

## ASP.NET CORE – AZURE MINI PROJECT

Create a **Web API Project** to store Product Information. Use Entity Framework to store the product information in the database. The user should be able to perform all the CRUD Operations. Configure **GET, POST, PUT and DELETE**.

The Product Entity should have the following properties:

- ProductID
- ProductName
- Price
- Brand
- ManufactureDate
- ExpirationDate

Use Data Annotations to

- Mark the Primary Key
- Make ProductName Mandatory
- Make Price a Number

Create a JQuery and AJAX Client to consume the Web API and show the result.

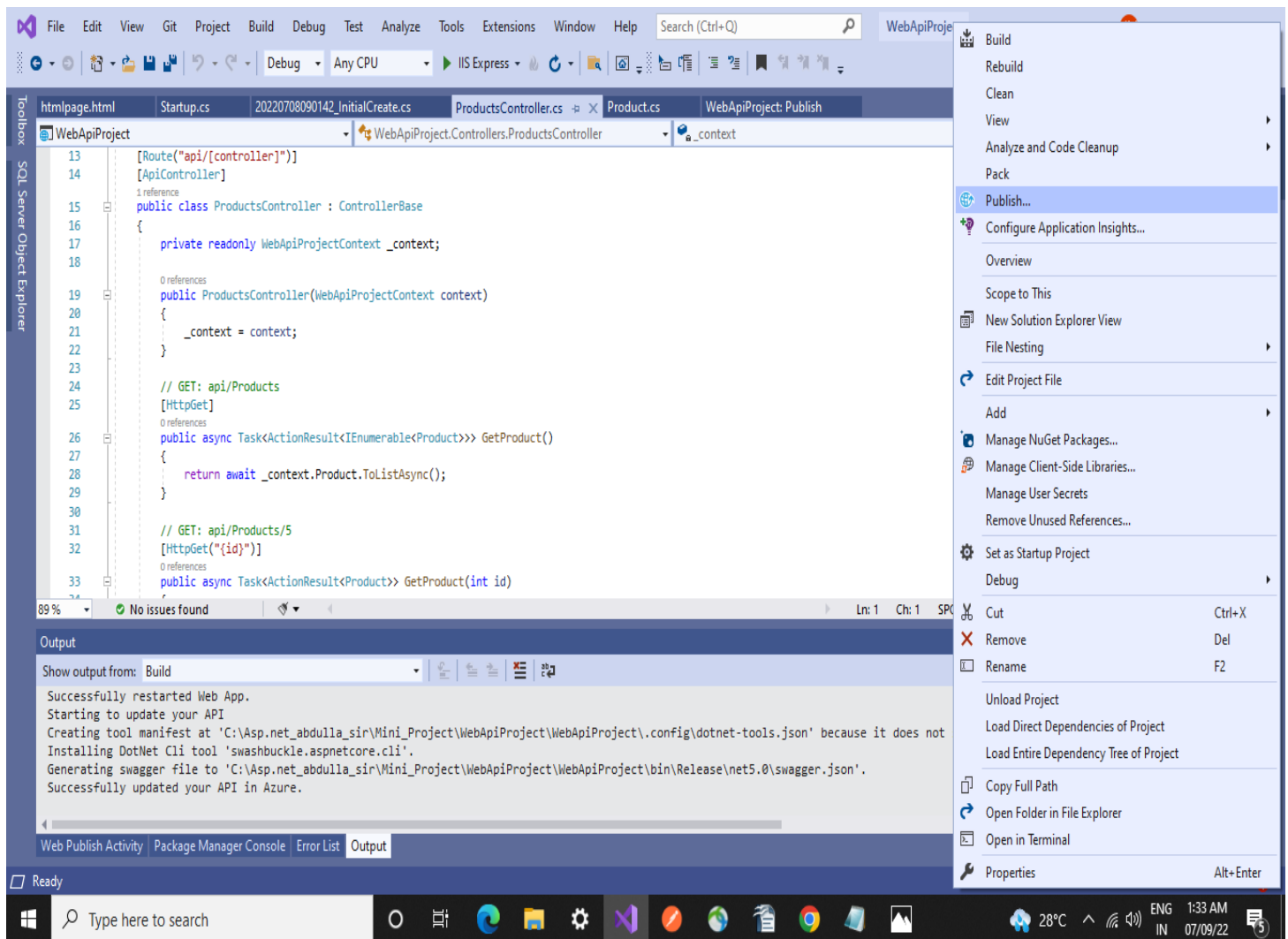
### Azure Hosting

- Host the web api in azure and consume the same using JQuery Client.
- Configure Scale out by adding rules for custom scaling
- Configure Deployment slots for staging and production
- Configure Application Insights for the project
- Configure Swagger for the api
- Work with Log Analytics with the sample logs available

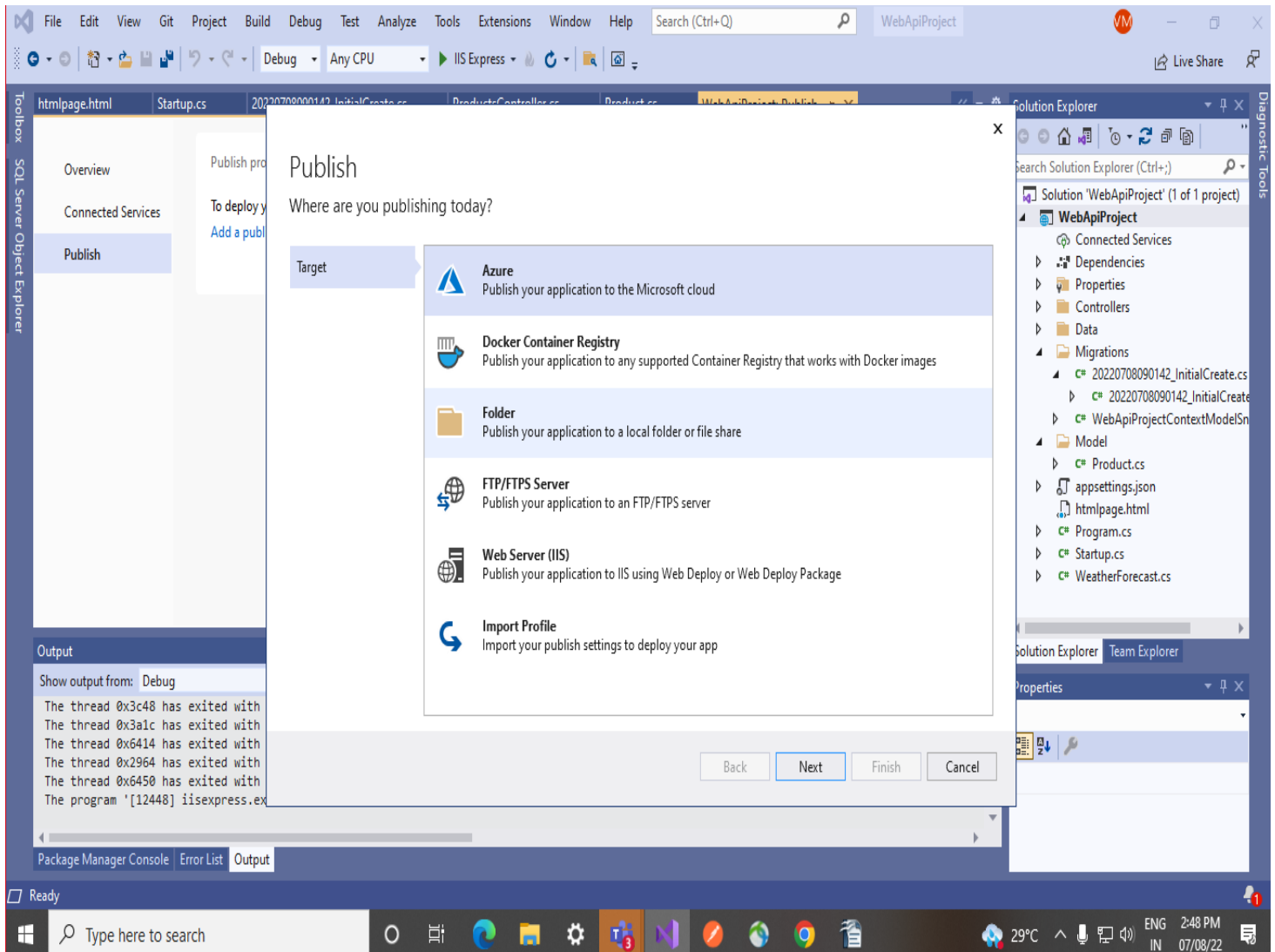
## 1. Host the web api in azure and consume the same using jQuery Client.

\* In Solution Explorer, right-click on the project and click on **Publish**

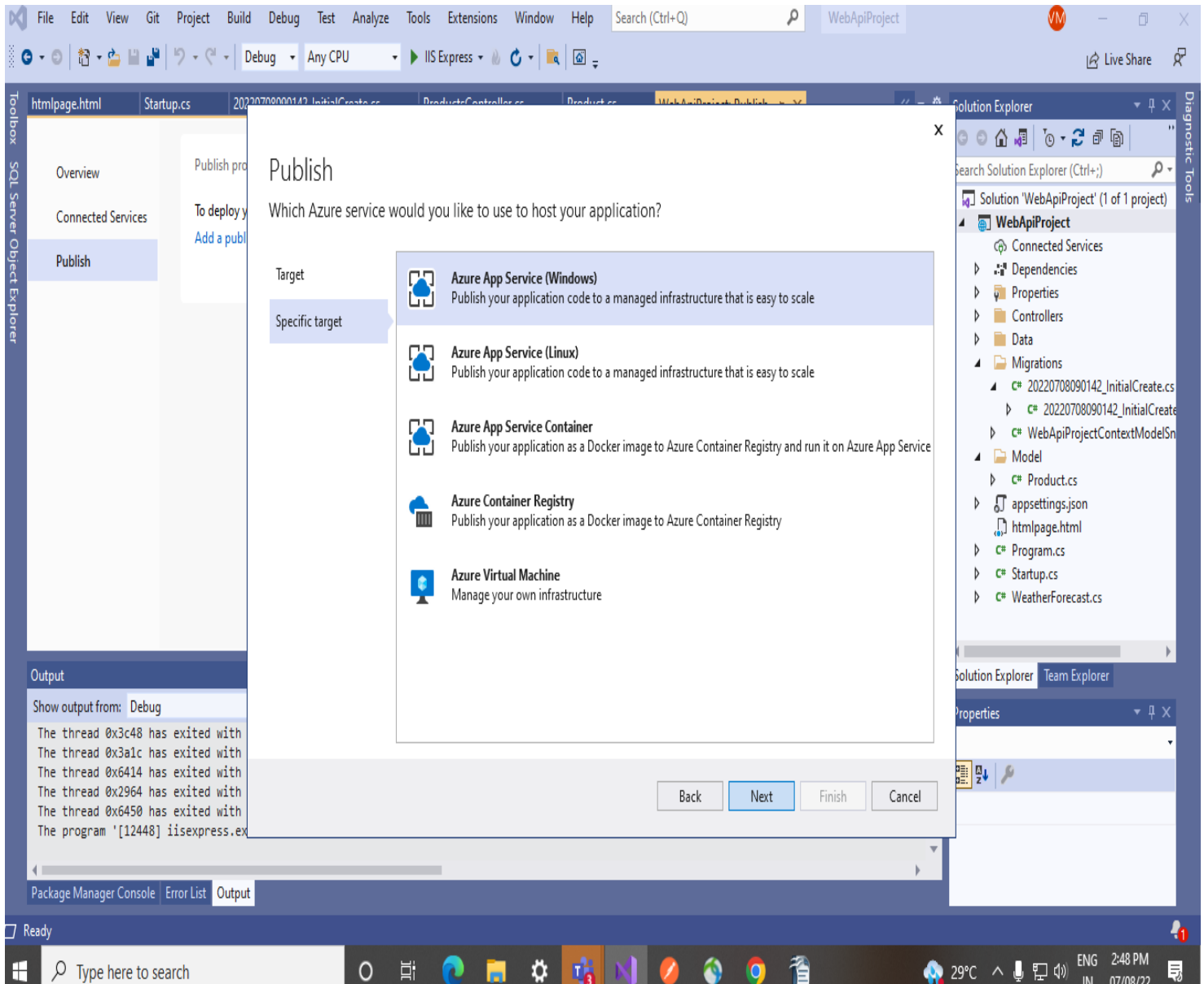
(publish profile is a file that contains information and settings that Visual Studio uses to deploy applications and services to Azure.)



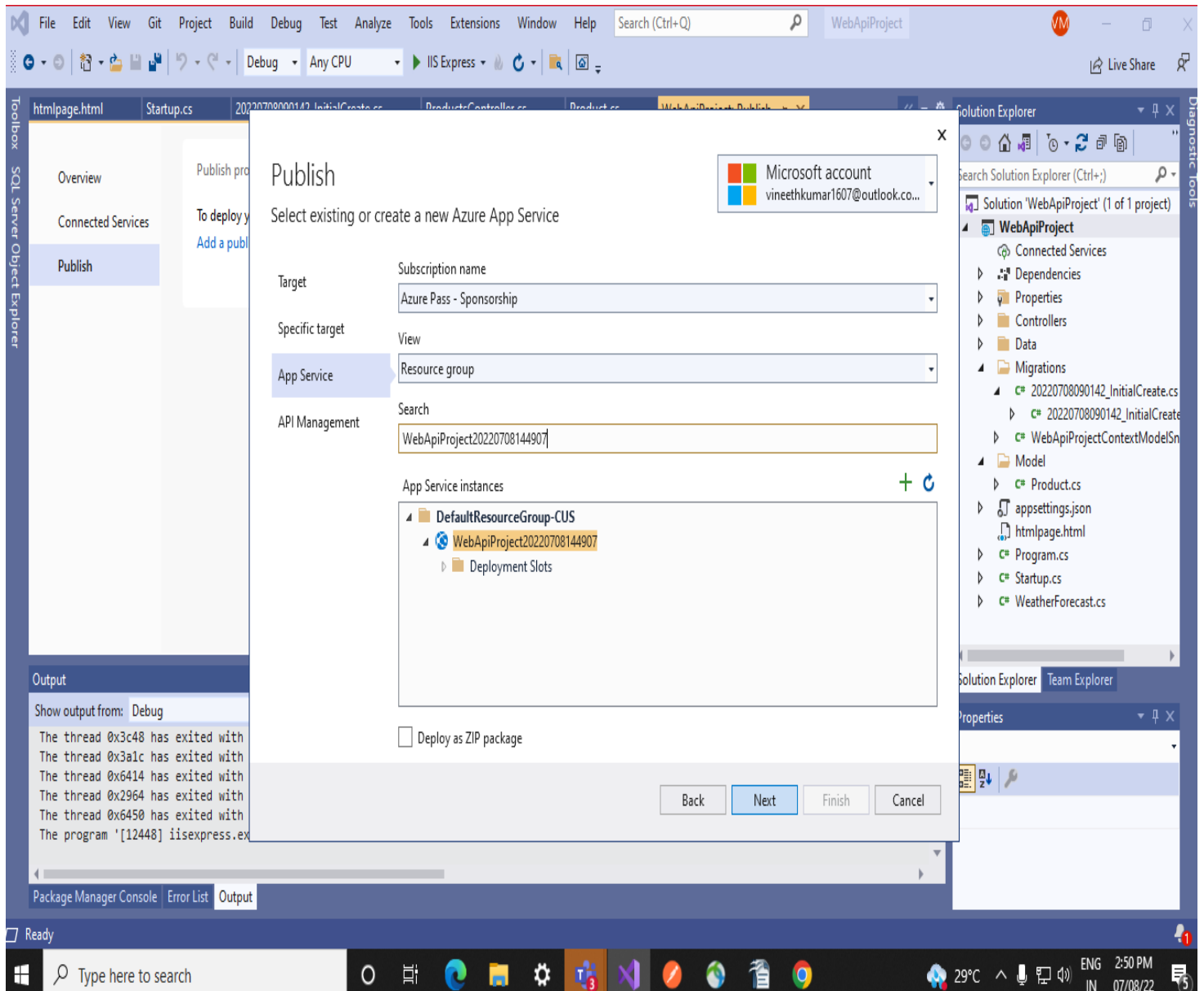
\* In publish dialog box, select azure and click on next.



\* In specific target dialog box select **Azure App Service (Windows)** and click on next.



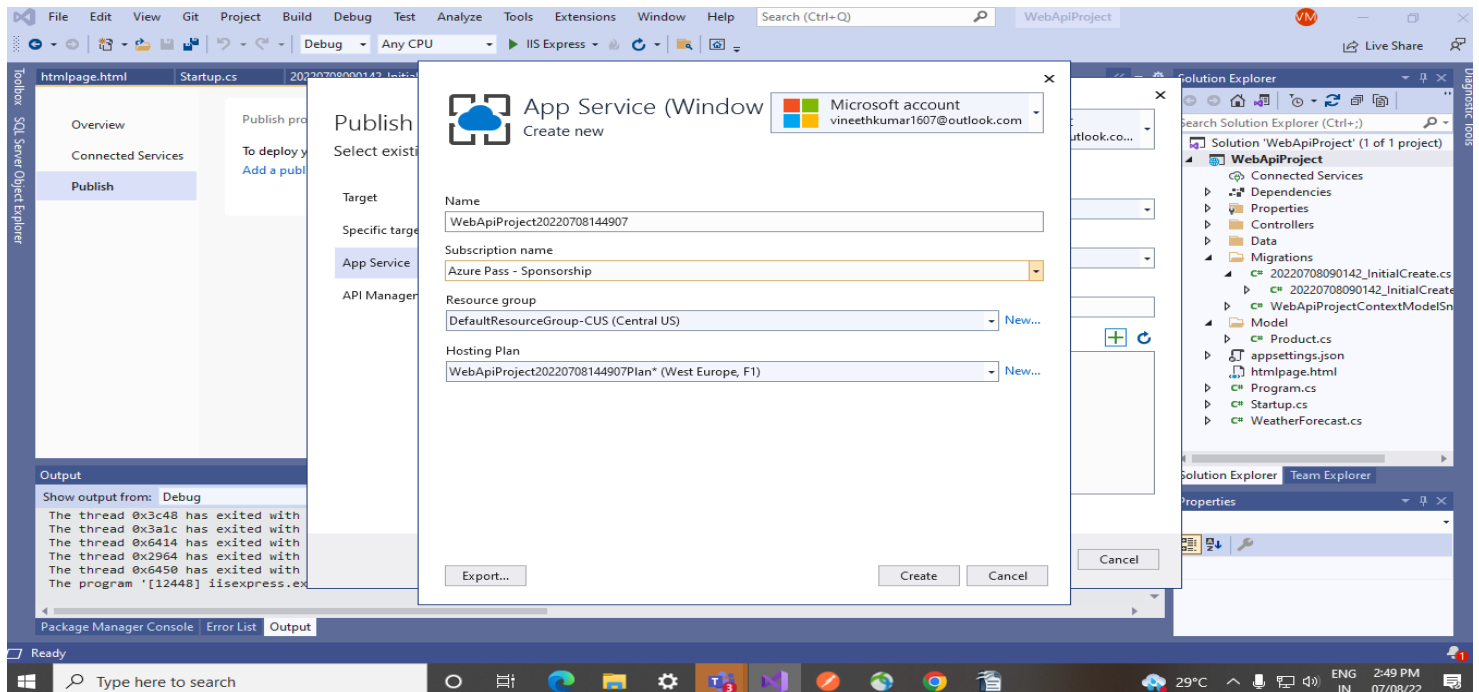
\* Sign in into Azure Account and click on create a new Azure App Service (+).



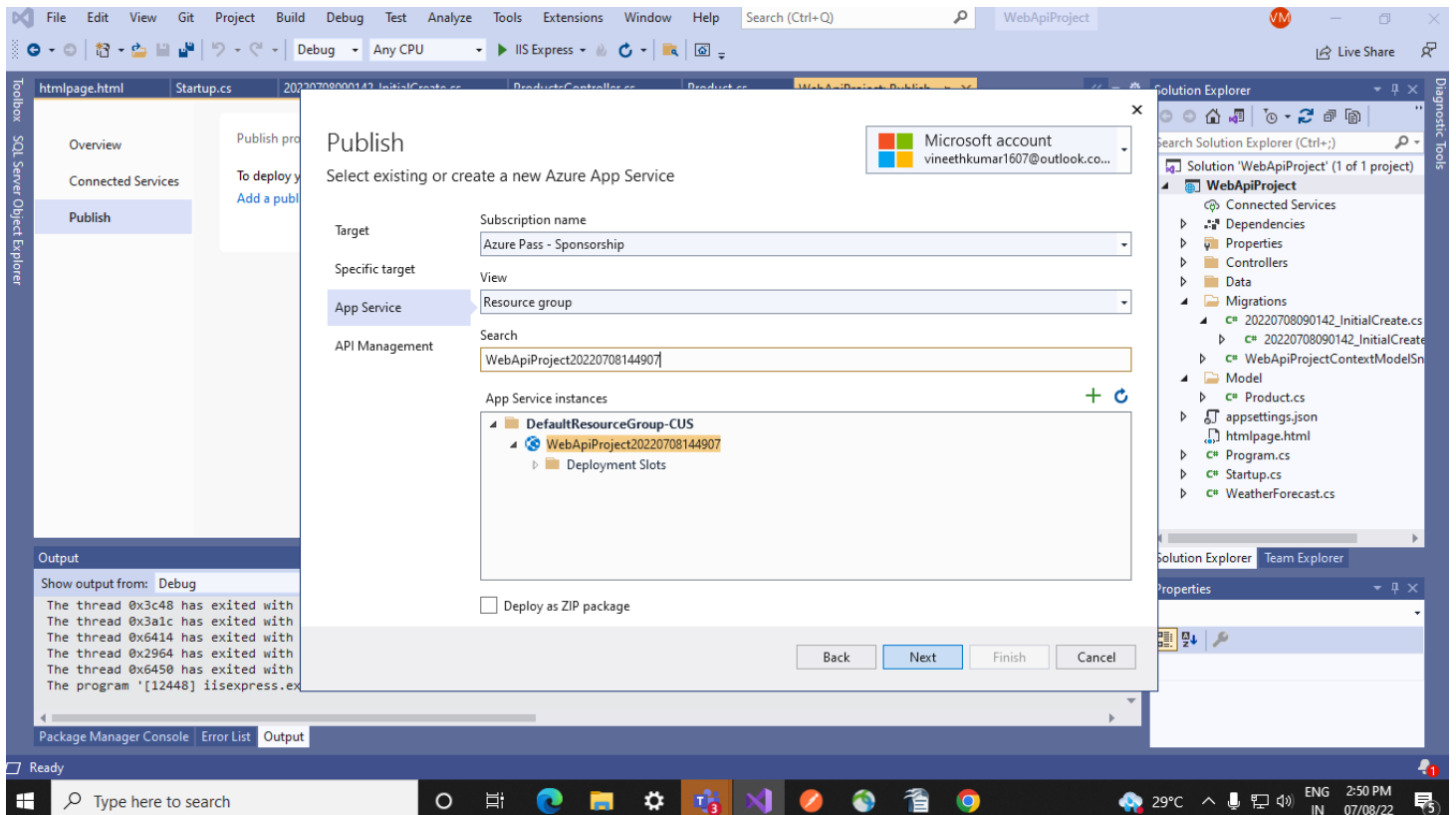
\* Create App Service dialog box will appears.

Name, Subscription name, Resource group, and Hosting plan fields are selected by default. If we want, we can use those default names or else we can change them according to our convenience by clicking on new.

Click on the Create.



\* Now the App Service which we have created gets selected in the publish dialog box.



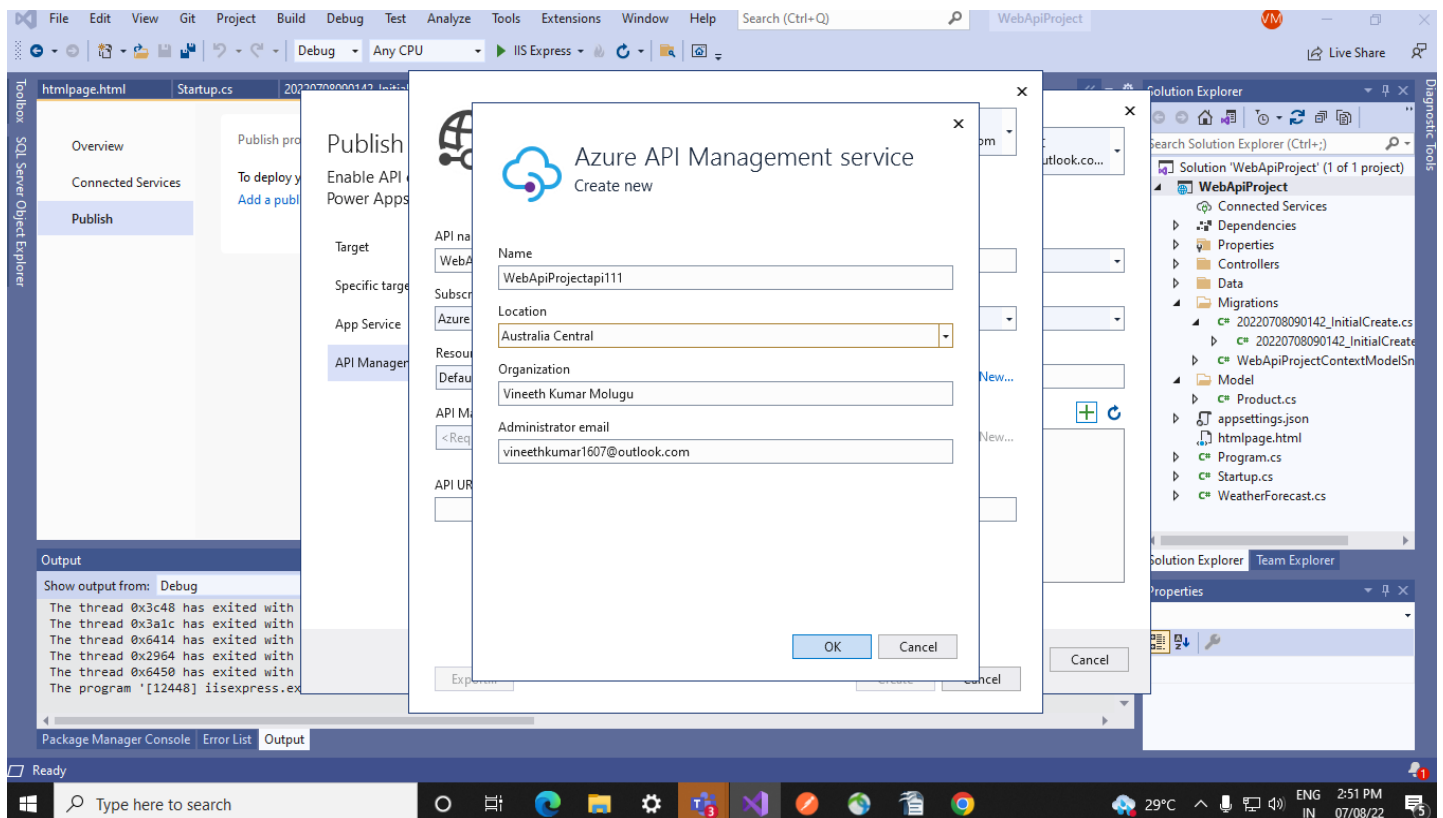
\* Now new dialog box shows to create Azure API Management Service.

By selecting the create an API Management(+) we will see the following dialog box as appears below.

\* Create new API Management dialog box will appears.

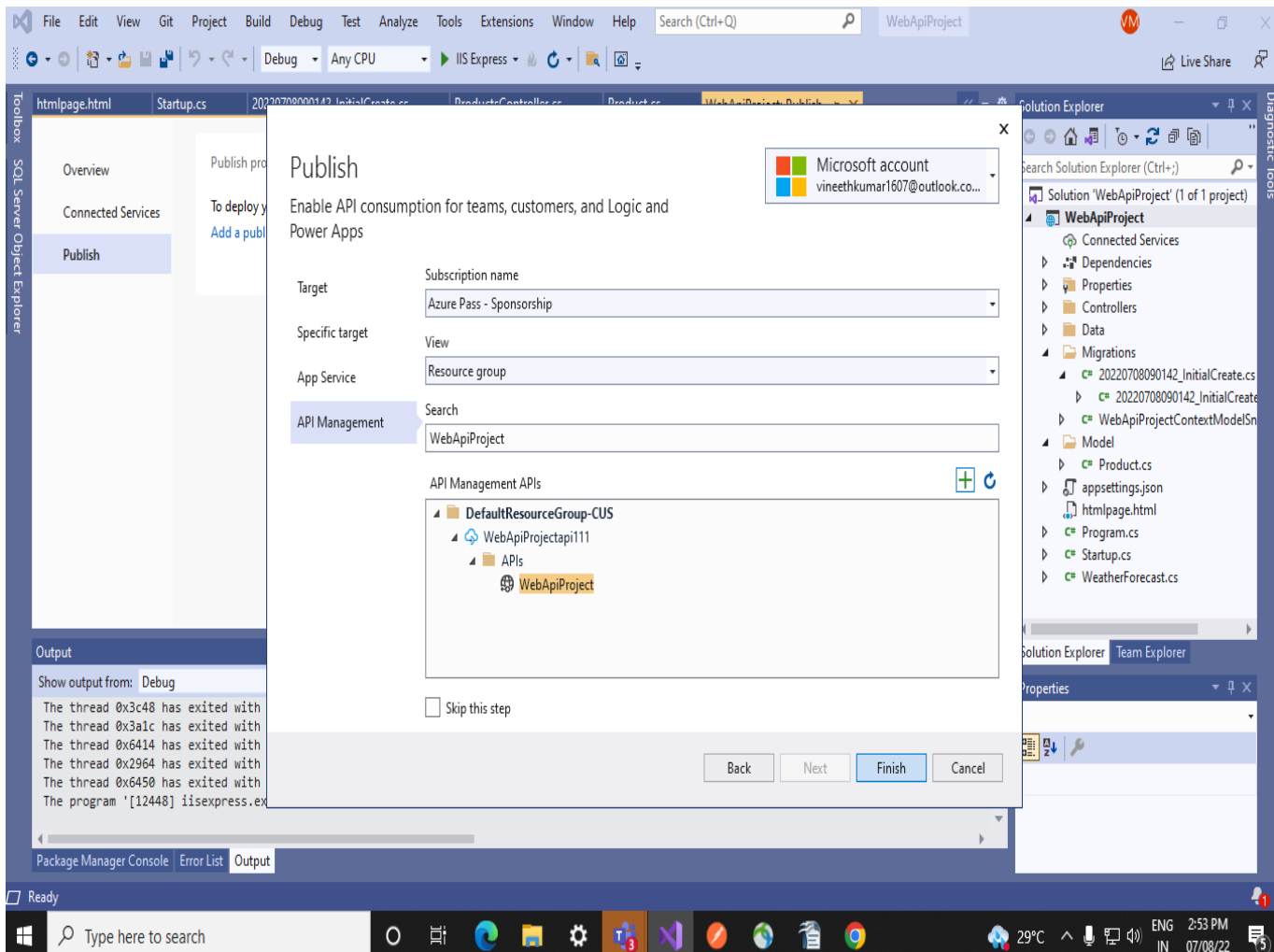
Name, Location, Organization, and Administrator email address fields are selected automatically. If we want, we can use those default values or else we can change them according to our convenience.

Now click on ok.





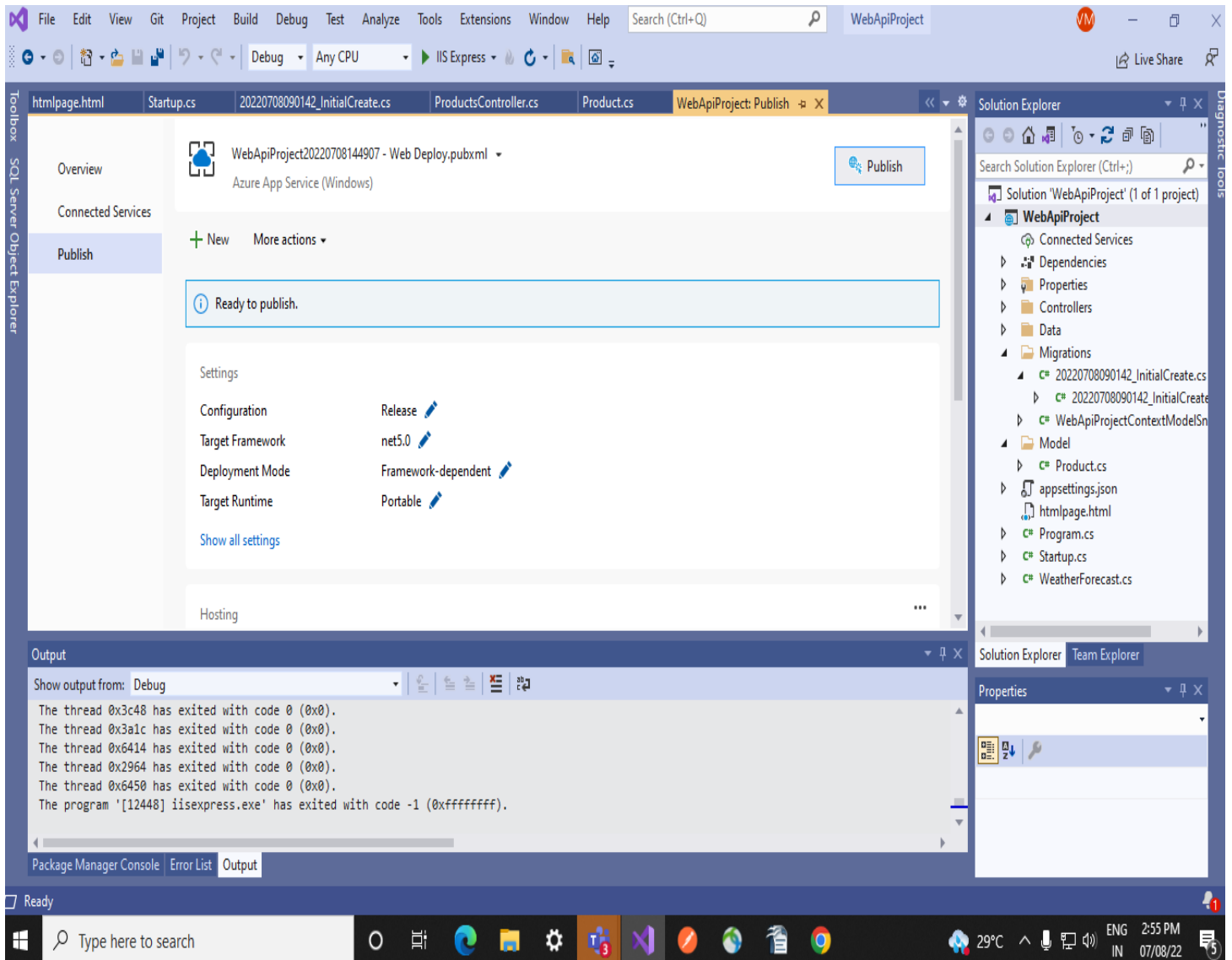
\* Now the API Management has been created. In the publish dialog box, we can see that API management is added.



\* Click on finish

\* The publish dialog box gets closed and in visual studio we can see the detailed information about the project that we are going to publish.

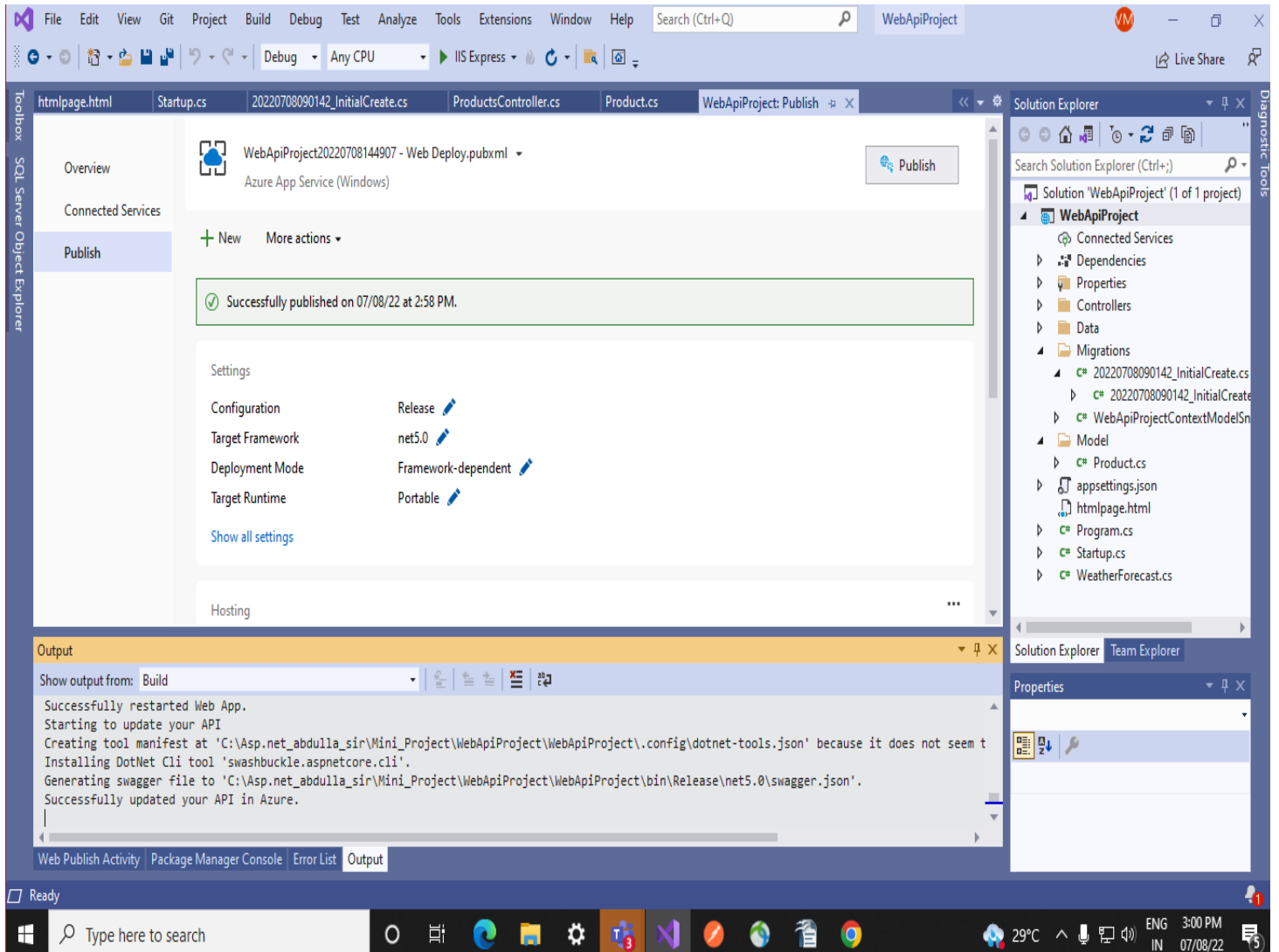
Click on publish



\* The web API will publish to both Azure App Service and Azure API Management. A new browser window will appear and show the API running in Azure App Service.



\*In visual studio, as we can see it Published successfully.



\* Open azure portal. In Azure portal open app services. Select the API we have created in the preceding steps. It's now populated and we can explore around.

The screenshot displays the Microsoft Azure portal interface. The browser address bar shows the URL: `portal.azure.com/#@vineethkumar1607outlook.onmicrosoft.com/resource/subscriptions/f000d17c-67b1-4a55-b5b5-c512e8e30b3b/resourceGroups/Default...`. The page title is "WebApiProject20220708144907" and it is categorized as an "App Service".

On the left sidebar, under "App Services", there is a list of services. The service "WebApiProject20220708144907" is selected. The sidebar also includes a search bar and a list of navigation options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Security, Events (preview), Deployment, Quickstart, Deployment slots, Deployment Center, Settings, Configuration, and Authentication.

The main content area shows the "Overview" tab for the selected App Service. It includes a search bar and a list of actions: Browse, Stop, Swap, Restart, Delete, Refresh, and Get publish profile. A link to "Click here to access Application Insights for monitoring and profiling for your ASP.NET Core app." is provided.

The "Essentials" section displays the following information:

Property	Value
Resource group	<a href="#">DefaultResourceGroup-CUS</a>
Status	Running
Location	West Europe
Subscription	<a href="#">Azure Pass - Sponsorship</a>
Subscription ID	f000d17c-67b1-4a55-b5b5-c512e8e30b3b
URL	<a href="https://webapiproject20220708144907.azurewebsites...">https://webapiproject20220708144907.azurewebsites...</a>
Health Check	<a href="#">Not Configured</a>
App Service Plan	<a href="#">WebApiProject20220708144907Plan (F1: Free)</a>
FTP/deployment username	No FTP/deployment user set
FTP hostname	<a href="ftp://waws-prod-am2-583.ftp.azurewebsites.windows...">ftp://waws-prod-am2-583.ftp.azurewebsites.windows...</a>
FTPS hostname	<a href="https://waws-prod-am2-583.ftp.azurewebsites.windows...">https://waws-prod-am2-583.ftp.azurewebsites.windows...</a>

At the bottom of the page, there are links for "Diagnose and solve problems" and "Application Insights". The Windows taskbar at the bottom shows the time as 3:05 PM on 07/08/22.

## 2. Configure Scale out by adding rules for custom scaling.

A scale out operation is **the equivalent of creating multiple copies of your web site and adding a load balancer to distribute the demand between them.**

Steps for scale out: -

1. Click on scale out
2. Select custom autoscale
3. In the rules section of the default scale condition, select Add a rule.
4. From the metric source dropdown, select current resource.
5. From resource type, select application Insights.
6. From the resource dropdown, select your App services plan standard metrics.
7. Select a metric name to CPU Percentage.
8. Select enable metric divide by instance count so that the number of sessions per instance is measured.
9. From the operator dropdown, select greater than.
10. Enter the metric threshold to trigger the scale action, for example, 70.
11. Under actions, set the operation to increase the count and set the Instance count to 1 and cool down by 5minutes and then click Add.
12. Set the maximum number of instances that can be spun up in the maximum field of the instance limits section for example, 1.
13. Click on save.

Note: - scale out is not available in my azure account. so collected it from internet

demodebug123 | Scale out (App Service plan) ...

Search (Ctrl+/) Save Discard Refresh Logs Feedback

Application Insights Identity Backups Custom domains TLS/SSL settings Networking Scale up (App Service plan) **Scale out (App Service plan)** WebJobs Push MySQL In App Properties Locks

App Service plan App Service plan Quotas Change App Service plan Development Tools Clone App

Manual scale: Maintain a fixed instance count

**Custom autoscale**: Scale on any schedule, based on any metrics

Custom autoscale

Autoscale setting name \*: debug-rjwan123-Autoscale-595

Resource group: Demo\_Rjwan

Default \* Auto created scale condition

Delete warning: The very last or default recurrence rule cannot be deleted. Instead, you can disable autoscale to turn off autoscale.

Scale mode: **Scale based on a metric** Scale to a specific instance count

Rules: No metric rules defined: click Add a rule to scale out and scale in your instances based on rules. For example: 'Add a rule that increases instance count by 1 when CPU percentage is above 70%'. **+ Add a rule**

Instance limits: Minimum: 1 Maximum: 2 Default: 1

Schedule: This scale condition is executed when none of the other scale condition(s) match

https://portal.azure.com/resource/subscriptions/...

WebApiProject20220708144907 x +

portal.azure.com/#@vineethkumar1607outlook.onmicrosoft.com/resource/subscriptions/f000d17c-67b1-4a55-b5b5-c512e8e30b3b/resourceGroups/Default...

Microsoft Azure Search resources, services, and docs (G+)

Home > App Services > WebApiProject20220708144907

App Services Default Directory

+ Create Manage view ...

Filter for any field...

Name ↑

MyFirstAzureWebApp20220704115020 ...

WebApiProject20220708144907 ...

WebApplication120220705103729 ...

zenfun16 ...

zenlog ...

Page 1 of 1

WebApiProject20220708144907 | Scale out (App Service plan) ...

App Service

Search (Ctrl+/) Save Discard Refresh Logs Feedback

Networking Scale up (App Service plan) **Scale out (App Service plan)** WebJobs Push MySQL In App Service Connector Properties Locks

App Service plan App Service plan Quotas Change App Service plan

Configure Run history JSON Notify Diagnostic settings

Informational

- Autoscale is currently not available for this resource: The resource pricing tier might have been changed, and autoscale is not supported in the new pricing tier.

Type here to search

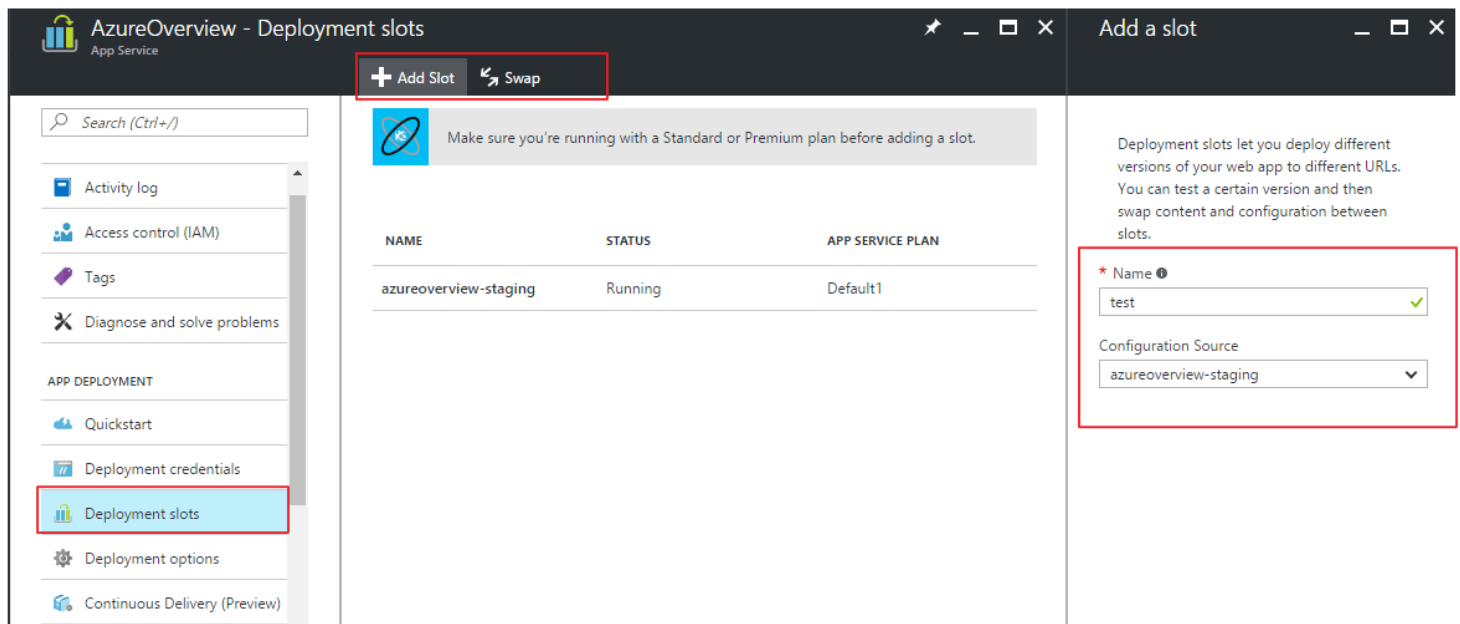
29°C ENG IN 3:05 PM 07/08/22

### 3. Configure Deployment slots for staging and production.

Deployment slots are **live apps with their own host names**. App content and configurations elements can be swapped between two deployment slots, including the production slot.

In Web App navigate and click on **deployment slots menu item**:

**Note: - Deployment slots is not available in my azure account so I collected them from the internet**



The screenshot shows the 'Add a slot' dialog box in the Azure Portal. The left sidebar contains a search bar and a list of navigation items: Activity log, Access control (IAM), Tags, Diagnose and solve problems, APP DEPLOYMENT, Quickstart, Deployment credentials, **Deployment slots** (highlighted with a red box), Deployment options, and Continuous Delivery (Preview). The main area of the dialog has a dark header with '+ Add Slot' and 'Swap' buttons (the 'Add Slot' button is highlighted with a red box). Below the header is a message: 'Make sure you're running with a Standard or Premium plan before adding a slot.' A table lists the existing deployment slots:

NAME	STATUS	APP SERVICE PLAN
azureoverview-staging	Running	Default1

On the right side of the dialog, there is explanatory text about deployment slots. Below this text, the 'Add a slot' form is shown, with the 'Name' field (containing 'test') and the 'Configuration Source' dropdown (set to 'azureoverview-staging') highlighted with a red box.

In the **Add a slot** dialog box, give the slot a name, and select whether to clone an app configuration from another deployment slot.



Add a slot

Name

staging

Clone settings from:

Do not clone settings

Add

Close

After the slot is added, select **Close** to close the dialog box. The new slot is now shown on the **Deployment slots** page.

my-demo-app - Deployment slots

App Service

Search (Ctrl+J)

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Security

Deployment

Quickstart

Deployment slots

Deployment Center

Settings

Configuration

Save Discard Add Slot Swap Refresh

Deployment Slots

Deployment slots are live apps with their own hostnames. App content and configurations elements can be swapped between two deployment slots, including the production slot.

NAME	STATUS	APP SERVICE PLAN	TRAFFIC %
my-demo-app PRODUCTION	Running	myAppServicePlan	100
my-demo-app-staging	Running	myAppServicePlan	0

You can swap deployment slots on your app's **Deployment slots** page and the **Overview** page.

- Go to your app's **Deployment slots** page and select **Swap**.

my-demo-app - Deployment slots

Search (Ctrl+/)

Overview  
Activity log  
Access control (IAM)  
Tags  
Diagnose and solve problems  
Security  
Deployment  
Quickstart  
Deployment slots  
Deployment Center  
Settings  
Configuration

Save Discard Add Slot Swap Refresh

### Deployment Slots

Deployment slots are live apps with their own hostnames. App content and configurations elements can be swapped between two deployment slots, including the production slot.

NAME	STATUS	APP SERVICE PLAN	TRAFFIC %
my-demo-app <b>PRODUCTION</b>	Running	myAppServicePlan	100
my-demo-app-staging	Running	myAppServicePlan	0

- The **Swap** dialog box shows settings in the selected source and target slots that will be changed.
- Select the desired **Source** and **Target** slots. Usually, the target is the production slot. Also, select the **Source Changes** and **Target Changes** tabs and verify that the configuration changes are expected. When you're finished, you can swap the slots immediately by selecting **Swap**.

Swap

Source

my-demo-app-staging

Target

my-demo-app

PRODUCTION

i

Swap with preview can only be used with sites that have deployment slot settings enabled

☐ Perform swap with preview

### Config Changes

This is a summary of the final set of configuration changes on the source and target deployment slots after the swap has completed.

Source Changes		Target Changes	
SETTING	TYPE	OLD VALUE	NEW VALUE
MyDbConnection	ConnectionString	Server=tcp:stagingser... Info=False;User ID=... <username>;Passwor... <password>;Multiple... Timeout=30;	Server=tcp:productio... Info=False;User ID=... <username>;Passwor... <password>;Multiple... Timeout=30;

Swap

Close

- To see how your target slot would run with the new settings before the swap actually happens, don't select **Swap**, but follow the instructions in Swap with preview.
- When you're finished, close the dialog box by selecting **Close**.

## 4. Configure Application Insights for the project

Application Insights is a **feature of Azure Monitor that provides extensible application performance management (APM) and monitoring for live web apps**

- Select the Application Insights

The screenshot shows the Azure portal interface. The top navigation bar includes the Microsoft Azure logo, a search bar, and the user's profile. The left sidebar shows the 'App Services' section with a list of web apps. The main content area displays the 'Application Insights' configuration for the selected web app, 'WebApiProject20220708144907'. The configuration includes a search bar with 'insights', a list of settings (Activity log, Settings, Monitoring), and a toggle switch for 'Application Insights' which is currently set to 'Enable'. Below the toggle, there are two informational messages: one about the instrumentation key being added to App Settings, and another about diagnostic data collection. At the bottom, there is a 'Change your resource' link and an 'Apply' button.

WebApiProject20220708144907 | Application Insights

Activity log

Settings

Application Insights

Monitoring

Alerts

Metrics

Logs

Application Insights

Collect application monitoring data using Application Insights

Enable Disable ⓘ Feedback ▾

Link to an Application Insights resource

ⓘ Instrumentation key will be added to App Settings. This will overwrite any instrumentation key value in web app configuration. This app will be connected to an auto-created Application Insights resource: **WebApiProject20220708144907**

ⓘ As part of using Application Insights instrumentation, we collect and send diagnostic data to Microsoft. This data helps us run and improve Application Insights. You have the option to disable non-essential data collection. [Learn more](#)

⌵ Change your resource

Apply



## Live Metrics Stream

spring-on-azure

1 servers online

Pause

Pin

Open in Analytics

Learn more

Feedback

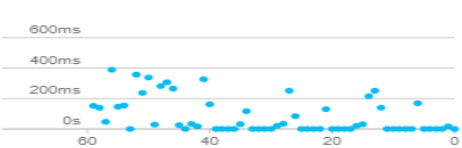


### Incoming Requests

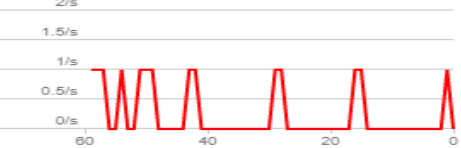
Request Rate



Request Duration



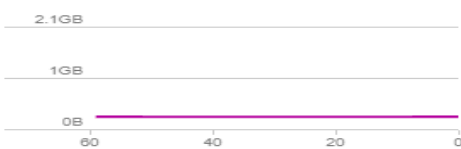
Request Failure Rate



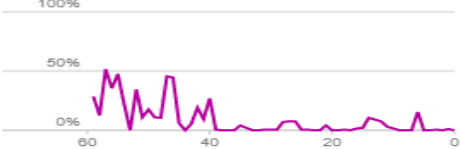
### Outgoing Requests

### Overall Health

Committed Memory



CPU Total (%)



Exception Rate



### Servers

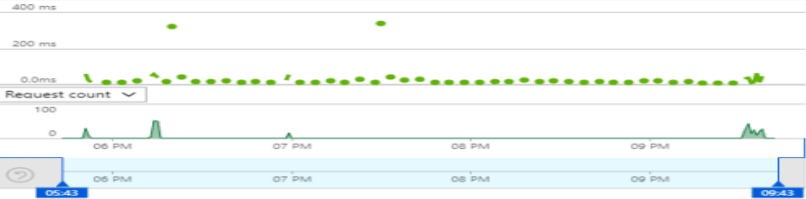
Select columns

SERVER NAME	REQUESTS	REQUESTS FAILED	CPU TOTAL	COMMITTED MEMORY
18a2d213f1ab	0.4/sec	0.1/sec	2%	261 MB

### Operations Dependencies Roles

Operation times: zoom into a range

Avg 50<sup>th</sup> 95<sup>th</sup> 99<sup>th</sup>



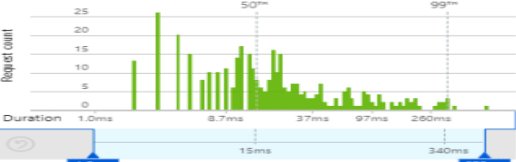
Select operation

Search to filter items...

OPERATION NAME	DURATION (AVG)	COUNT	PIN
Overall	38.8 ms	362	
POST User/WTController/authorize	255 ms	10	
GET ProjectResource/getAllProjects	63.9 ms	15	
GET AccountResource/getAccount	62.5 ms	14	
GET /api/account	35.0 ms	23	
GET LabelResource/getAllLabels	34.4 ms	9	
GET TicketResource/getAllTickets	31.0 ms	9	

Overall

Distribution of durations: zoom... Scale



Insights (2)

- 88% COMMON PROPERTIES: resultCode, client\_OS, client\_City, client\_Co...
- 49% COMMON PROPERTIES: client\_OS, client\_City, client\_CountryOrReg...

Drill into...

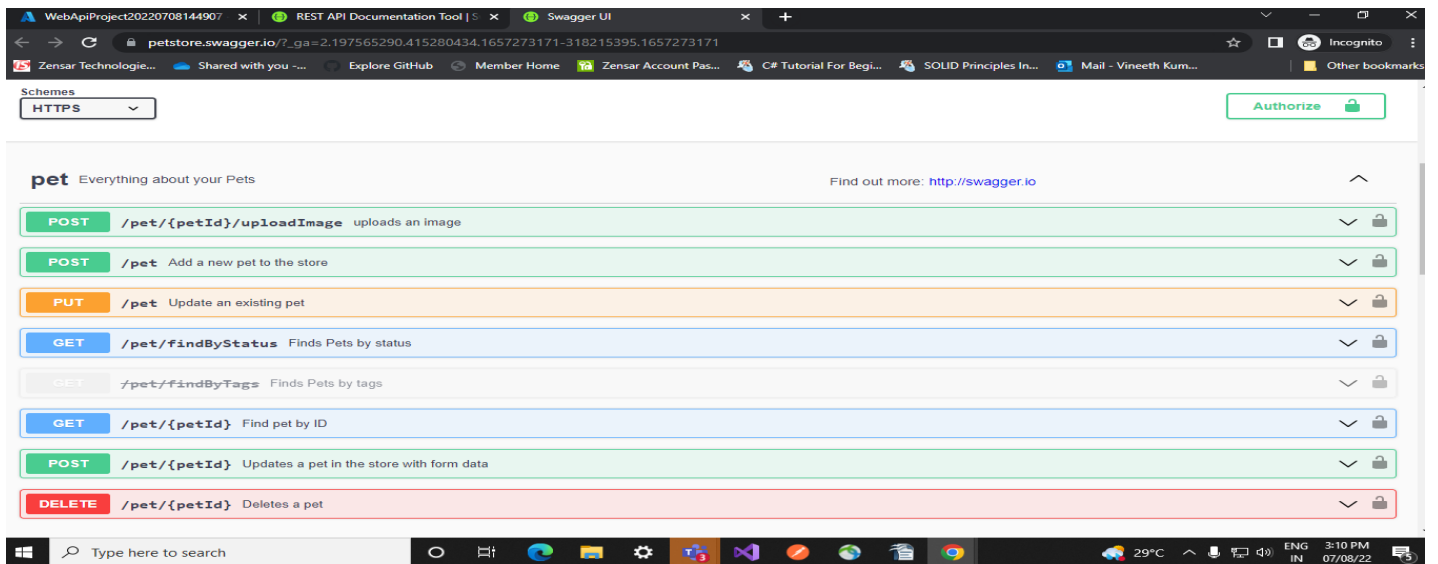
(362) Samples

## 5. Configure Swagger for the API

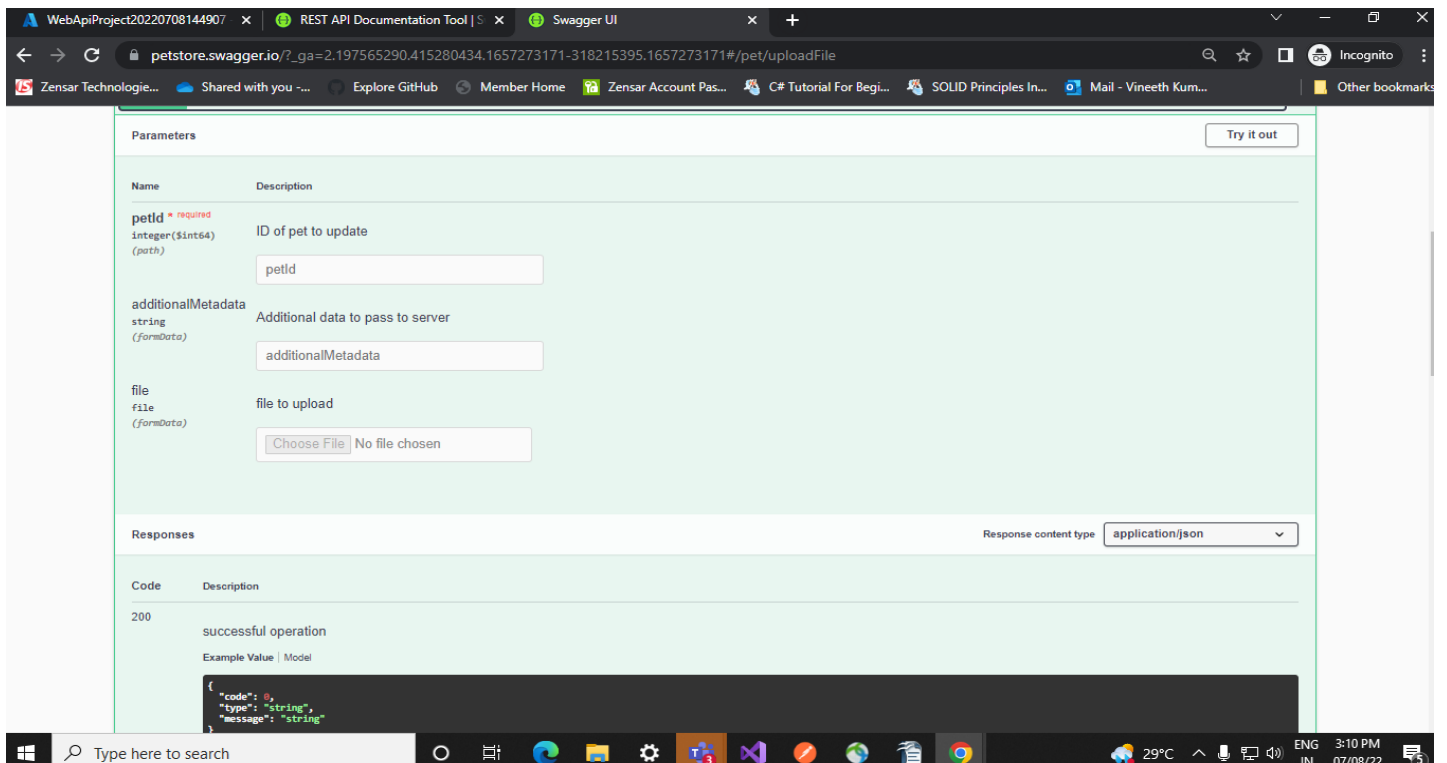
Swagger is a **language-agnostic specification for describing REST APIs**. It allows both computers and humans to understand the capabilities of a REST API without direct access to the source code. Its main goals are to: Minimize the amount of work needed to connect decoupled services.

### **Advantages:**

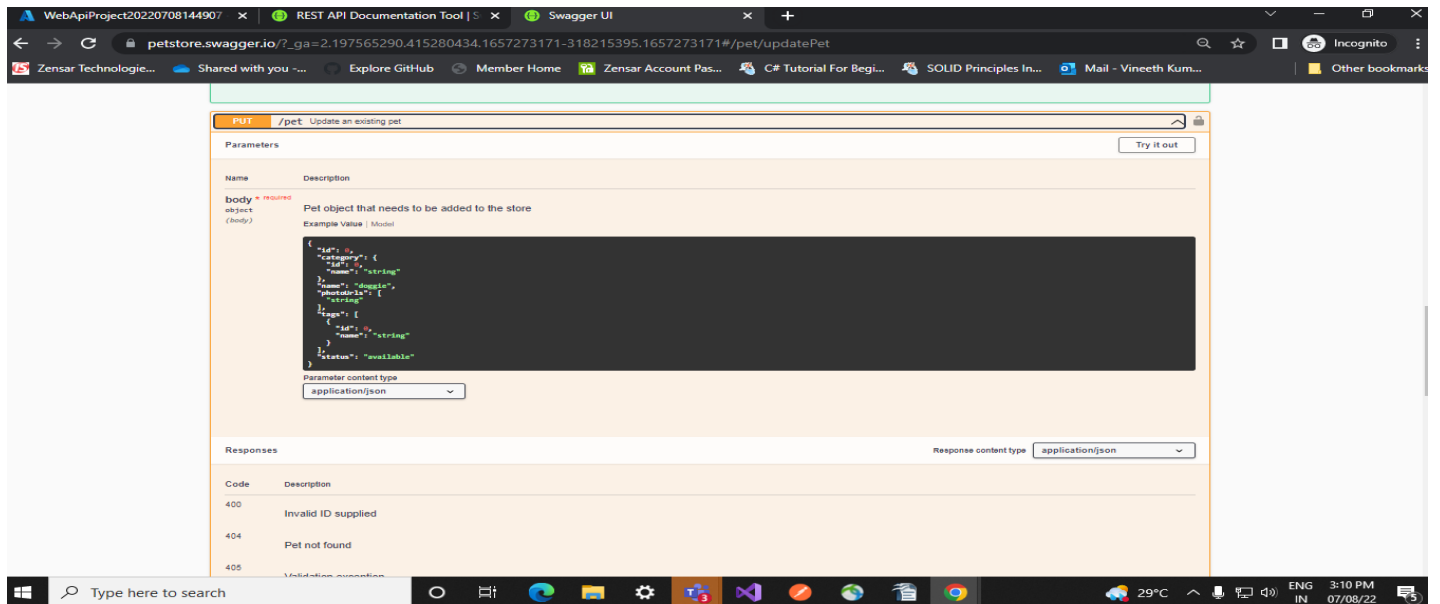
1. Dependency Free - The UI works in any development environment, be it locally or in the web
2. Human Friendly - Allow end developers to effortlessly interact and try out every single operation your API exposes for easy consumption
3. Easy to Navigate - Quickly find and work with resources and endpoints with neatly categorized documentation
4. All Browser Support - Cater to every possible scenario with Swagger UI working in all major browsers.
5. Fully Customizable - Style and tweak your Swagger UI the way you want with full source code access.
6. Complete OAS Support - Visualize APIs defined in Swagger 2.0 or OAS 3.0



## Post



## Put



The image shows the Swagger UI for the PUT /pet endpoint. The URL bar displays the endpoint path. The 'Parameters' section includes a required 'body' parameter of type 'object' with a description 'Pet object that needs to be added to the store'. An example JSON value is provided in a dark-themed code editor. The 'Responses' section lists status codes 400 (Invalid ID supplied), 404 (Pet not found), and 405 (Validation exception). The 'Try it out' button is visible in the top right of the parameters section.

PUT /pet Update an existing pet

Parameters

Name Description

body \* required  
object (body)  
Pet object that needs to be added to the store

Example Value | Model

```
{
  "id": 0,
  "category": {
    "id": 0,
    "name": "string"
  },
  "name": "doggie",
  "photoUrls": [
    "string"
  ],
  "tags": [
    {
      "id": 0,
      "name": "string"
    }
  ],
  "status": "available"
}
```

Parameter content type  
application/json

Responses

Response content type application/json

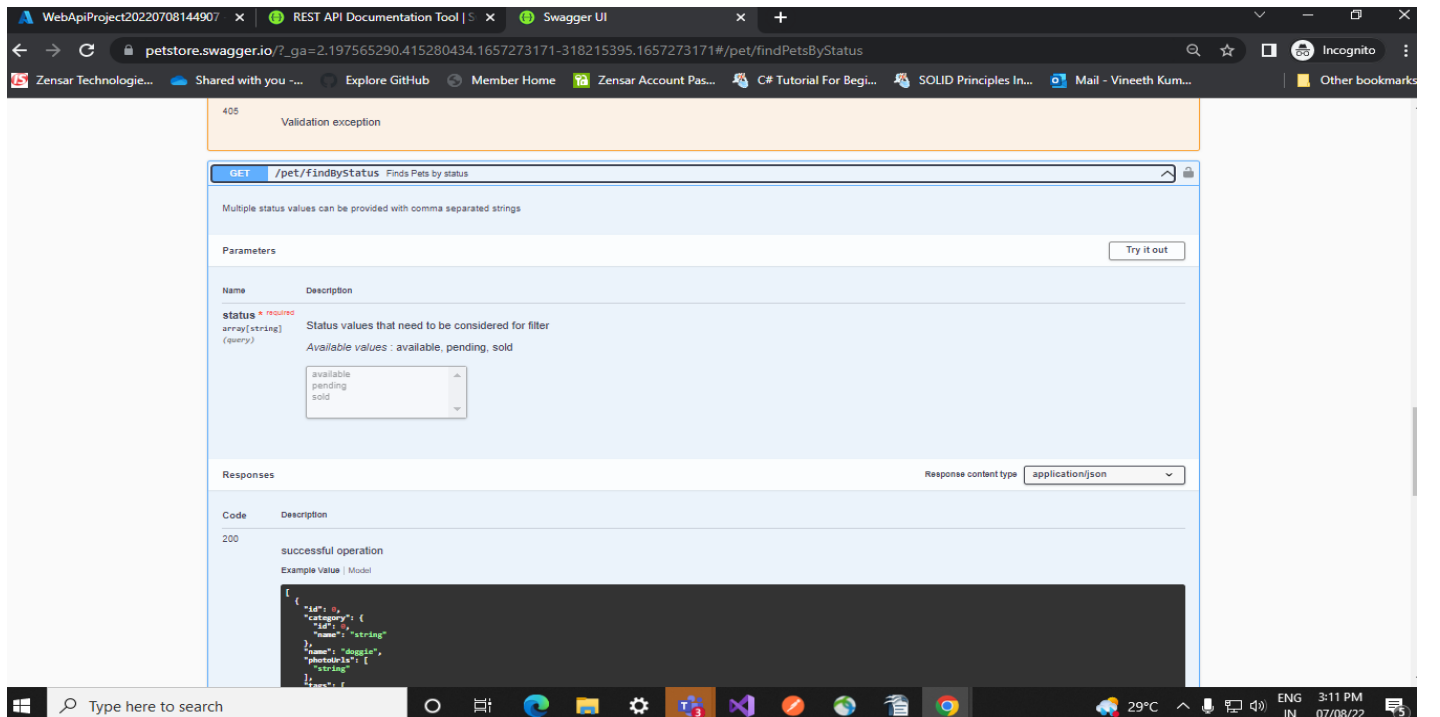
Code Description

400 Invalid ID supplied

404 Pet not found

405 Validation exception

## Get



The image shows the Swagger UI for the GET /pet/findPetsByStatus endpoint. The URL bar displays the endpoint path. The 'Parameters' section includes a required 'status' parameter of type 'array[string]' with a description 'Status values that need to be considered for filter'. Available values are listed as 'available', 'pending', and 'sold'. The 'Responses' section lists status code 200 (successful operation) with an example JSON value. The 'Try it out' button is visible in the top right of the parameters section.

405 Validation exception

GET /pet/findPetsByStatus Finds Pets by status

Multiple status values can be provided with comma separated strings

Parameters

Name Description

status \* required  
array[string] (query)  
Status values that need to be considered for filter  
Available values : available, pending, sold

available  
pending  
sold

Responses

Response content type application/json

Code Description

200 successful operation

Example Value | Model

```
{
  "id": 0,
  "category": {
    "id": 0,
    "name": "string"
  },
  "name": "doggie",
  "photoUrls": [
    "string"
  ],
  "tags": [
    {
      "id": 0,
      "name": "string"
    }
  ],
  "status": "available"
}
```



# Delete

WebApiProject20220708144907

REST API Documentation Tool

Swagger UI

petstore.swagger.io/?\_ga=2.197565290.415280434.1657273171-318215395.1657273171#/pet/deletePet

Zensar Technologie...Shared with you -...Explore GitHubMember HomeZensar Account Pas...C# Tutorial For Begi...SOLID Principles In...Mail - Vineeth Kum...Other bookmarks

GET /pet/{petId} Find pet by ID

POST /pet/{petId} Updates a pet in the store with form data

DELETE /pet/{petId} Deletes a pet

Try it out

Name	Description
api_key string (header)	<input type="text" value="api_key"/>
petId * required integer(\$int64) (path)	<div>Pet id to delete</div> <input type="text" value="petId"/>

Responses

Response content type application/json

Code	Description
400	Invalid ID supplied
404	Pet not found

store Access to Petstore orders

Type here to search

29°C 3:11 PM 07/08/22

## 6. Work with Log Analytics with the sample logs available

Log Analytics is a tool in the Azure portal to edit and run log queries from data collected by Azure Monitor logs and interactively analyze their results. You can use Log Analytics queries to retrieve records that match particular criteria, identify trends, analyze patterns, and provide various insights into your data.

- Select the Logs in Azure Portal.
- Select Logs from the Azure Monitor menu. This step sets the initial scope to a Log Analytics workspace so that your query selects from all data in that workspace.
- All queries return records generated within a set time range. By default, the query returns records generated in the last 24 hours. You can set a different time range by using the where operator in the query. You can also use the Time range dropdown list at the top of the screen. Change the time range of the query by selecting Last 7 days from the Time range dropdown. Select Run to return the results.
- This is the simplest query that we can write. It just returns all the records to a table. Run it by selecting the Run button or by selecting Shift + Enter with the cursor positioned anywhere in the query text.

The screenshot displays the Azure Log Analytics portal interface. At the top, the browser address bar shows the URL `portal.azure.com/#view/Microsoft_Azure_Monitoring_Logs/DemoLogsBlade`. The main header includes the Microsoft Azure logo and a search bar. The left sidebar contains navigation options like 'Home', 'Logs', and 'Demo'. The central area shows a query editor with the query: `ADAssessmentRecommendation | where _ResourceId contains "ab"`. Below the query editor, the 'Results' tab is active, displaying a table of log data. The table has columns for TimeGenerated, AssessmentId, AssessmentName, RecommendationId, Recommendation, and Description. The results show several entries from 7/5/2022, 8:52:02.012 PM, related to Active Directory (AD) assessments and recommendations. The bottom status bar indicates the query took 1s 904ms to execute and shows the current time as 3:13 PM on 07/08/22.

TimeGenerated [UTC]	AssessmentId	AssessmentName	RecommendationId	Recommendation	Description
> 7/5/2022, 8:52:01.972 PM	ac0e6527-3e41-4997-90a8-7f71a9c07cce	AD	e1fc9908-1810-455a-97de-5f95738141eb	Resolve Directory System Agent (DSA) issues that are preve...	One or more domain cont
> 7/5/2022, 8:52:02.012 PM	ac0e6527-3e41-4997-90a8-7f71a9c07cce	AD	c0eb7e0c-b85a-438f-9dce-9fbf50293dc9	Unless specifically required always enable strict replication C...	Enforcing strict replication
> 7/5/2022, 8:52:02.012 PM	ac0e6527-3e41-4997-90a8-7f71a9c07cce	AD	4eab096c-682a-4d81-9919-0c32af52aa3f	Amend dynamic port configuration on domain controllers.	One or more domain cont
> 7/5/2022, 8:52:02.012 PM	ac0e6527-3e41-4997-90a8-7f71a9c07cce	AD	f678b73a-7a9b-4358-962f-60b4c3599536	Dynamic Port Ranges Configuration - Range includes Less T...	
> 7/5/2022, 8:52:02.012 PM	ac0e6527-3e41-4997-90a8-7f71a9c07cce	AD	11d49a22-7cad-43b7-81cf-4466cf77189	Amend dynamic port configuration settings on domain con...	One or more domain cont
> 7/5/2022, 8:52:02.012 PM	ac0e6527-3e41-4997-90a8-7f71a9c07cce	AD	d8440839-78cd-45a1-a942-10b536923f52	Domain Controllers with a disjoined DNS namespace shoul...	Domain Controllers runni
> 7/5/2022, 8:52:02.012 PM	ac0e6527-3e41-4997-90a8-7f71a9c07cce	AD	4b0c1c2a-4168-49b8-b5b0-1d1c10ec7796	Disable the Allow Replication With Divergent and Corrupt P...	One or more domain cont
> 7/5/2022, 8:52:02.017 PM	ac0e6527-3e41-4997-90a8-7f71a9c07cce	AD	aa71fc85-f37e-4846-a426-26494fc09030	Reconfigure our backup jobs to skip locked open files.	It is important to ensure t
> 7/5/2022, 8:52:02.017 PM	ac0e6527-3e41-4997-90a8-7f71a9c07cce	AD	4755d453-2431-444a-be3c-98bfa0c5acde	Resolve issues caused by an unsupported restore procedure.	One or more of your dom

