

# Using JavaScript developed Modern Crop Marketing system(Azure VM, MongoDB Atlas on Azure, Azure Web App)

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**Problem statement - First of all, my grandparent are farmers, we plant crops for living in my village.**

**Even though India is an agricultural country, still its agricultural marketing has been defective. The Indian farmers are unable to get reasonable prices for the products even after their hard work and are fully exploited by the middlemen.**

**Agricultural marketing is also very defective in India because here organized marketing is not in vogue, like, cooperative societies, government marketing activities, regular markets, etc. As a result, the farmer remains entangled in exploitation. Thus, the lack of an organized marketing system is harmful to the farmers. That is -why; the farmer sells his product personally to different people. The middle takes full advantage of the unorganized farmers.**

**Solution - We can solve many of these problems very easily through the Modern Crop Marketing System - Dashboard. Using Microsoft Azure Virtual Machine, MongoDB Atlas on Azure, and azure web apps**

**The Modern Crop Marketing System - Dashboard project plays a key role in transparent sale transactions and price discovery initially in regulated markets. With the help of these portals, farmers are not dependent on other middlemen. They post the products/crops which they want to sell.**

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**Let's look into technical details and the Implementation of the solution:**

**You need the following software/ Azure Account, please find details below**

**Azure Account:-** get an azure account by clicking on the following link

<https://azure.microsoft.com/en-us/free/>

There is free credit for students and 200 USD credit if you want to get started with Azure

<https://azure.microsoft.com/en-us/free/students/>

**Visual Studio 2019 Community**

<https://visualstudio.microsoft.com/downloads/>

The community edition is free for students and open-source contributors for non-commercial use.

**Visual Studio Code (Optional if you have Visual Studio 2019 for Azure Function Development)**

<https://code.visualstudio.com/download>

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## **Introduction to Azure VM and MongoDB Atlas on Azure**

Microsoft Azure is a cloud computing platform where we can host our applications, websites, and other services. Azure has a host of services, including hosting and maintenance, database management, and app development. MongoDB Atlas on Azure is a fully managed database service that saves you the hassle of managing your database infrastructure. It delivers high performance and scales as your application grows. It also provides the full functionality of the open-source version of MongoDB with a click of a button.

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## **Basics of MongoDB/Atlas: Why it is Important for Modern Crop Marketing System?**

Modern Crop Marketing System is a complex system and to build such a complex system we need to use various tools such as a database, a programming language, and an operating system. Here in our case, we are going to use a database and a programming language, but what about an operating system? In this case, we will use Azure VM to host our application because the VM has an operating system that will host our application. We can

use any programming language and database if we host our application in an Azure VM. It means that we can use any database and any programming language in our application because we have full-fledged operating systems. In our application, we will use MongoDB as a database because it is easy to use and scalable. This means that the data in MongoDB is easy to update and it can scale. That is why we use MongoDB as a database.

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## **Pre-requisite for using JavaScript Deployed Modern Crop Marketing System with Azure VM, MongoDB Atlas on Azure, and Azure Web App.**

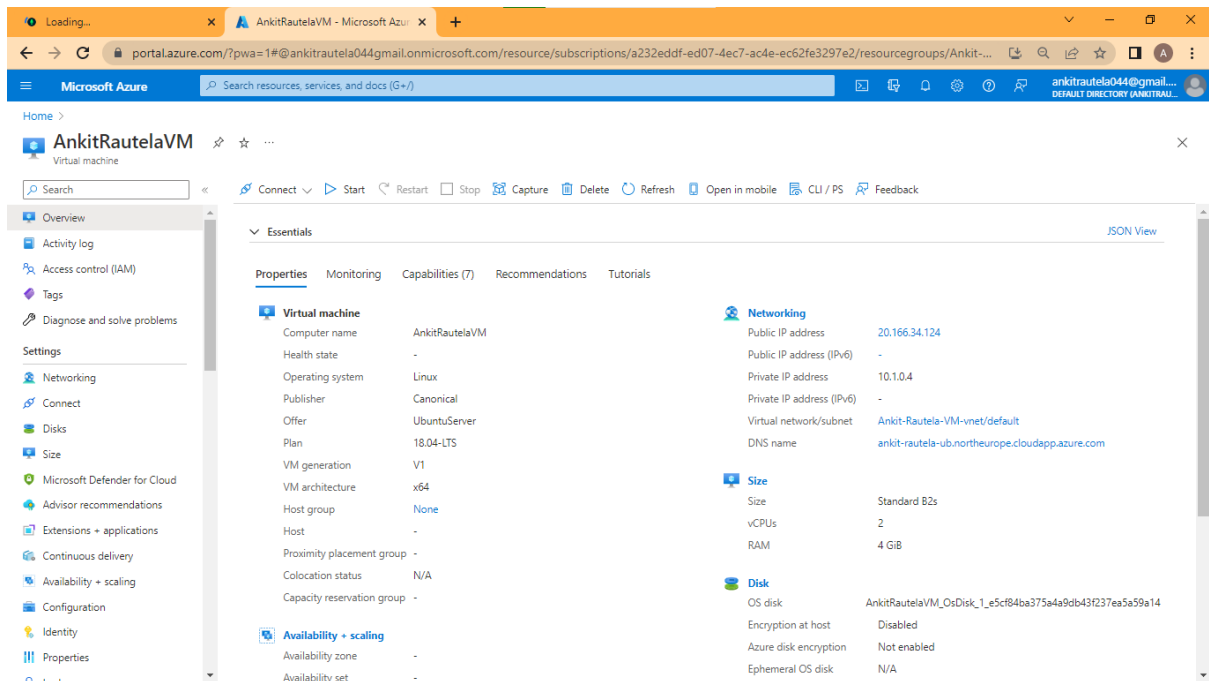
To use our JavaScript-deployed Modern Crop Marketing System with Azure VM, MongoDB Atlas on Azure, and Azure Web App, first of all, you need to have an Azure VM and MongoDB Atlas account.

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## **Steps to Create and Connect Azure VM and MongoDB Atlas:**

### **Step 1: Create an Azure VM and deploy the app**

Before deploying the app and connecting it to the database, let's first create an Azure VM for hosting the app. Launch the Azure Portal, select New, and then select App Services. Select Hosted service, select Web App, provide a Name, select the Subscription and Location, and then click Create.



## Step 2: Install MongoDB on Azure VM and update the connection string

The Azure VM has a virtual machine that can be accessed from any computer with the help of a secure connection. There are two ways to install MongoDB Enterprise on Azure VM: We will use the second method because the former method does not allow you to update the database version for any reason. Now, let's connect to Azure VM. Go to Azure VM and secure the connection by generating an SSH key and adding it to the VM. After that, it will prompt a command to run on the VM. Now, let's install MongoDB on the VM. `MongoDB-org-install-Linux-arm.sh`, After installation, the database can be accessed with the help of the mongo shell. `mongo` After the database is accessed, we need to update the connection string with the database IP and port.

```
const mongoose = require('mongoose');

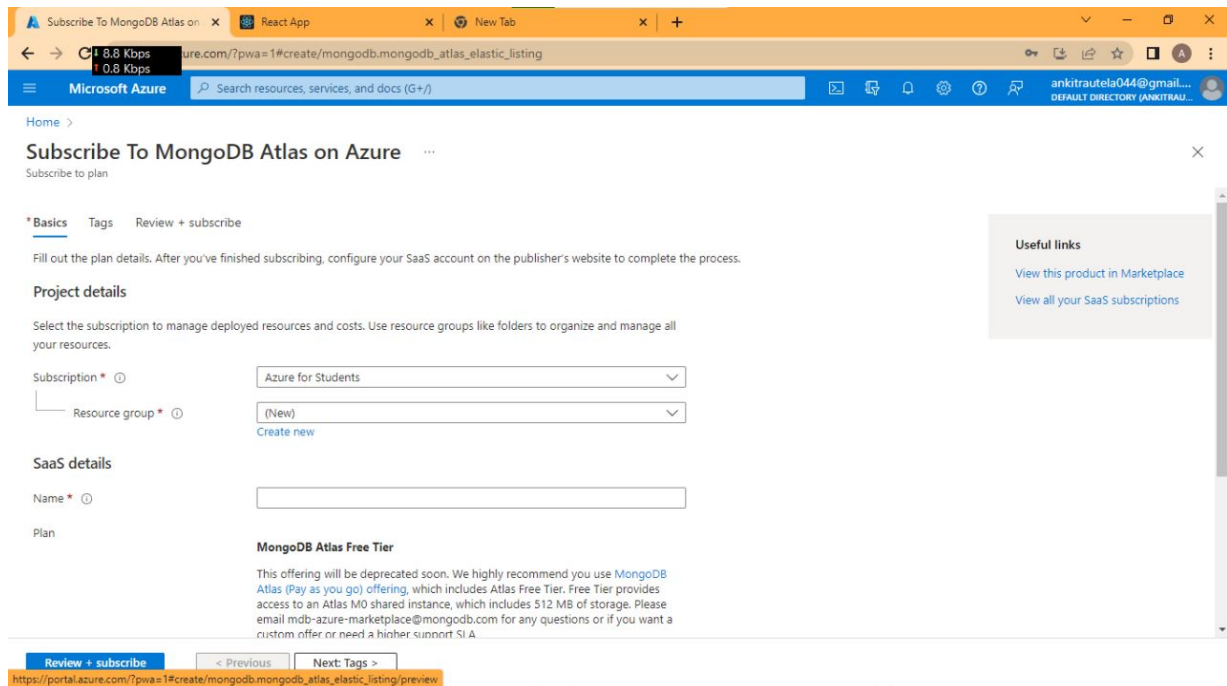
const connectDB = async () => {

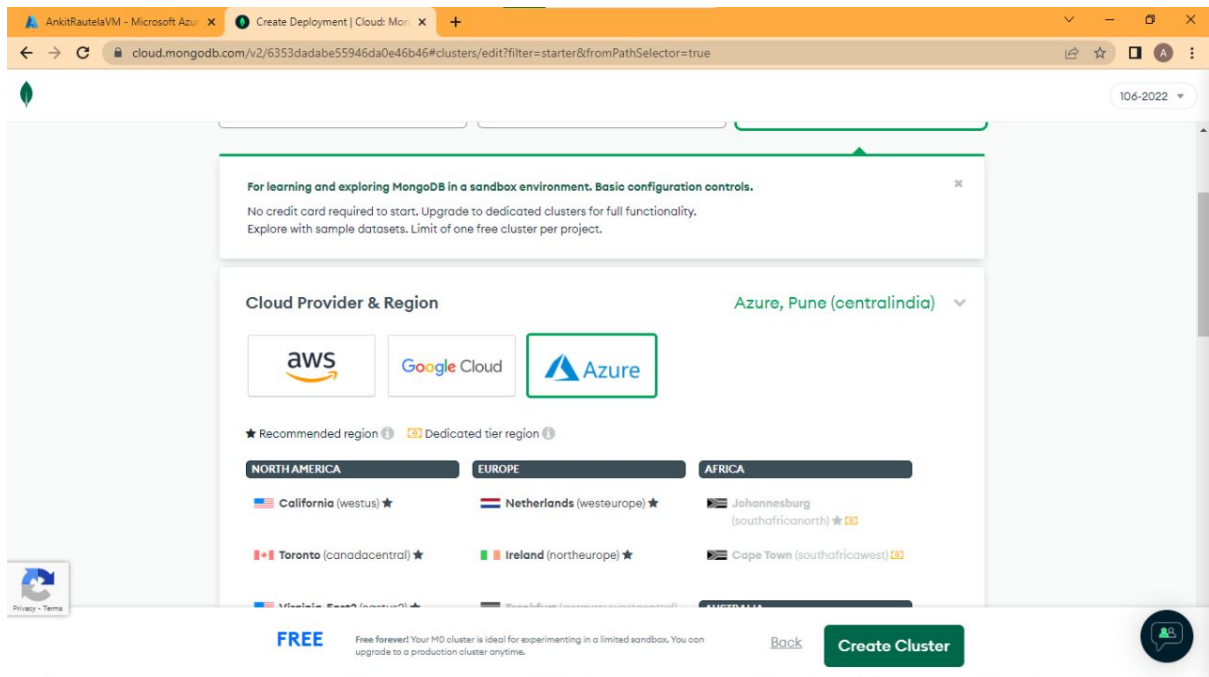
  const conn = await
mongoose.connect("mongodb+srv://dev:dev@cluster0.86ofvye.mongodb.net/?r
etryWrites=true&w=majority",
  {
    useNewUrlParser: true,
    useCreateIndex: true,
    useFindAndModify: false,
```

```
useUnifiedTopology: true
});
console.log(`MongoDB Connected: ${conn.connection.host}`);
};
```

## Step 3: Create a web app and import data from MongoDB Atlas

Let's create a web app in Azure to connect to the database and import data. First, go to the Azure Portal and select New. Select App Services and then select Web App. Provide a Name, select the Subscription and Location, and then click Create. After creating the web app, go to the Dashboard, select Settings, and then select Service Endpoints. Now, click Add New and select the MongoDB connection. After that, provide the MongoDB IP and the port used to access the database. Click Save.





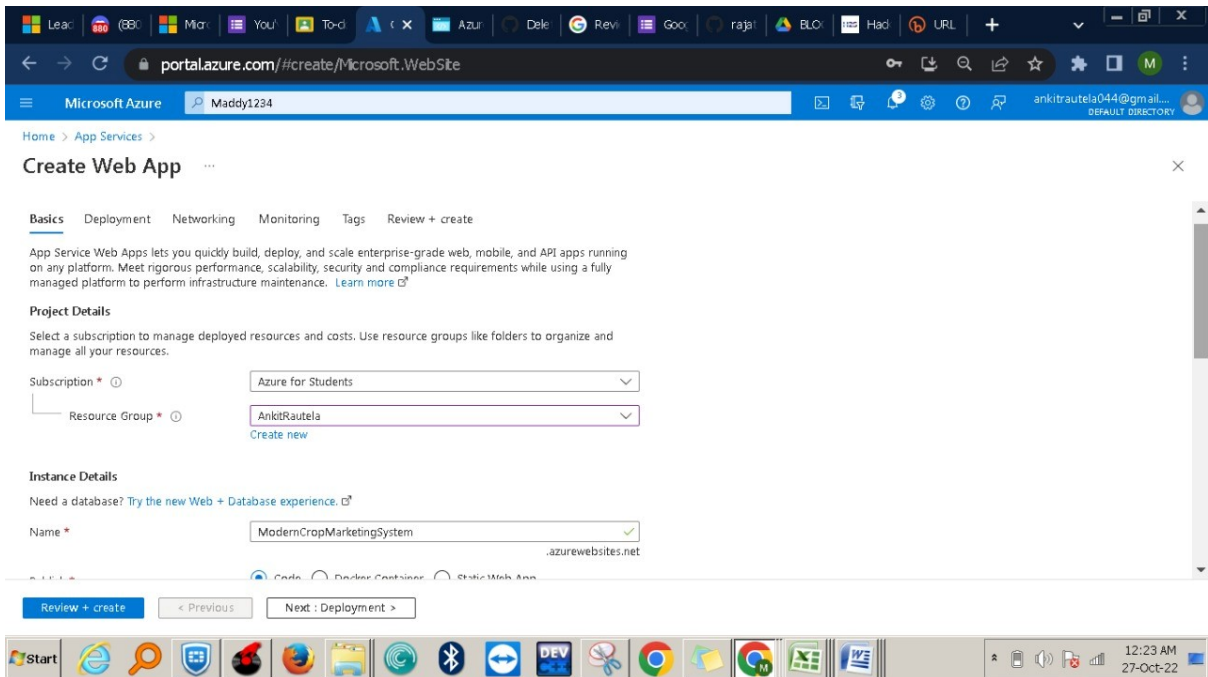
## Step 4: Set up Azure Functions for Marketing Actions (Email, SMS, etc.)

Now, let's create Azure Functions for email, SMS, marketing automation, etc. For that, go to the Azure Portal and select New. Select App Services, select Function App, select the Subscription and Location and then click Create. Click on Functions, select Create New, provide a Name, select Function App and then select the Location, select the Language, provide a Function Name, and then click Create.

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## Azure Web App

There are a lot of things you can build using Azure. A web app in Azure is an application that gives users convenient access to your data or services from any device with an internet connection. It's a great way for you to get more out of your other Azure features like storage and databases. In this blog post, we'll take you through everything you need to know about writing web apps on Azure so that even if you aren't a developer, you can still use all the benefits provided by this service.



## Create Web App

Continuous deployment  Disable  Enable

### GitHub Actions details

Select your GitHub details, so Azure Web Apps can access your repository.

GitHub account	Ankit-Rautela <a href="#">Change account</a>
Organization *	Ankit-Rautela
Repository *	MCMS-ModernCropMarketingSystem
Branch *	main

### Workflow configuration

File with the GitHub Actions workflow configuration.

[Preview file](#)

[Review + create](#)

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[Next : Networking >](#)

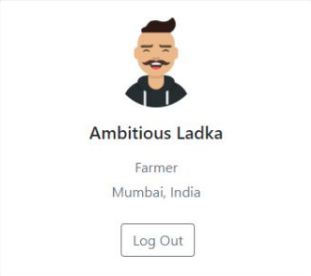
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#	Name	Price	Category	Operation
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2	Banana	₹ 100	Fruits	<button style="background-color: #ffc107;">Update</button> <button style="background-color: #dc3545; color: white;">Delete</button>
3	Grapes	₹ 150	Fruits	<button style="background-color: #ffc107;">Update</button> <button style="background-color: #dc3545; color: white;">Delete</button>
4	Papaya	₹ 80	Fruits	<button style="background-color: #ffc107;">Update</button> <button style="background-color: #dc3545; color: white;">Delete</button>
5	Pineapple	₹ 120	Fruits	<button style="background-color: #ffc107;">Update</button> <button style="background-color: #dc3545; color: white;">Delete</button>

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## Summary



This JavaScript-deployed Modern Crop Marketing System demonstrates how to build a scalable and secure serverless architecture in Azure with MongoDB Atlas, Azure Functions, and Azure VM. To create and connect Azure VM and MongoDB Atlas, follow these steps - create an Azure VM, install MongoDB on Azure VM, create a web app, and then import data from MongoDB Atlas. These steps will guide you through the process of creating a scalable and secure serverless architecture in Azure.

## GitHub URL:

- <https://github.com/Ankit-Rautela/MCMS-ModernCropMarketingSystem.git>
  - <https://github.com/Ankit-Rautela/MCMS-Backend.git>
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## Challenges Faced

- Integrating multiple components is a very skilled job. That makes me smile many times on me. Azure VM and MongoDB Atlas on Azure services are two separate entities in the same ecosystem. Integration is fun.
  - After Integration checks the workflow and finds & fixing bugs. it's a really fun movement for me.
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## Business Benefits

- This System helps to improve the economy of the country
- Farmers come under monetization and will get the same benefit as registered owners.

–By Ankit Rautela