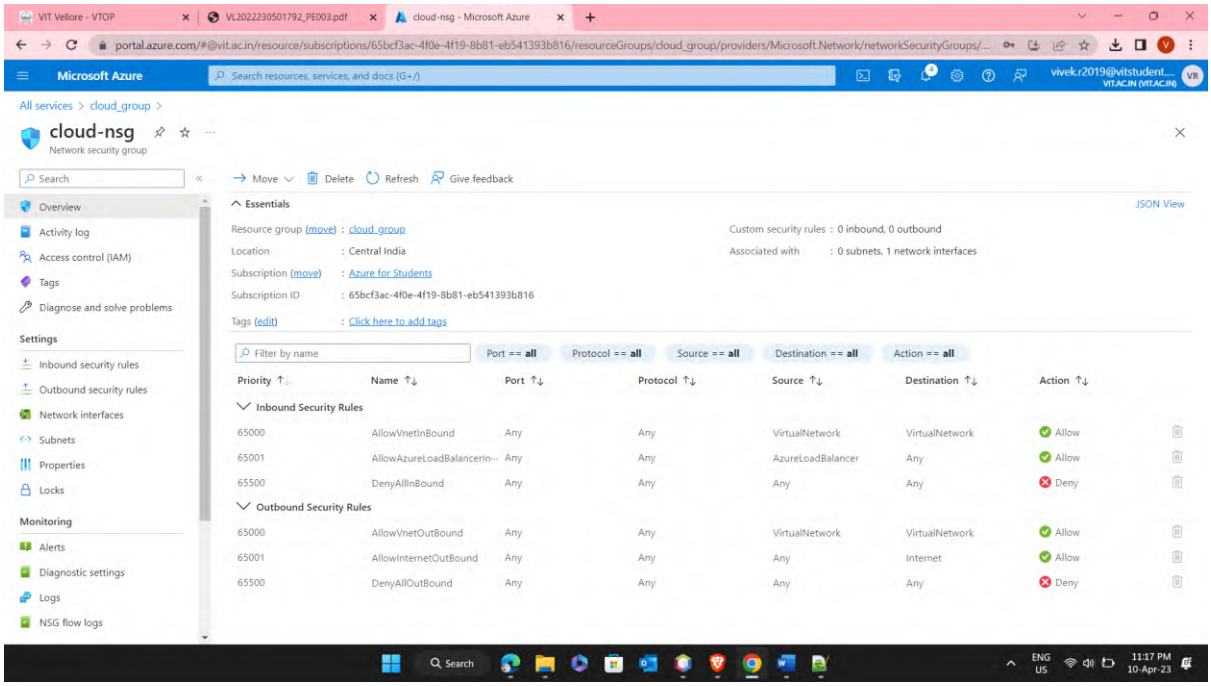




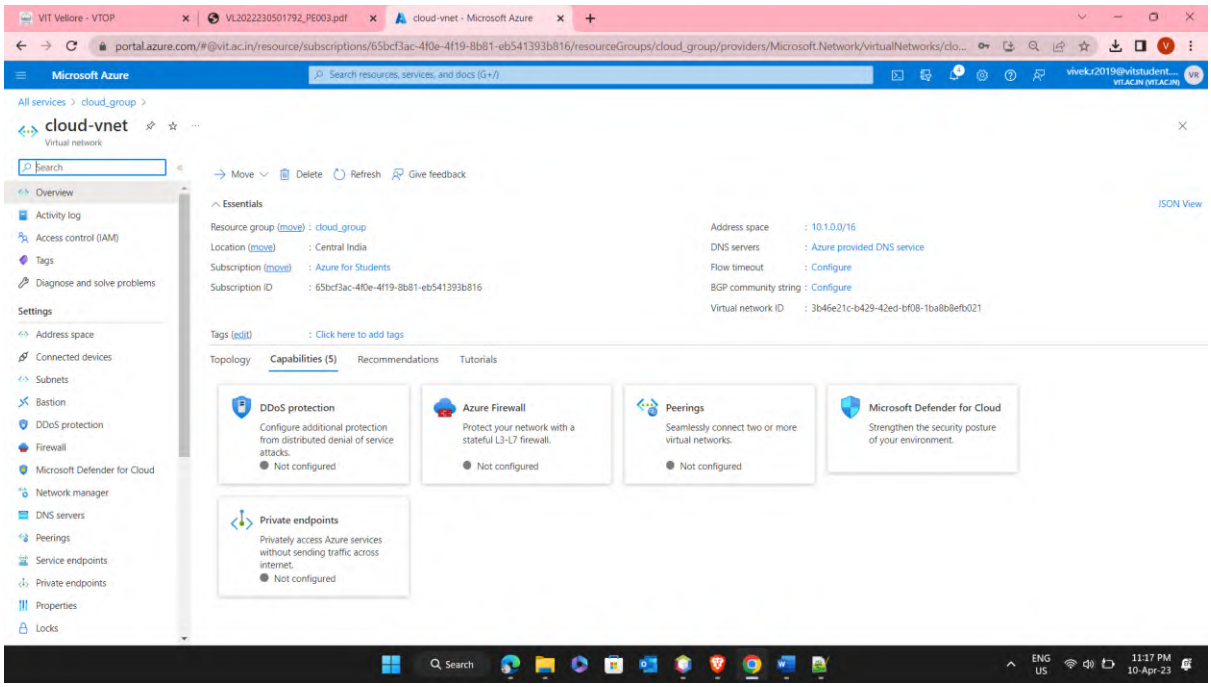
Virtual Monitor IP:



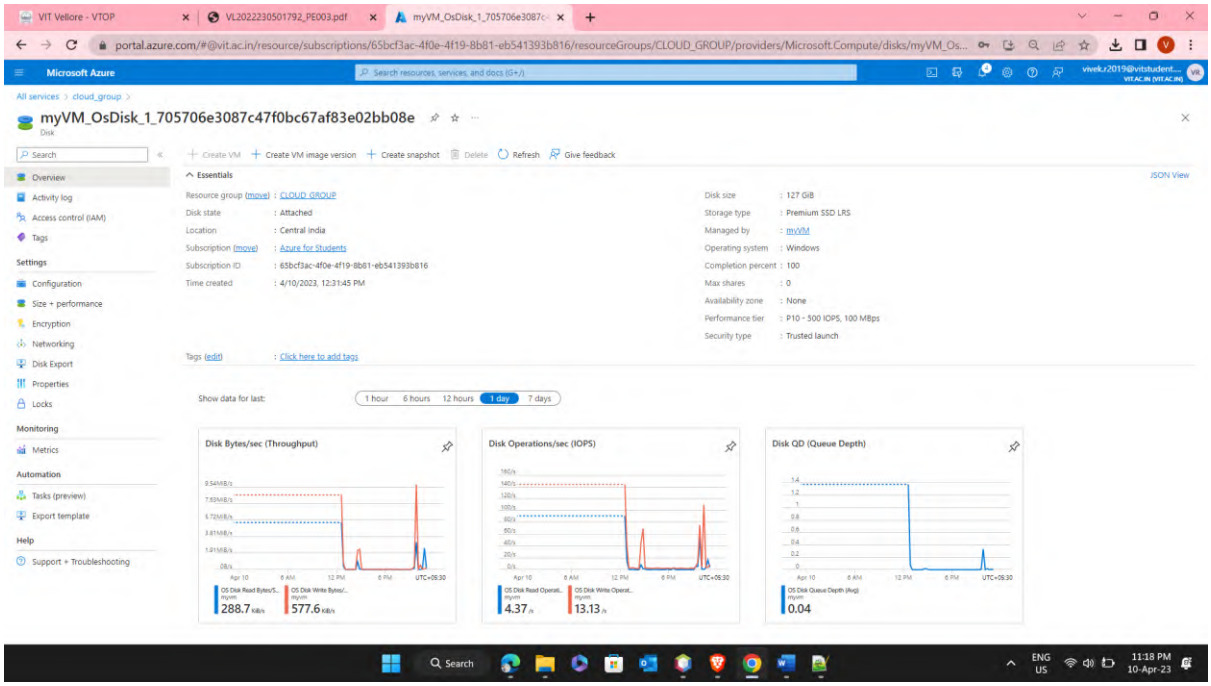
Virtual Monitor Security:



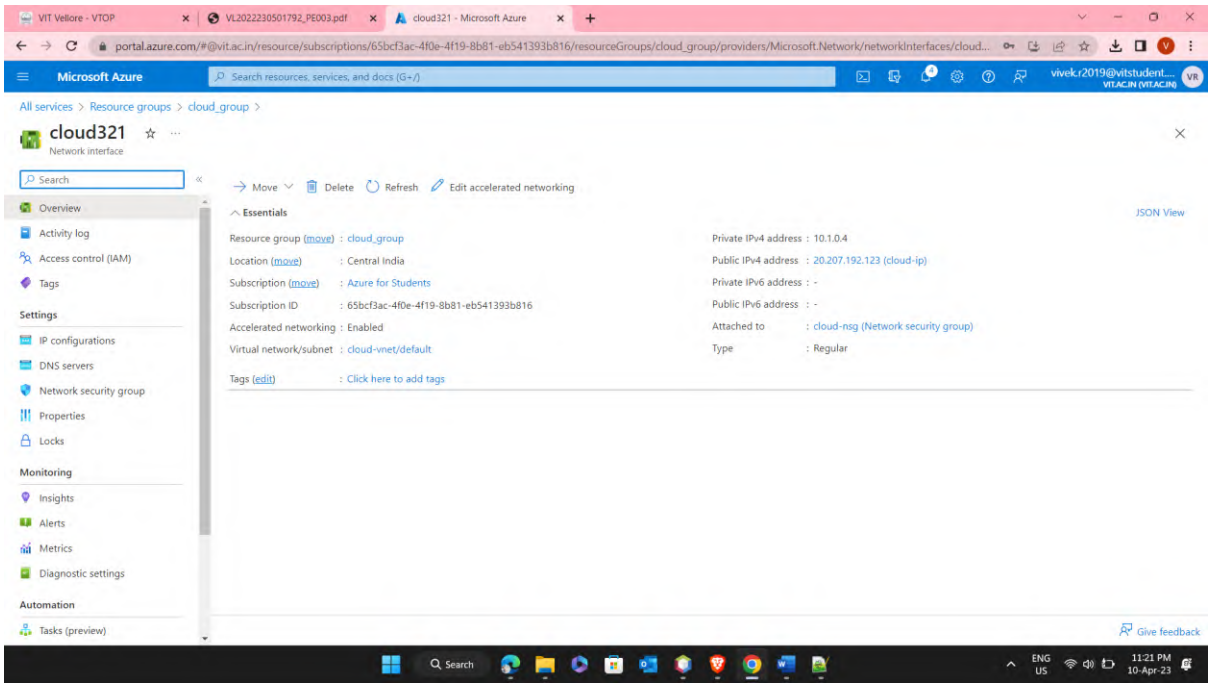
Virtual Machine – VPN:



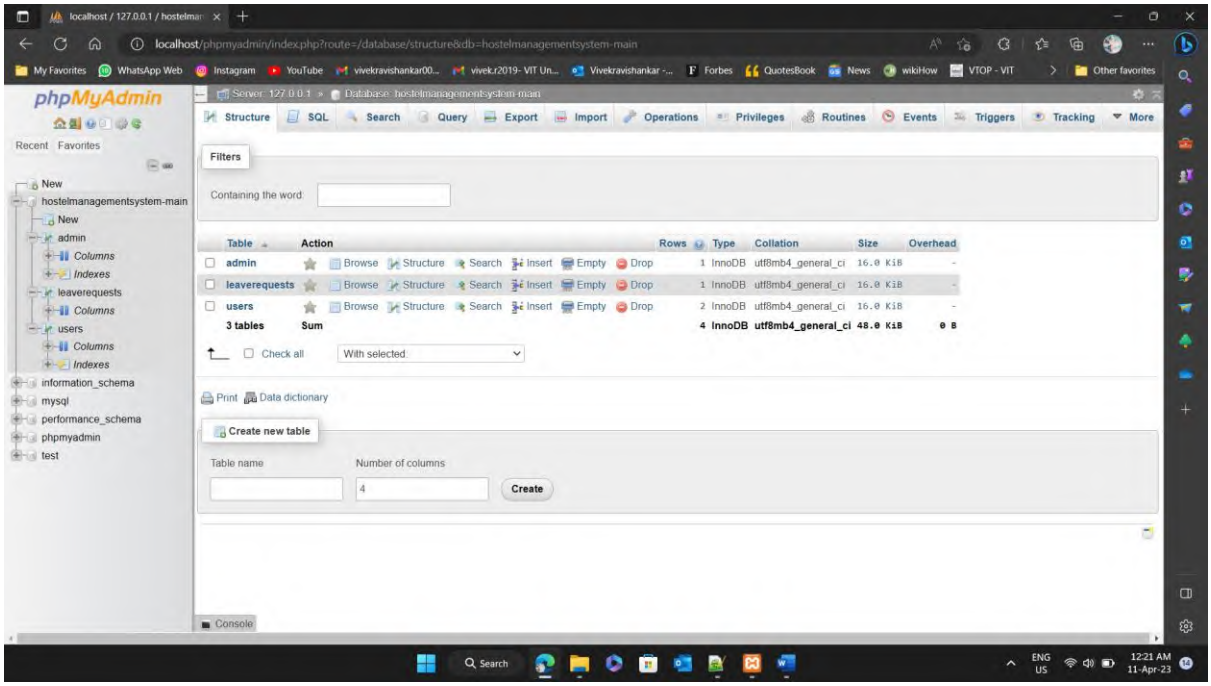
Virtual Monitor – OS Disk:

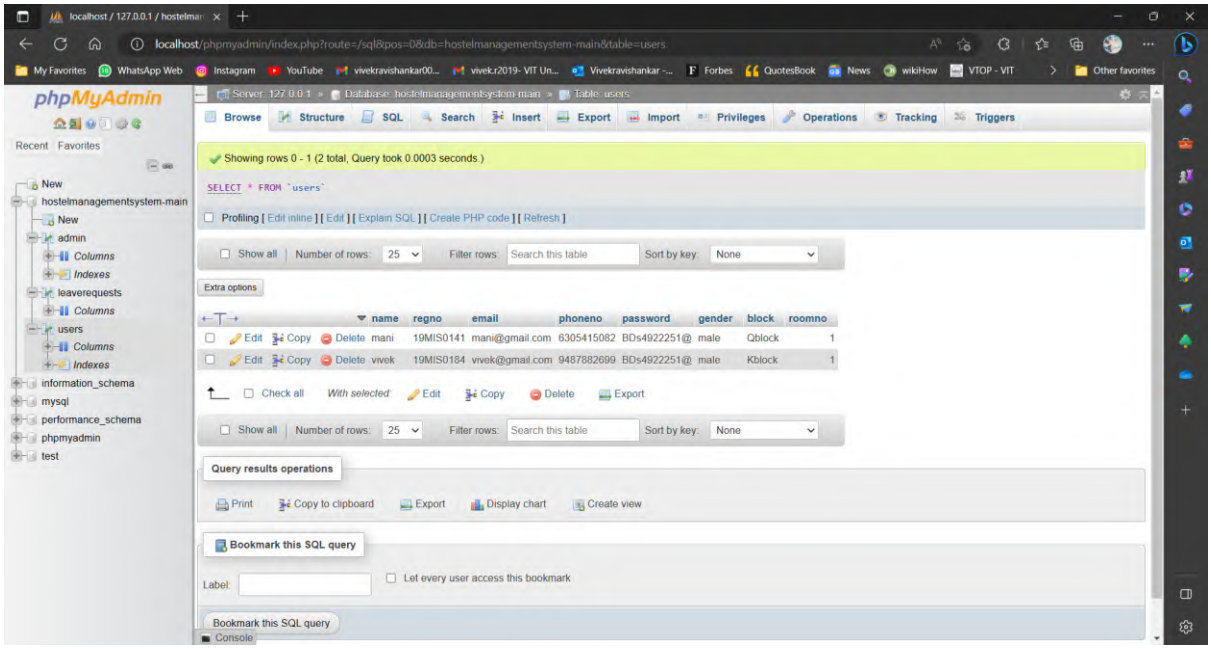


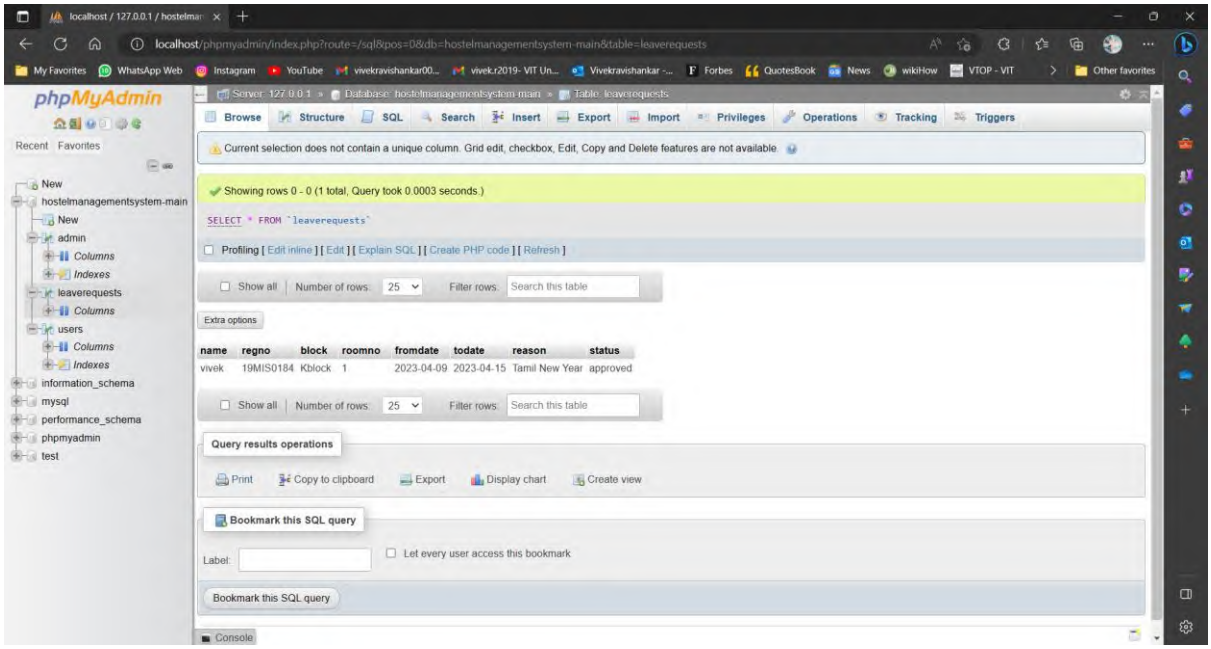
Virtual Monitor – Network Interface:



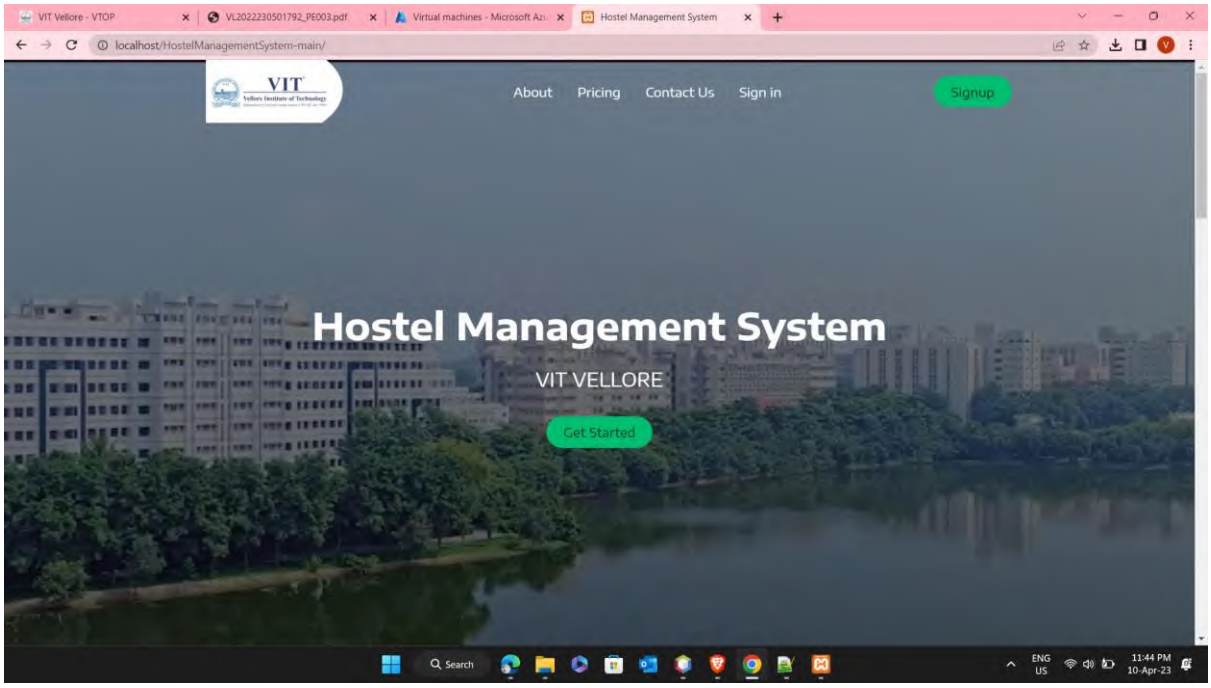
XAMPP – Configuration

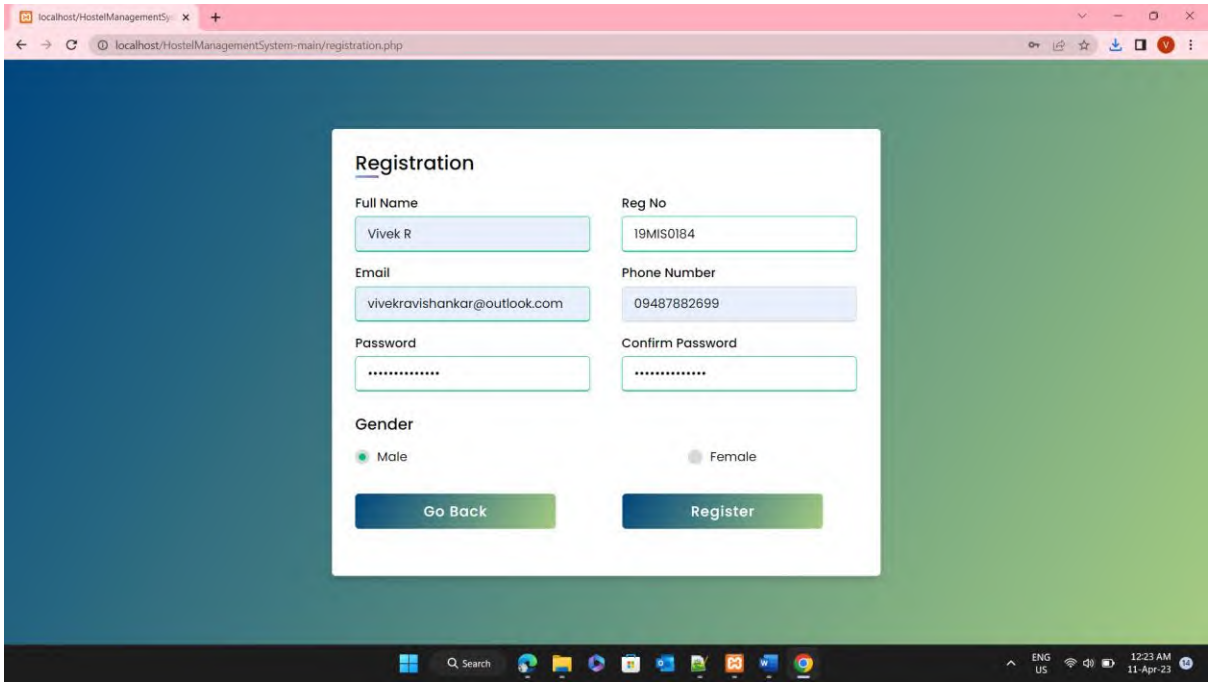


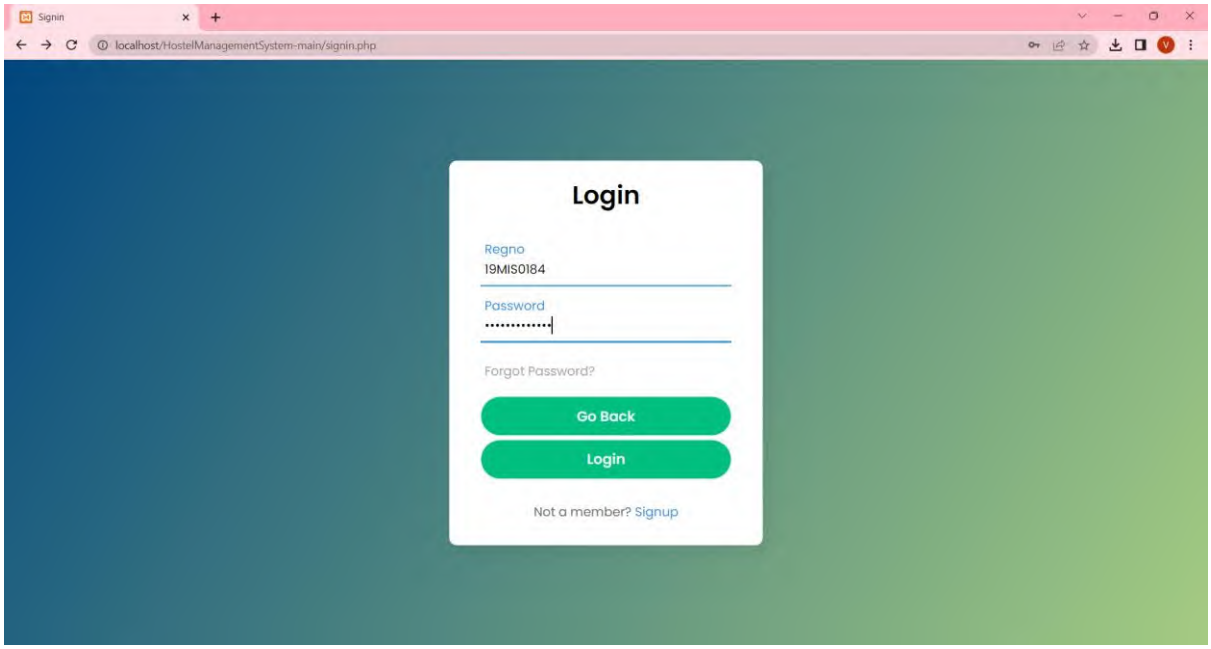


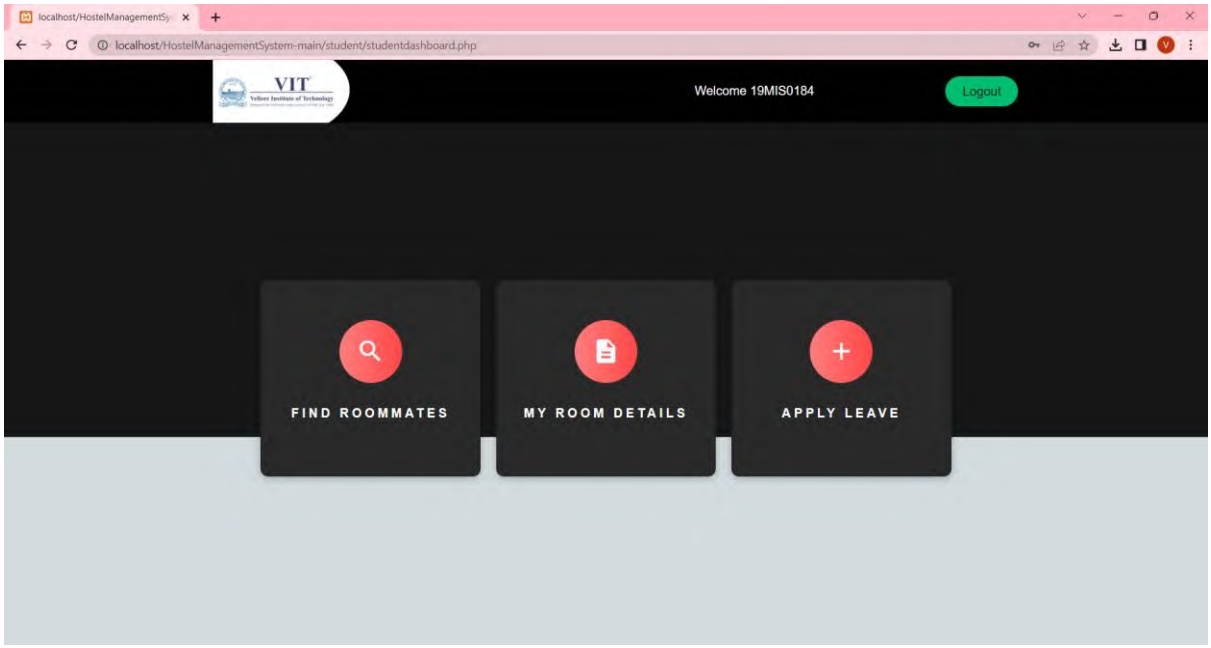


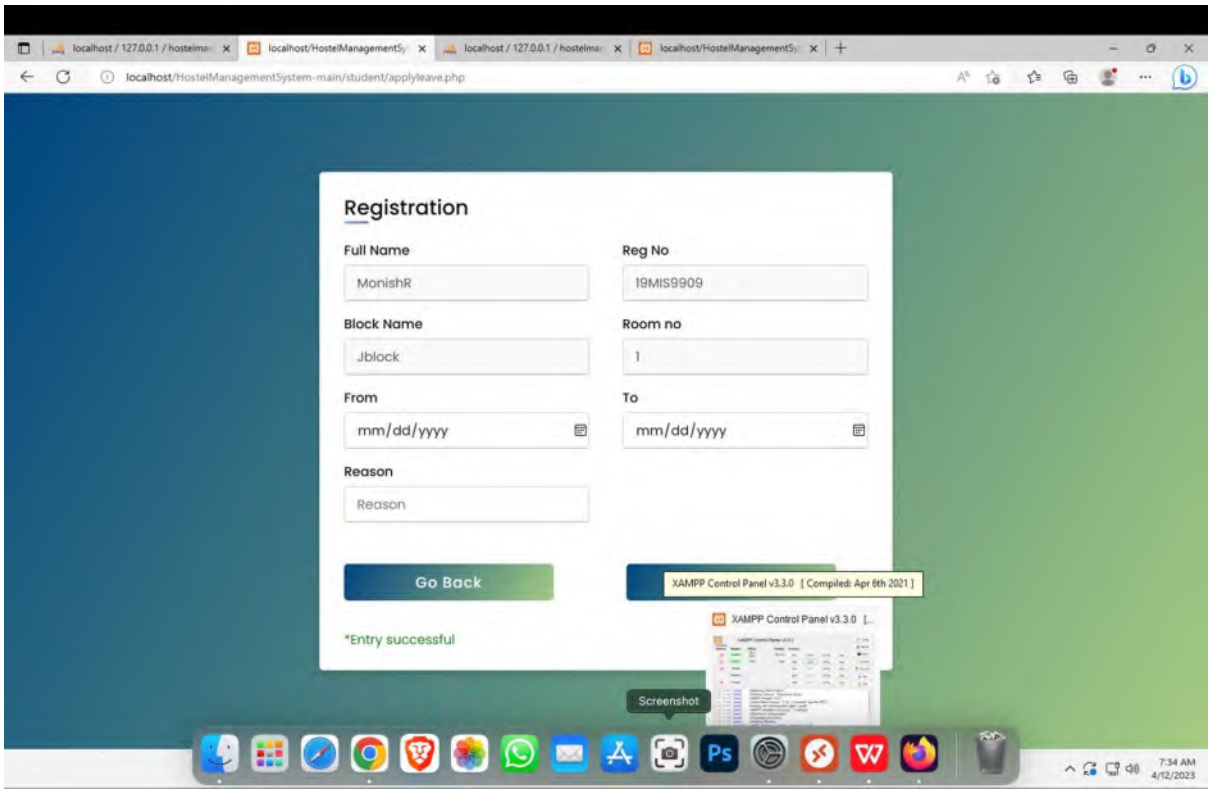
Implementation:

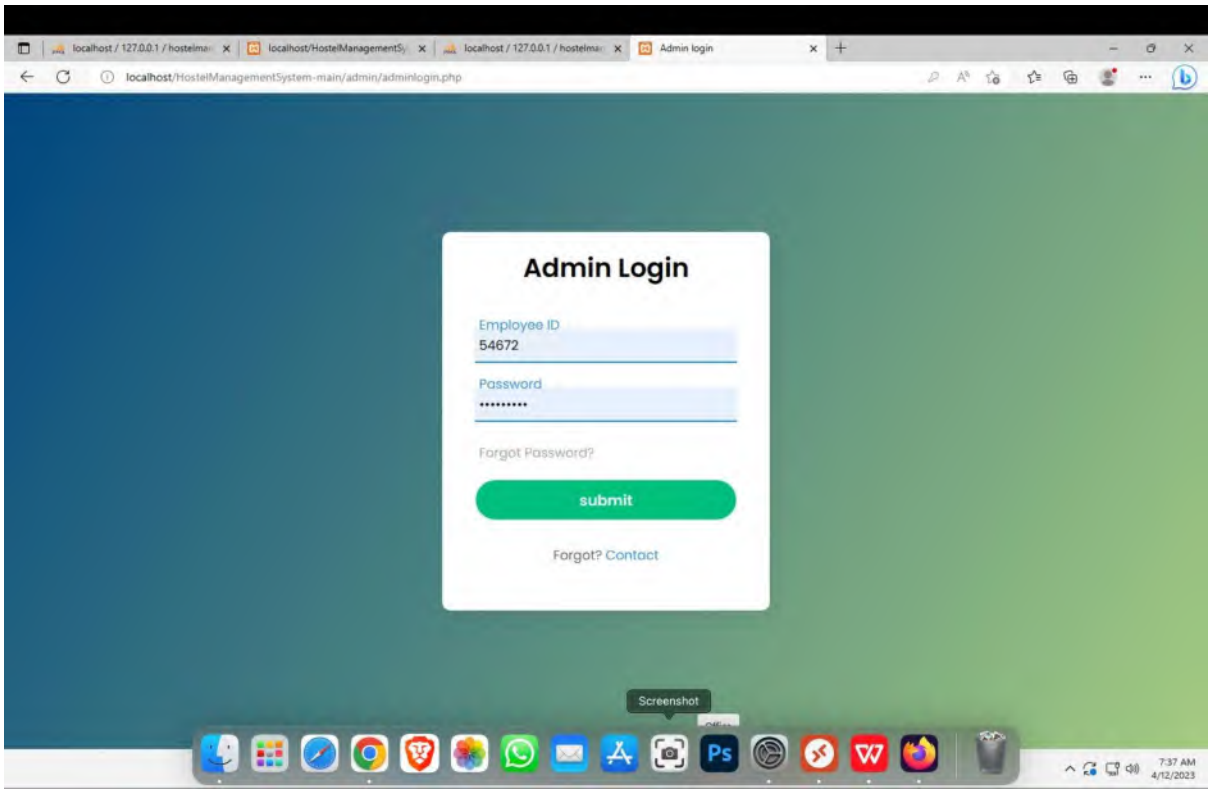


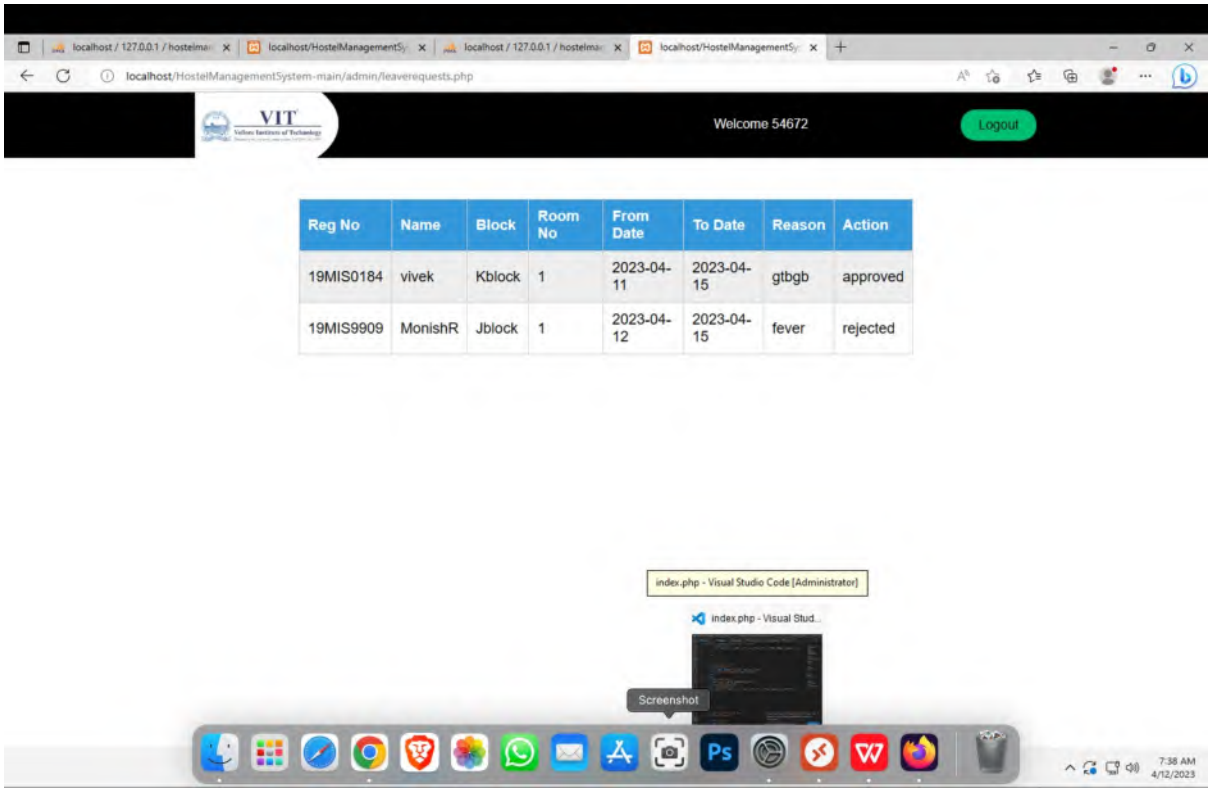

localhost/HostelManagementSystem-main/registration.php
Registration
Full Name
Vivek R
Reg No
19MIS0184
Email
vivekravishankar@outlook.com
Phone Number
09487882699
Password
Confirm Password
Gender
Male
Female
Go Back
Register


Signin
localhost/HostelManagementSystem-main/signin.php
Login
Regno
19MIS0184
Password
Forgot Password?
Go Back
Login
Not a member? Signup


localhost/HostelManagementSy
localhost/HostelManagementSystem-main/student/studentdashboard.php
VIT
Welcome 19MIS0184
Logout
FIND ROOMMATES
MY ROOM DETAILS
APPLY LEAVE


localhost/HostelManagementSystem-main/student/applyleave.php
Registration
Full Name
MonishR
Reg No
19MIS9909
Block Name
Jblock
Room no
1
From
mm/dd/yyyy
To
mm/dd/yyyy
Reason
Reason
Go Back
*Entry successful
XAMPP Control Panel v3.3.0 [Compiled: Apr 6th 2021]
XAMPP Control Panel v3.3.0
Screenshot
7:34 AM
4/12/2023





Reg No	Name	Block	Room No	From Date	To Date	Reason	Action
19MIS0184	vivek	Kblock	1	2023-04-11	2023-04-15	gtbgb	approved
19MIS9909	MonishR	Jblock	1	2023-04-12	2023-04-15	fever	rejected

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