A

Mini Project Report

On

# “ DEPLOYMENT OF STATIC WEBSITE ON AZURE PLATFORM ”


Submitted By

**1. Gore Pranav Popat** **3202025**

**2.Gaikwad Shubham Malhari** **3202017**

**3. Modhave Krushna Balbhim** **3202047**

**4. Doifode Abhishek Suresh** **3202016**

Under The Guidance of

**Mrs.Nilam R.Thorat**

Sinhgad Institutes

Department of Computer Engineering

**Sinhgad Institute of Technology and Science, Narhe, Pune-41**

**Savitribai Phule Pune University**


**2021-2022**

Sinhgad Institutes

**Department of Computer Engineering,**

**Sinhgad Institute of Technology and Science, Narhe**

# CERTIFICATE

This is to certify that

**1. Gore Pranav Popat 3202025**

**2. Gaikwad Shubham Malhari 3202017**

**3. Modhave Krushna Balbhim 3202047**

**4. Doifode Abhishek Suresh 3202016**

studying in TE Computer Engineering Course SEM-VI has successfully completed their Laboratory Practice II Mini Project Work titled "**Deployment of Static Website on Azure Platform**" at Sinhgad Institute of Technology and Science, Narhe in the partial fulfillment of the Bachelor's Degree in Engineering of Savitribai Phule Pune University, during the Academic Year 2021-2022.

| Mrs.Nilam R. Thorat | Dr. G. S. Navale | Dr. S. D. Markande |
|---|---|---|
| **Guide** | **Head of the Department** | **Principal** |

# Content

# 1. INTRODUCTION

## 1.1 Introduction:

Telecommunications companies began to use the cloud symbol to denote the demarcation point between what the provider was responsible for and what users were responsible for. Cloud computing extended this boundary to cover all servers as well as the network infrastructure. They experimented with algorithms to optimize the infrastructure, platform, and applications to prioritize CPU's and increase efficiency for end users.

In February 2010, Microsoft released Microsoft Azure, which was announced in October 2008.In May 2012, Google Compute Engine was released in preview, before being rolled out into General Availability in December 2013.In 2019, Linux was the most common OS used on Microsoft Azure. In December 2019, Amazon announced AWS Outposts, which is a fully managed service that extends AWS infrastructure, AWS services, APIs, and tools to virtually any customer data center, co-location space, or on-premises facility for a truly consistent hybrid experience.

**1.2 Motivation:**Cloud computing is the on-demand availability of computer system resources, especially data storage (cloud storage) and computing power, without direct active management by the user. Large clouds often have functions distributed over multiple locations, each location being a data center. Cloud computing relies on sharing of resources to achieve coherence and typically using a "pay-as-you-go" model which can help in reducing capital expenses but may also lead to unexpected operating expenses for unaware users.

## 1.3Objectives:

The aim of this project is to develop a system that can handle & manage the activities using cloud such as Azure Static Web App.It involved deployment of e-commerce website on Azure cloud with easy steps and reliable way. Less managing personnel & easy searching availability and user profile managing are major goals in this project. Azure gives reliable search facility for the users and create an easy to understand user friendly environment. Attractive user interfaces to navigate through the system for the users.

## 2. SCOPE

**Project Scope:**

Today, the world is strongly connected with one another, with the help of digital technologies. This is one of the primary reasons why the scope of cloud computing changed. The number of jobs, technologies, and research investments required to ascertain the cloud computing future scope, has also increased. This is why we come across many impressive trends in cloud computing.

Cloud Computing is an impressive combination of both on-premise and cloud architectures. It accommodates the creation of a hybrid platform that helps businesses expand, without worrying about investments and the right environment. The latest cloud technologies are more versatile and flexible than ever. It helps businesses of all sizes and domains meet their infrastructure, software, and hardware requirements.

In line with the recent trends in cloud computing, the technology has become more flexible and scalable than ever. This helps industries have more control over their data. Also, it helps in providing better levels of security at each data center. The most integral components of the latest technology in cloud computing is heavily organized.

## 3. TERMINOLOGIES

### Cloud Computing:

Cloud computing means storing and accessing the data and programs on remote servers that are hosted on internet instead of computer's hard drive or local server. Cloud computing is also referred as Internet based computing.

Cloud Computing Architecture:

Cloud computing architecture refers to the components and sub components required for cloud computing.

These component typically refer to:

1. Front end(fat client, thin client)
2. Back end platforms(servers, storage)
3. Cloud based delivery and a network (Internet, Intranet, Inter cloud).

Hosting a cloud:

There are three layers in cloud computing. Companies use these layers based on the service they provide. □

- Infrastructure
- Platform
- Application

At the bottom is the foundation, the Infrastructure where the people start and begin to build.

This is the layer where the cloud hosting lives.

Hosting:

If companies website has a lot of communications and as the time passes, the number of members increases, there would be more traffic on the network and server will get slow down. This would cause a problem.

This problem is overcome by cloud hosting. With Cloud Computing, we have access to computing power when needed. Now, website is put in the cloud server as put it on dedicated server. People start visiting website and if suddenly need of more computing power then website scale up according to the need.

**Azure Static Website:**

A Static Web Application is any web application that can be delivered directly to an end user's browser without any server-side alteration of the HTML, CSS, or JavaScript content.Azure Static Web Apps allows to build modern web applications that automatically publish to the web as code changes.

**Azure App Services Features:**

**1. Easiest Way to Deploy Apps to the Cloud:**

Azure automatically handles deploying of code to multiple servers with high availability and deployments are very fast.

**2. Combine Multiple Apps to Save Money:**

One of the best features is being able to combine multiple applications together. If want to separate them, just put them on different App Service Plans, which is more like different groups of servers.

**3. Automatic High Availability & Auto-Scaling:**

It automatically or manually autoscale app out to use additional servers based on App Service Plan.

**4. Low Cost:**

Microsoft Azure offers pay-as-you-go pricing. It is very cost effective for small and medium enterprises. App Services also has built-in load balancers that help save infrastructure costs.We only pay for the services that are active on your Azure account.

**5. IDE Integration:**

Azure has made it much easier to deploy your applications directly from various IDE's like Visual Studio (with Azure SDK), Xcode, IntelliJ IDEA.

**6. Deployment Slots:**

Deployments slots are one of the best features for App Services. They essentially provide a duplicated environment for the app so we can deploy a new version to a "staging" slot to test before swapping to production.

**7. No Server Maintenance:**

Microsoft Azure will take care of deploying, keeping the servers running, and all the other stuff that nobody wants to spend time on.

**8. Site Extensions:**

Site Extensions are essentially plug-ins that can add various types of functionality to the applications. Including various monitoring solutions, additional management functions, such as Encrypt SSL, Azure Service Profiler, and much more.

**Components of a Comprehensive Azure Security Center:**

Deploy and manage the network with an all-inclusive security solution. Azure ensure complete security with these advanced security features.

**1.Cost-Effective Compliance:**

Accurate logs and nonstop monitoring are fundamental to compliance. Log and audit traffic for compliance reporting at the instance level, with a centralized management console that identifies important security events.

**2.Segmented Resource Access:**

Azure VPN grants least privilege access for users, so we can limit permissions to cloud resources and ensure that servers only communicate with authorized endpoints, for a smaller attack surface.

**3.Actionable Intelligence:**

Sophisticated monitoring includes detailed, auditable reports with data on suspicious or malicious activity in the network. It reduces alert fatigue by providing complete visibility into the network.

**4.Simple Cloud Migration:**

**S**ecurity infrastructure can be deployed to local and cloud resources within as little as 15 minutes and requires no hardware. This helps cut costs while maintaining the highest standard of corporate security.

**5.End-to-End Encryption:**

Azure VPN solution encrypts all transmitted data with AES 256-bit bank-level encryption. For additional security, it also implement Perfect Forward Secrecy (PFS) and offer other protocols like WireGuard.

**6.Secure Remote Access:**

Whether it’s devices, remote workers, or traveling employees, it allows limitless remote connections to the network with granular user access controls, protecting most sensitive resources.

**Azure App Service Limitations:**

**1. Limits on Installing 3rd Party Software and Management Tools:**

One of the biggest benefits of Azure App Services is also a big limitation. We don’t have to manage Windows Server at all and Microsoft is completely responsible for everything. But, we have no access to install virtually all 3rd party software. This can be a negative if our corporate IT uses traditional monitoring tools like Nagios, SolarWinds, Dynatrace, Splunk and many others.

**2. Performance Counters Are Not Available:**

Performance counters can be a pain to work with. Without performance counters there is no way to monitor things like garbage collection, IIS queuing and a lot of other data that can be critical to troubleshooting weird performance problems. But we can’t view or monitor any of these key metrics with Microsoft Azure.

## 4. REQUIREMENTS

**Minimum Hardware and Software requirements**:

Below is a list of the minimum Hardware and Software requirements to access the basic website content.

**Operating System:**

• Windows 7, Windows 8 or Windows 10

• Mac OSX 10.8, 10.9, 10.10 or 10.11

**Hardware:**

• Processor (CPU) with 2 gigahertz (GHz) frequency or above

• A minimum of 2 GB of RAM

• Monitor Resolution 1024 X 768 or higher

• A minimum of 20 GB of available space on the hard disk

• Internet Connection Broadband (high-speed) Internet connection with a speed of 4 Mbps or higher

**Browsers:**

• Chrome* 36+

• Edge* 20+

• Mozilla Firefox 31+

• Internet Explorer 11+ (Windows only)

• Safari 6+ (Mac OS only)

**Browser Configuration:**

Browser must be configured as follows:

• Strongly recommended to trusted sites.

• JavaScript must be enabled

• Cookies must be enabled.

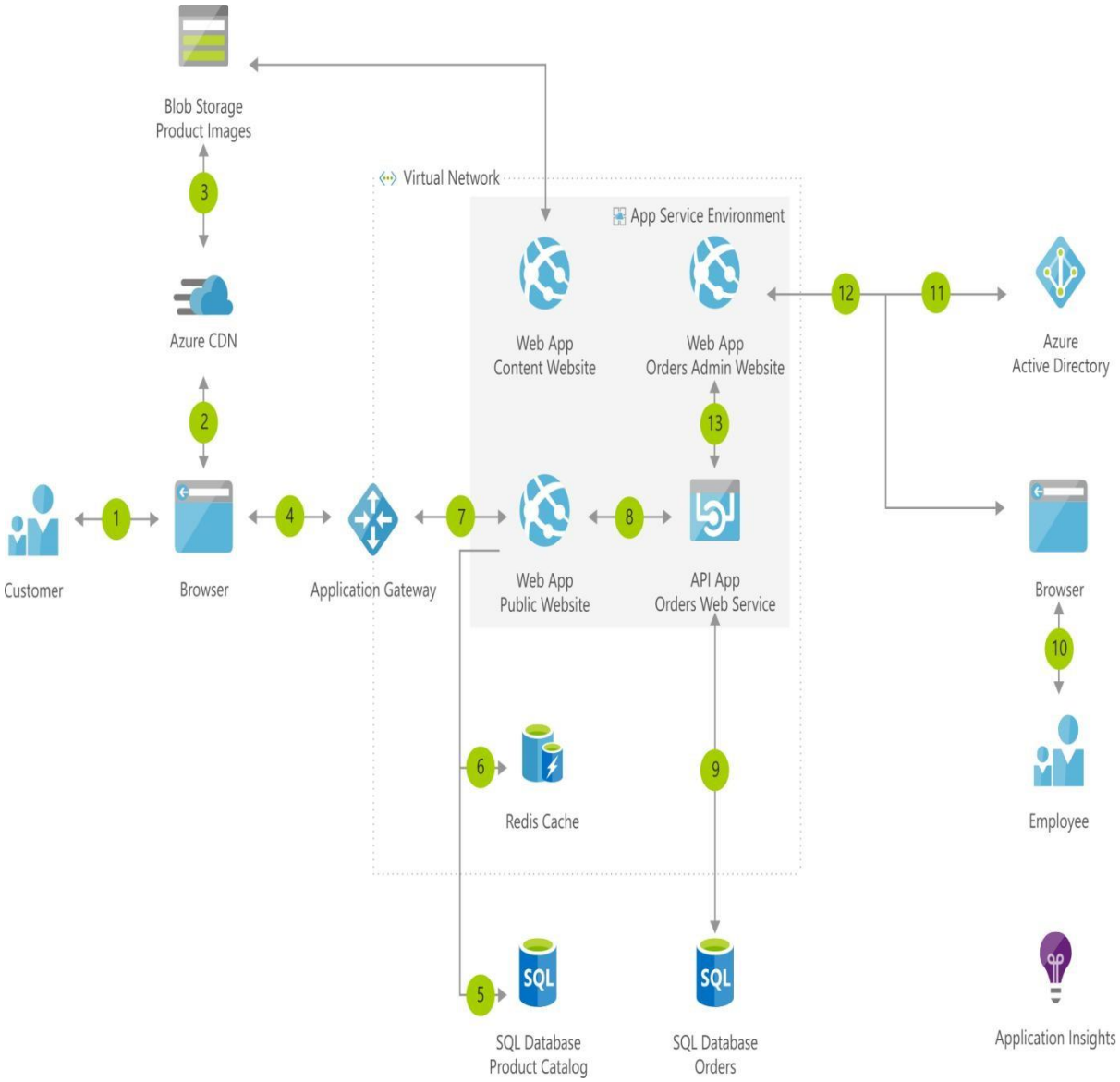
• Pop-up windows must be enabled.

## 5 . ARCHITECTURE

**E-commerce website running in secured App Service Environment**

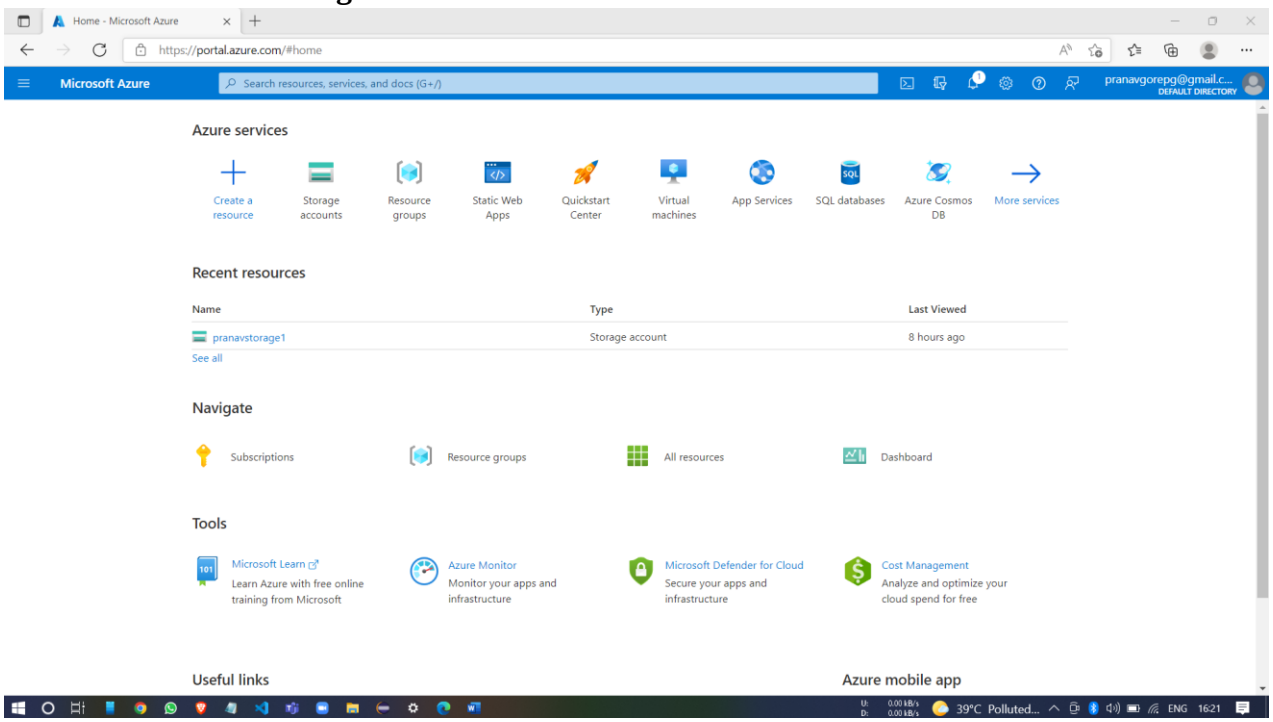
Microsoft Azure App Service Environment to keep sensitive user and payment data from an e-commerce website.

**Azure Architecture:**

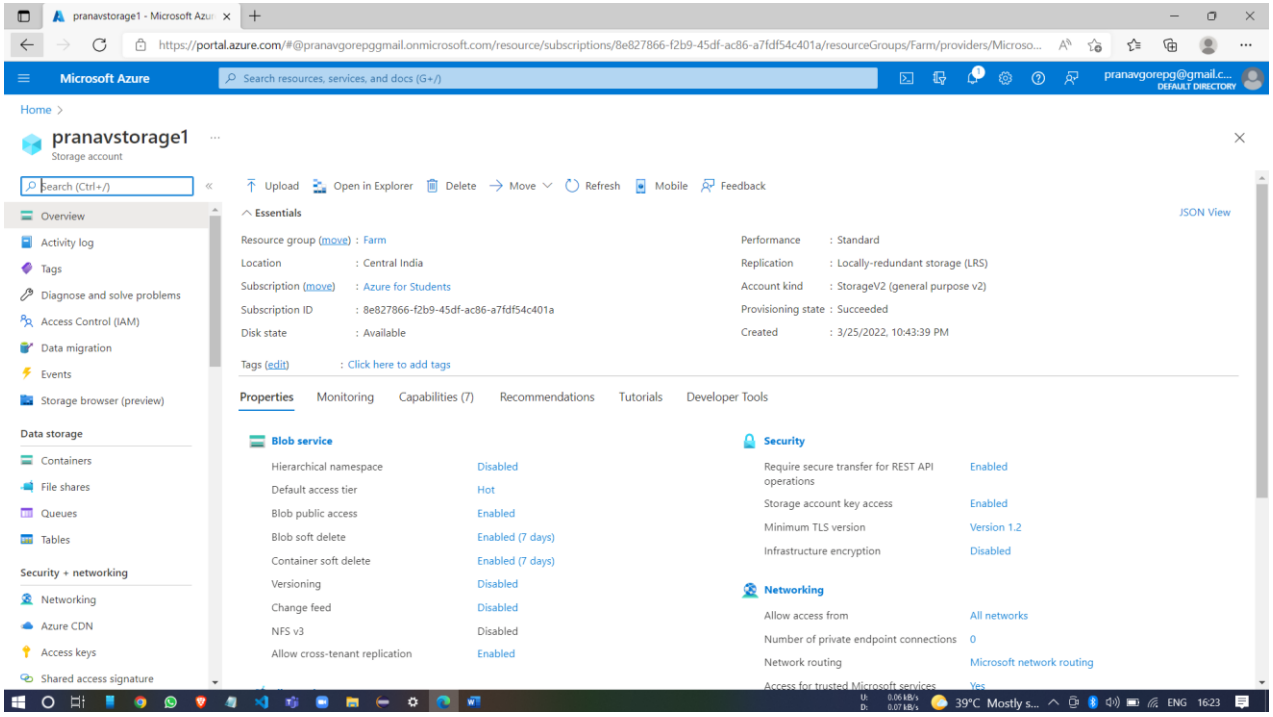


# 6 . GRAPHICAL USER INTERFACE

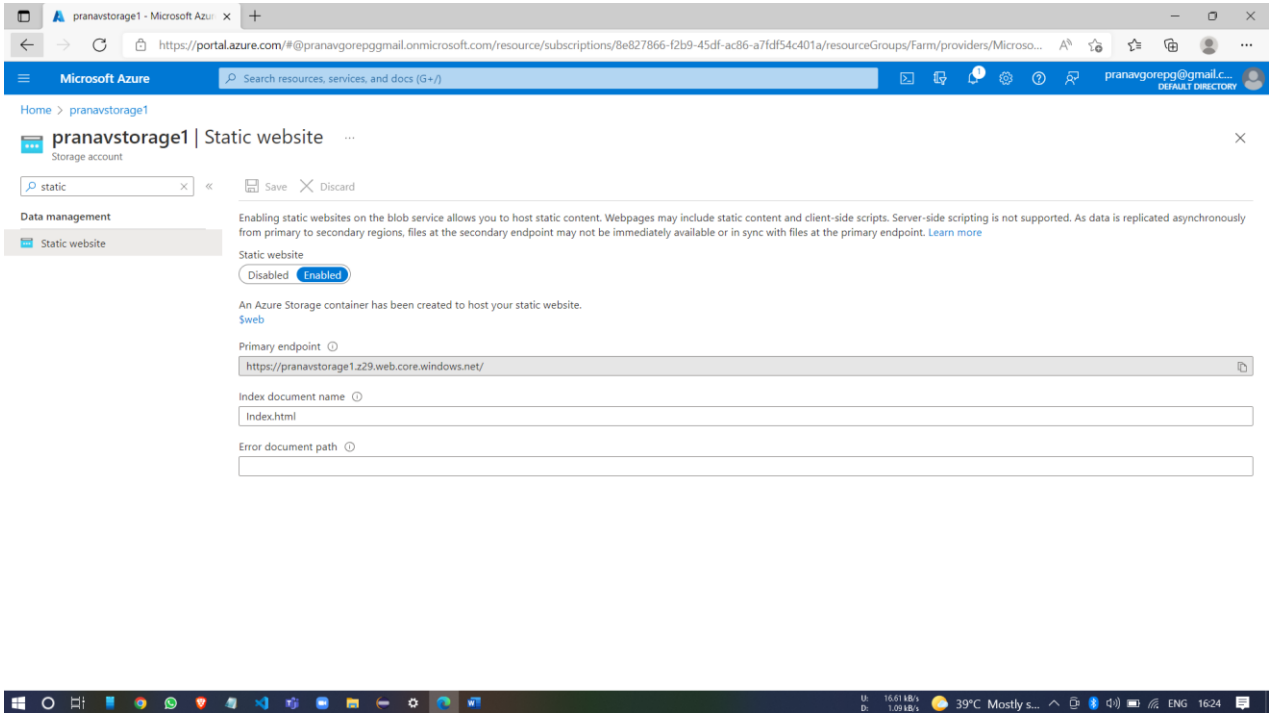
## 1.Azure Portal Home Page :



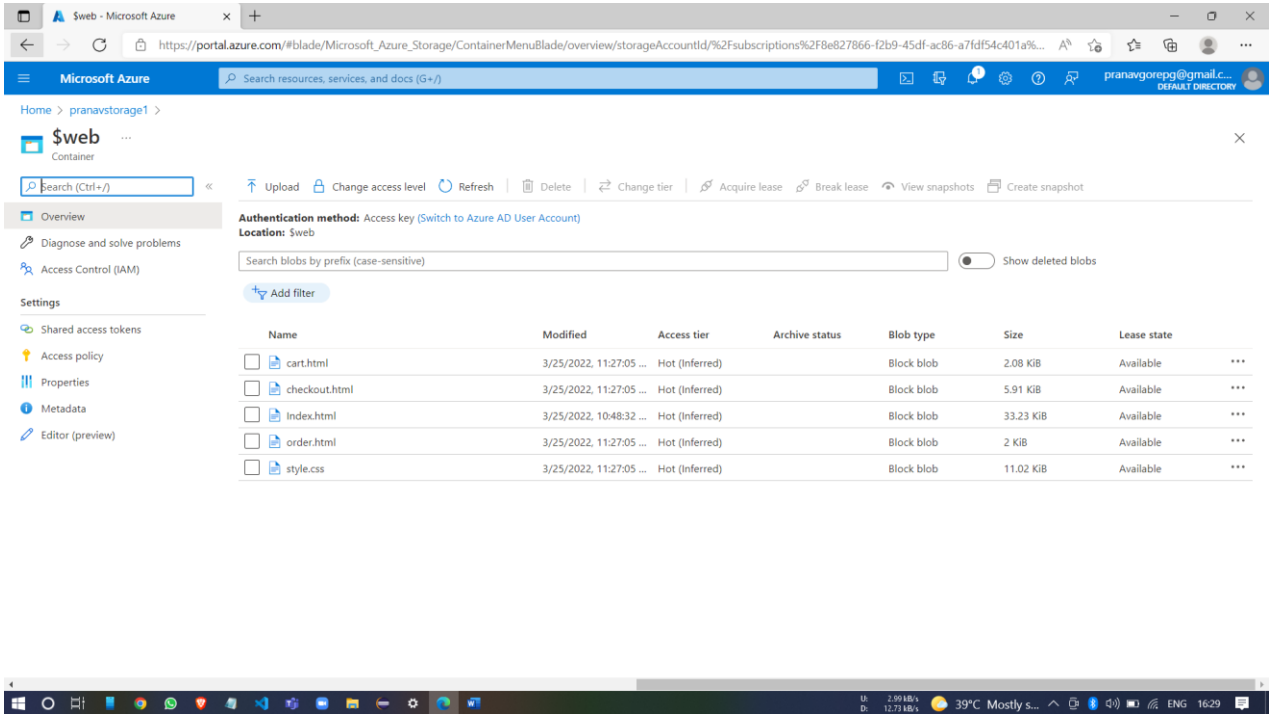

## 2.Azure Storage Account :



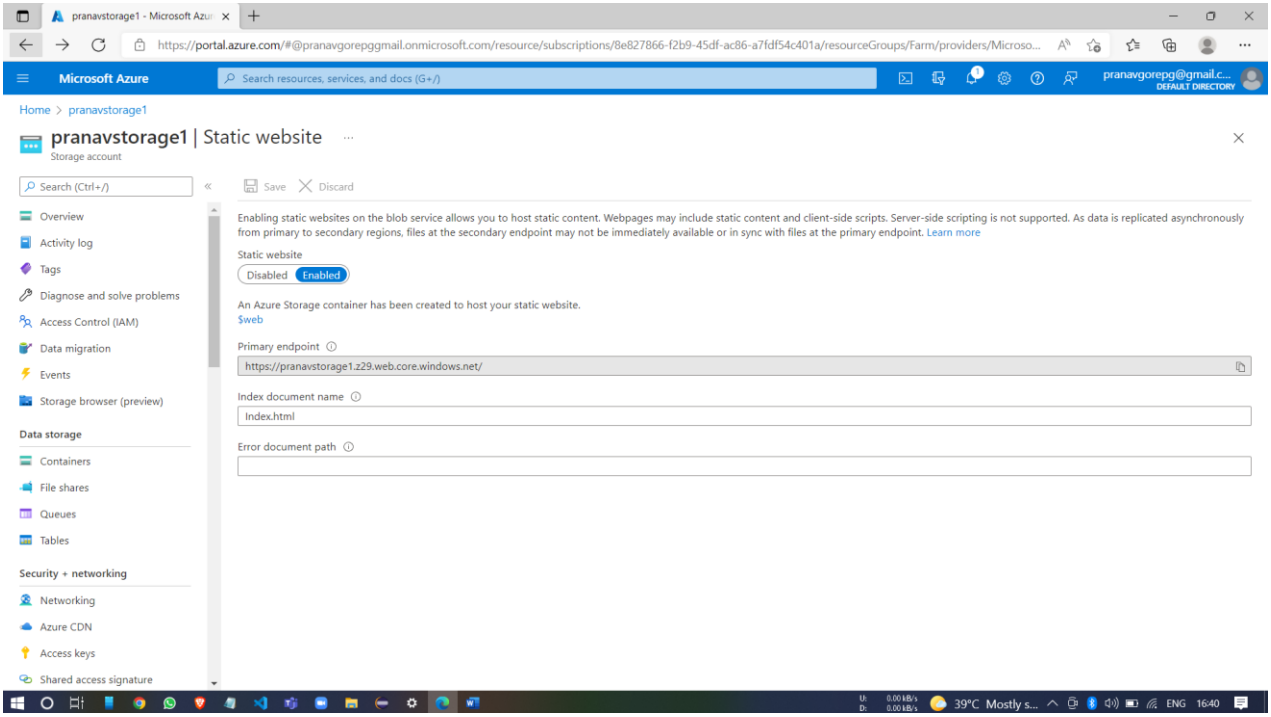
## 3.Azure Static Website:



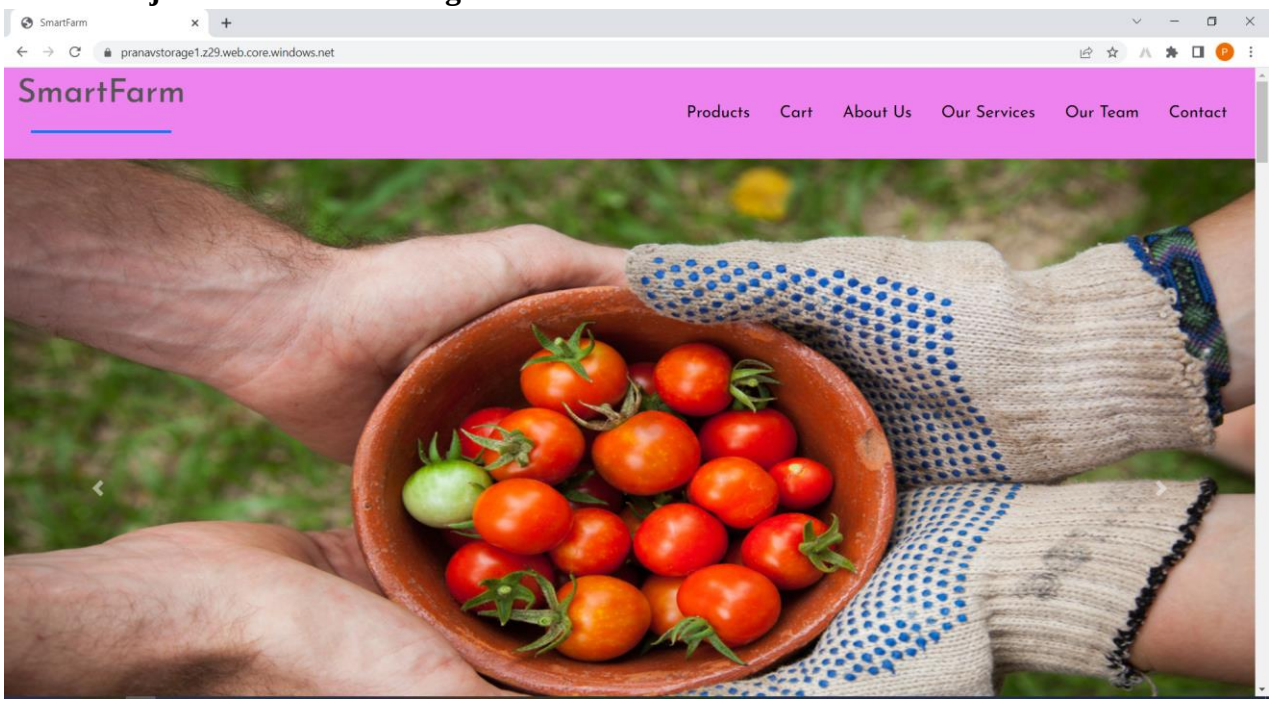

## 4. Azure Storage container:



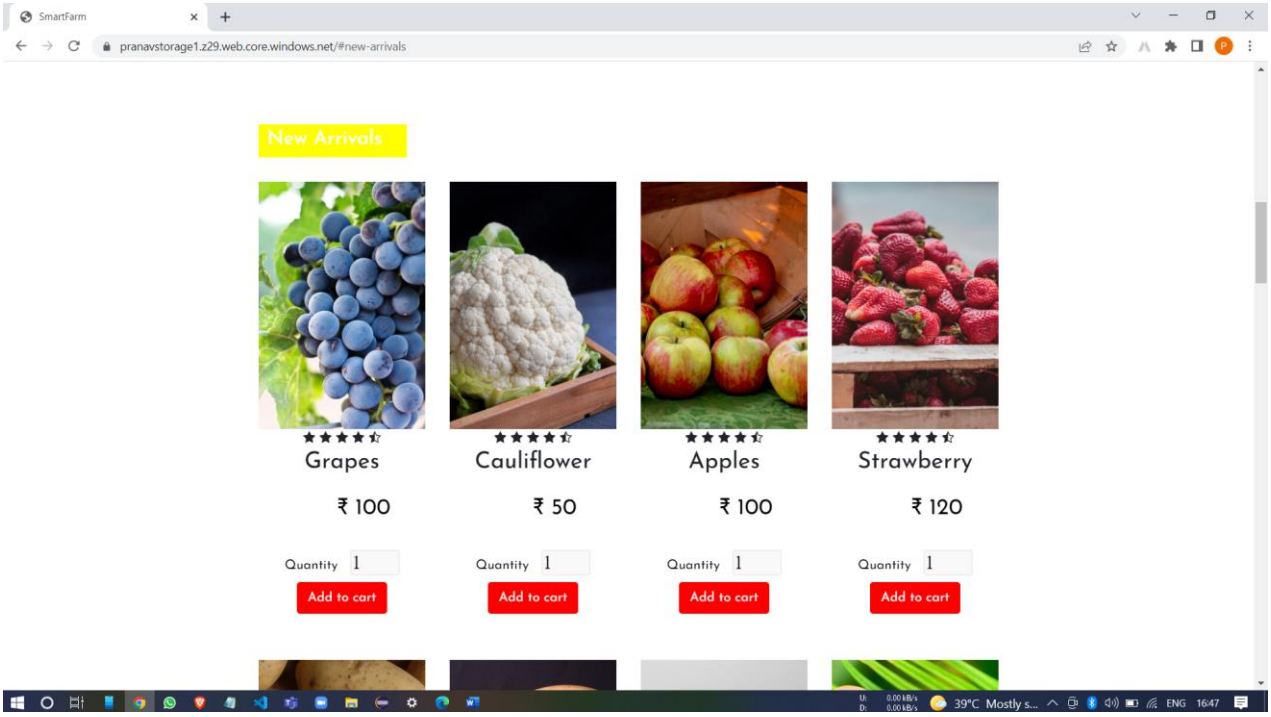
## 5.Linking Mini Project to Azure Static Web Apps :



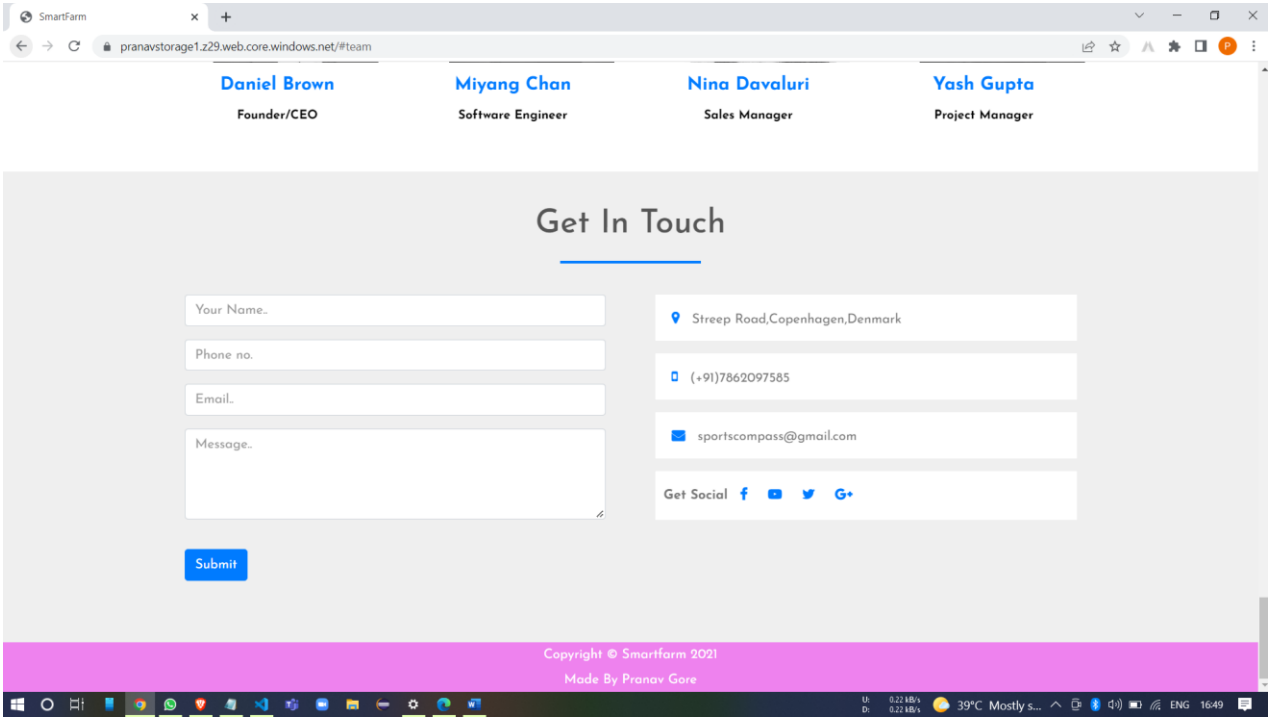

## 6.Mini Project Presentation using Azure Cloud:



## 7.Mini Project Presentation using Azure Cloud:




## 11.Mini Project Presentation using Azure Cloud:



## 7.TEST CASES

| Test Case No | Input | Expected Output | Actual Output | Test Result |
|---|---|---|---|---|
| 1 | Authorization to Azure Static Website | Authorization to Azure Static Website should be done | Authorization to Azure Static Website Apps done | Pass |
| 2 | Linking Mini Project to Azure Static Website | Mini Project should be link to Azure Static website | Mini Project linked to Azure Static Website | Pass |
| 3 | Deploying Mini Project in Azure | Mini Project should be deploy in Azure | Mini Project deployed in Azure | Pass |
| 4 | Including Mini Project at Azure Home Page | Mini Project should be include at Azure Home Page | Mini Project included at Azure Home Page | Pass |
| 5 | Checking Products | Products should be selected | Products selected | Pass |
| 6 | Add to Cart the Product | Product should be added in to the Cart | Product added in to the Cart | Pass |
| 7 | Product Checkout for Purchase | Product should be checkout for Purchase | Product checkout for Purchase done | Pass |

## 8.CONCLUSION

Businesses need to leverage this technology and grow with it. The technology is both powerful and inspiring. In the long run, it proves to be a cost-effective way of executing services for many businesses, both big and small. More and more organizations need to prioritize the use of this technology by restructuring and investing in coding standards that support seamless migration into the cloud.

When data gets stored in the cloud, it becomes easier for IoT to ensure performance, security, and functionality. If the network is fast, everything else about the use of cloud computing will fall in place.