

DOTNET 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:

- Product ID
- ProductName
- Price
- Brand
- Manufacture Date
- Expiration Date

Use Data Annotations to

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

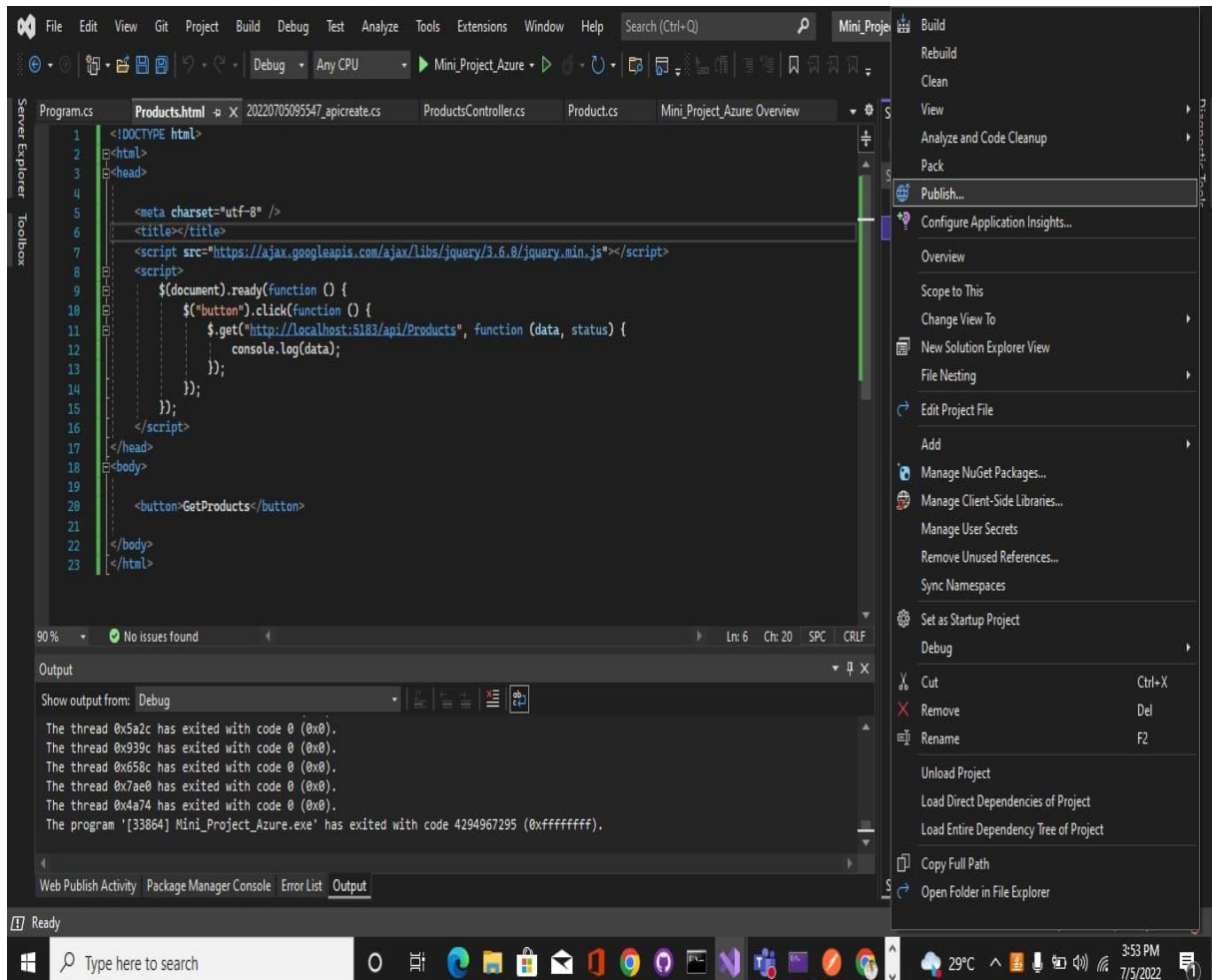
Create a jQuery and AJAX Client to consume the Web API and show the result.

Azure Hosting:

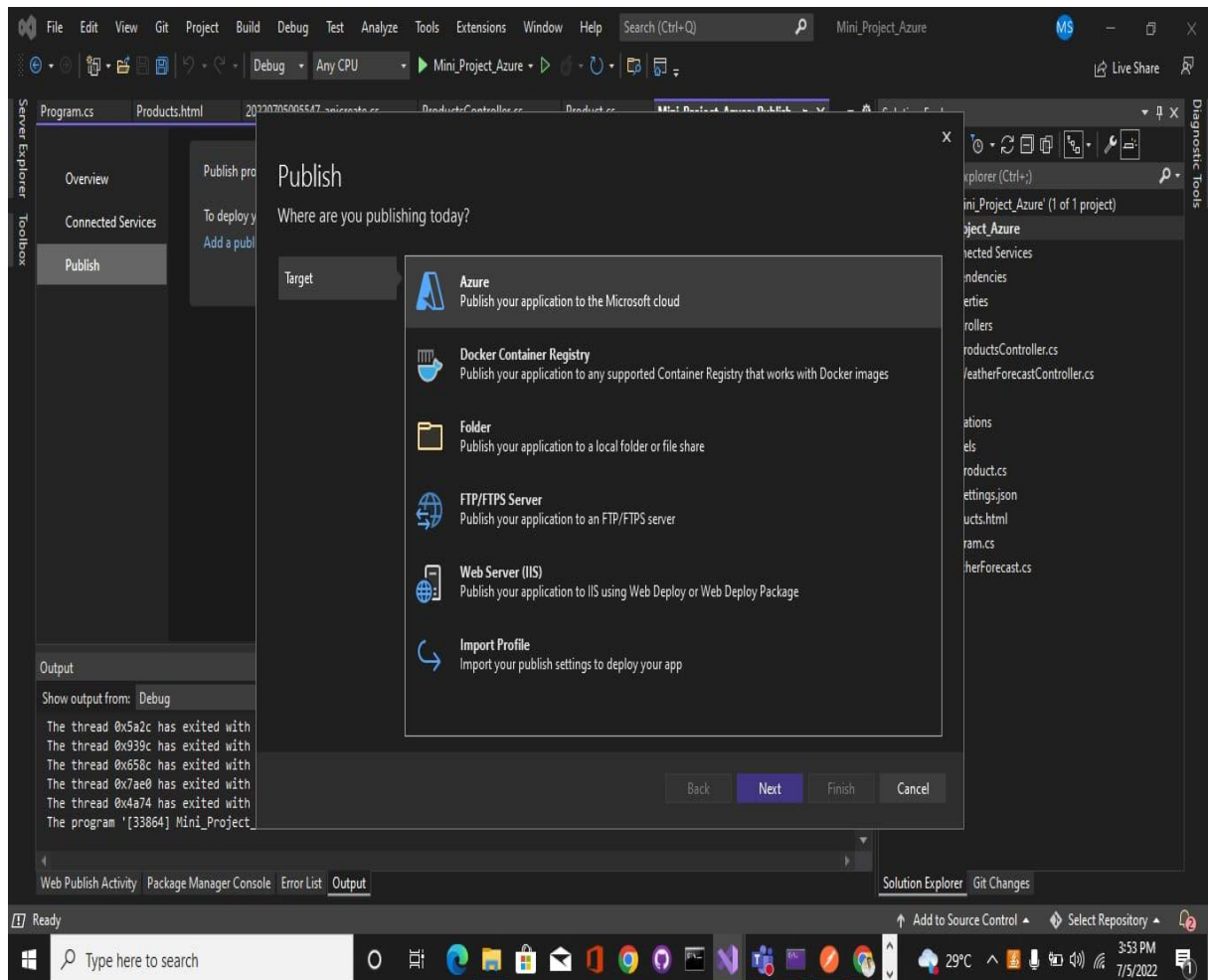
- Host the web api in azure and consume the same using jQuery Client.
- Configure Scale out by adding rules for custom scaling
- Configure Deployment slots for staging and production
- Configure Application Insights for the project
- Configure Swagger for the api
- Work with Log Analytics with the sample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

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

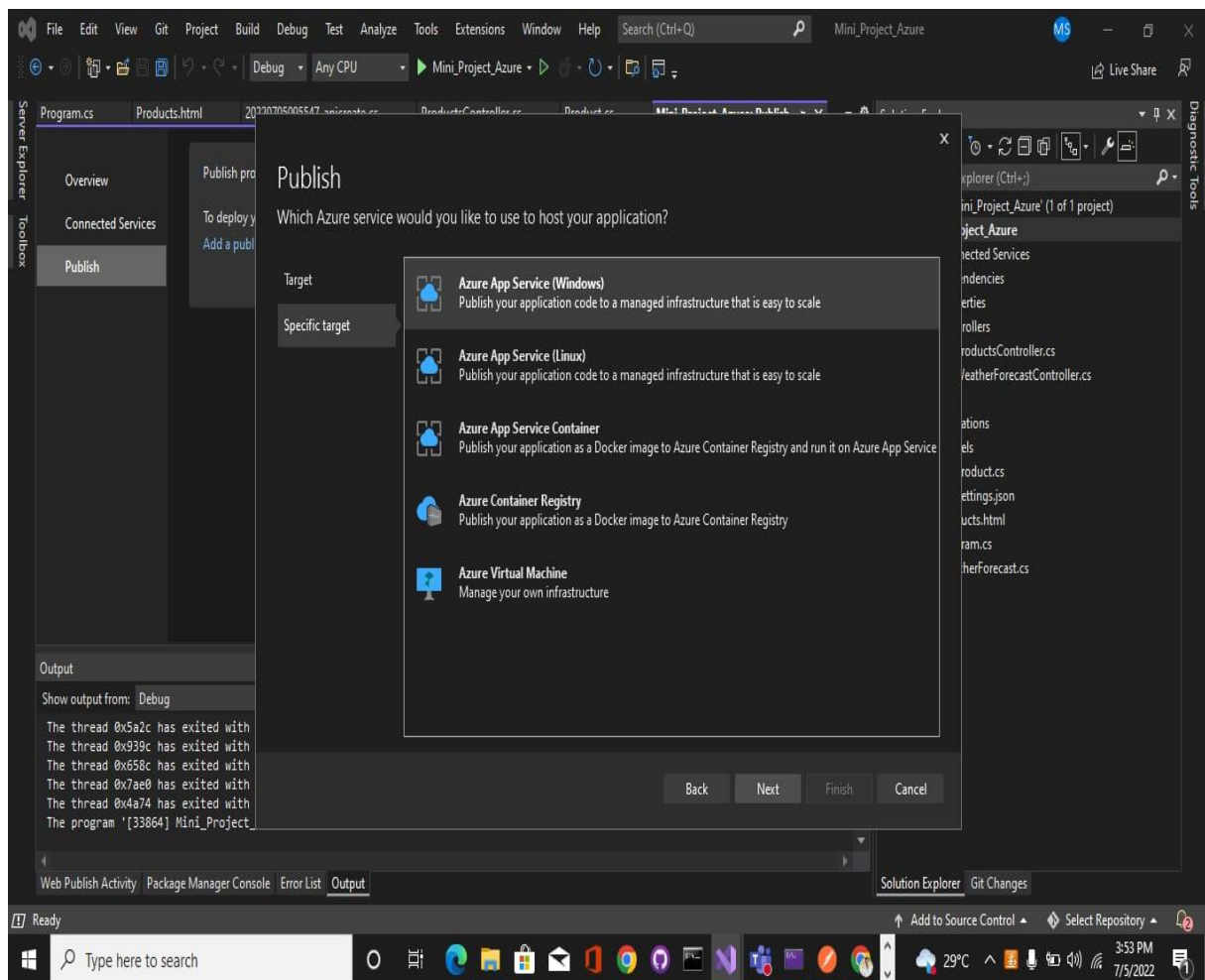
❖ In Solution Explorer, right-click the project and select Publish .



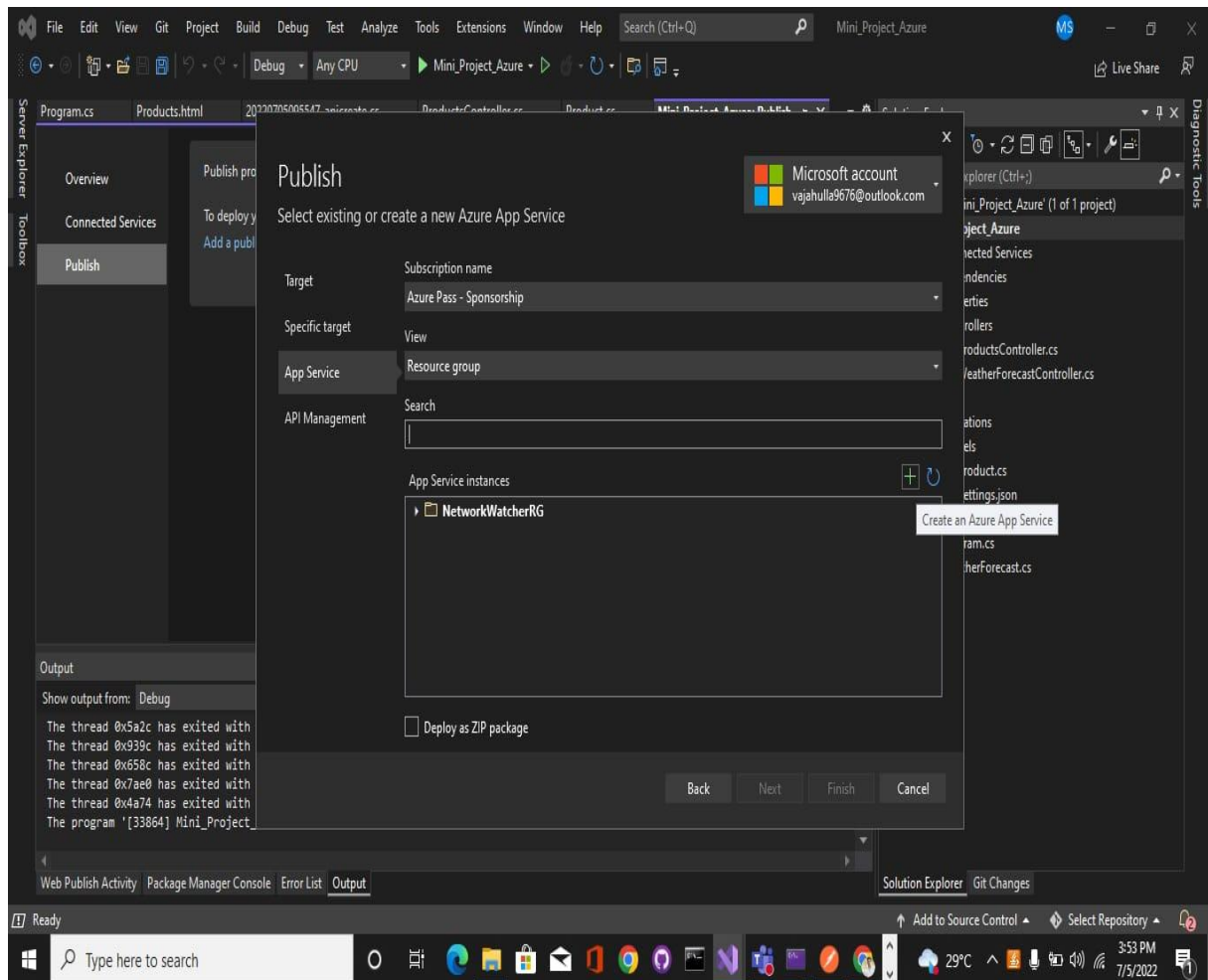
❖ In the Publish dialog, select Azure and select the Next button.



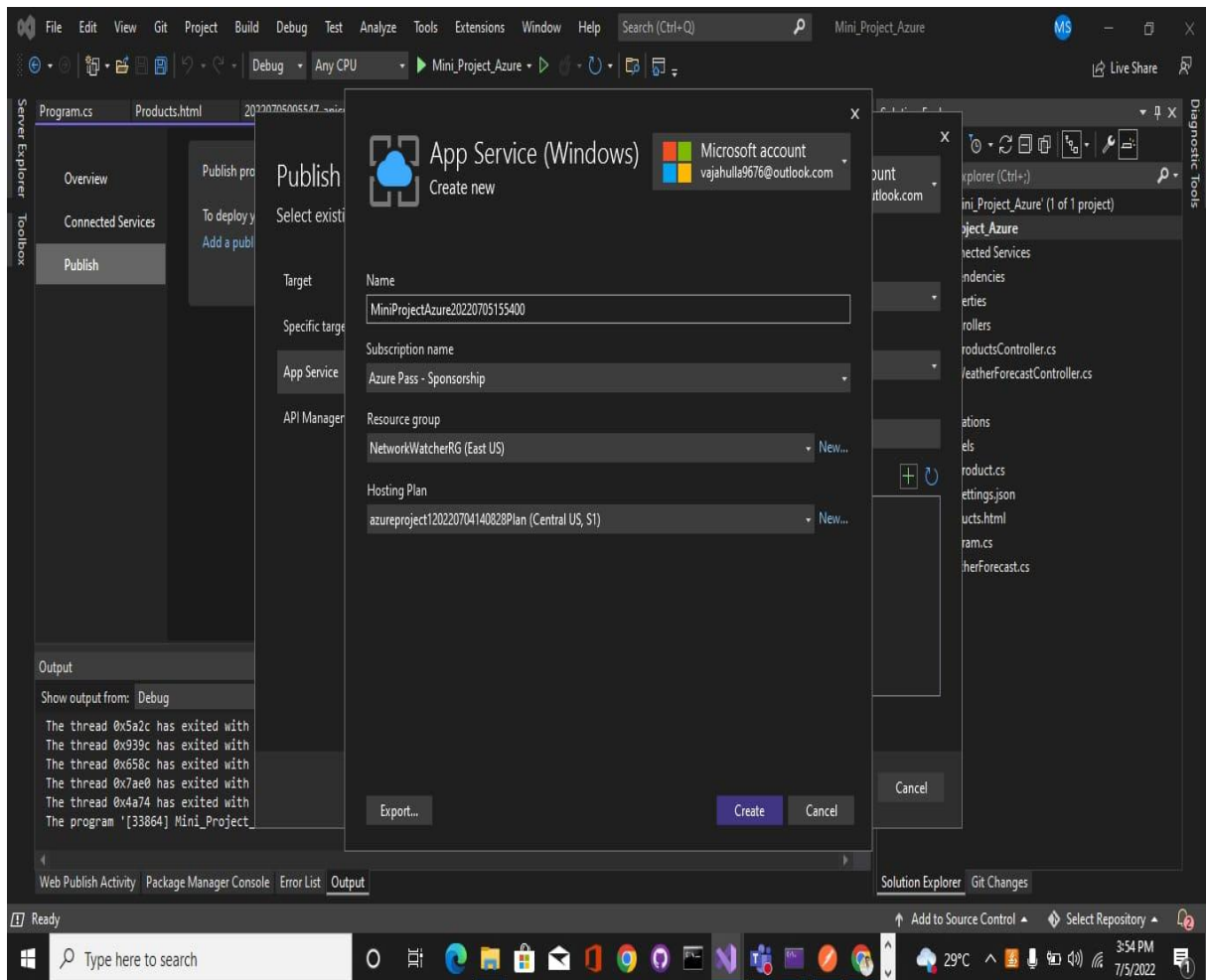
❖ Select Azure App Service (Windows) and select the Next button .



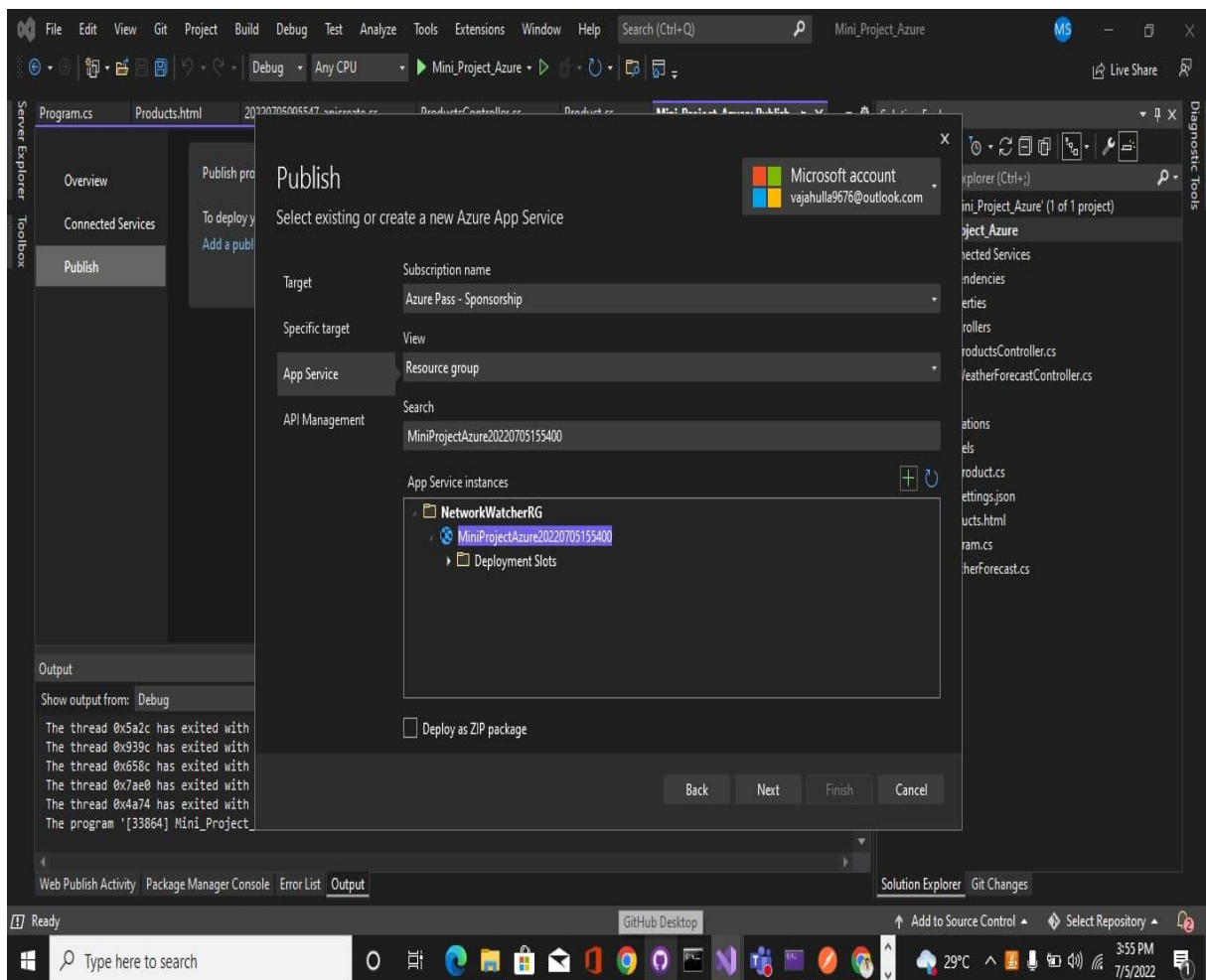
❖ Select Create a new Azure App Service.



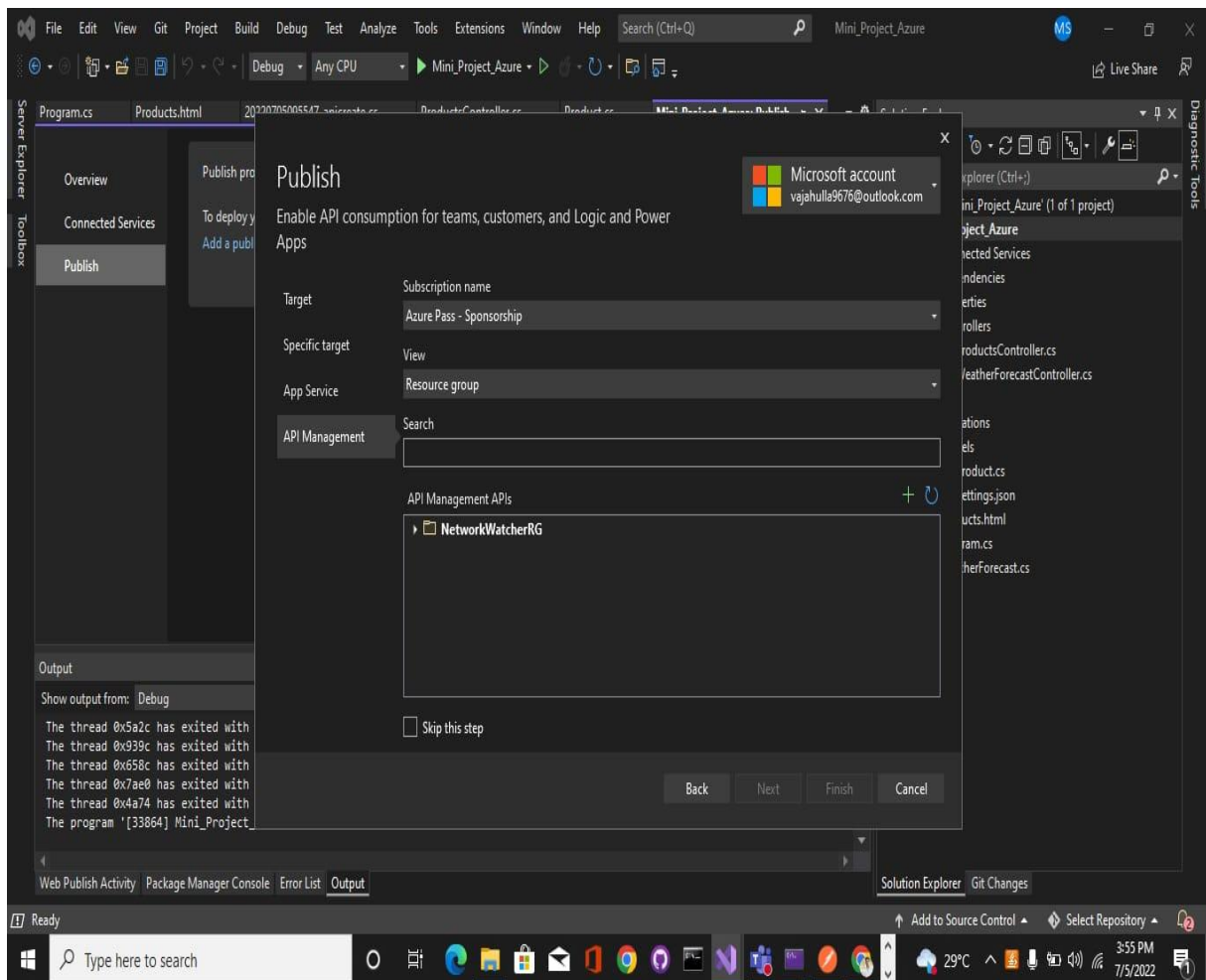
❖ The Create App Service dialog appears. The App Name, Resource Group, and App Service Plan entry fields are populated. You can keep these names or change them. Select the Create button.



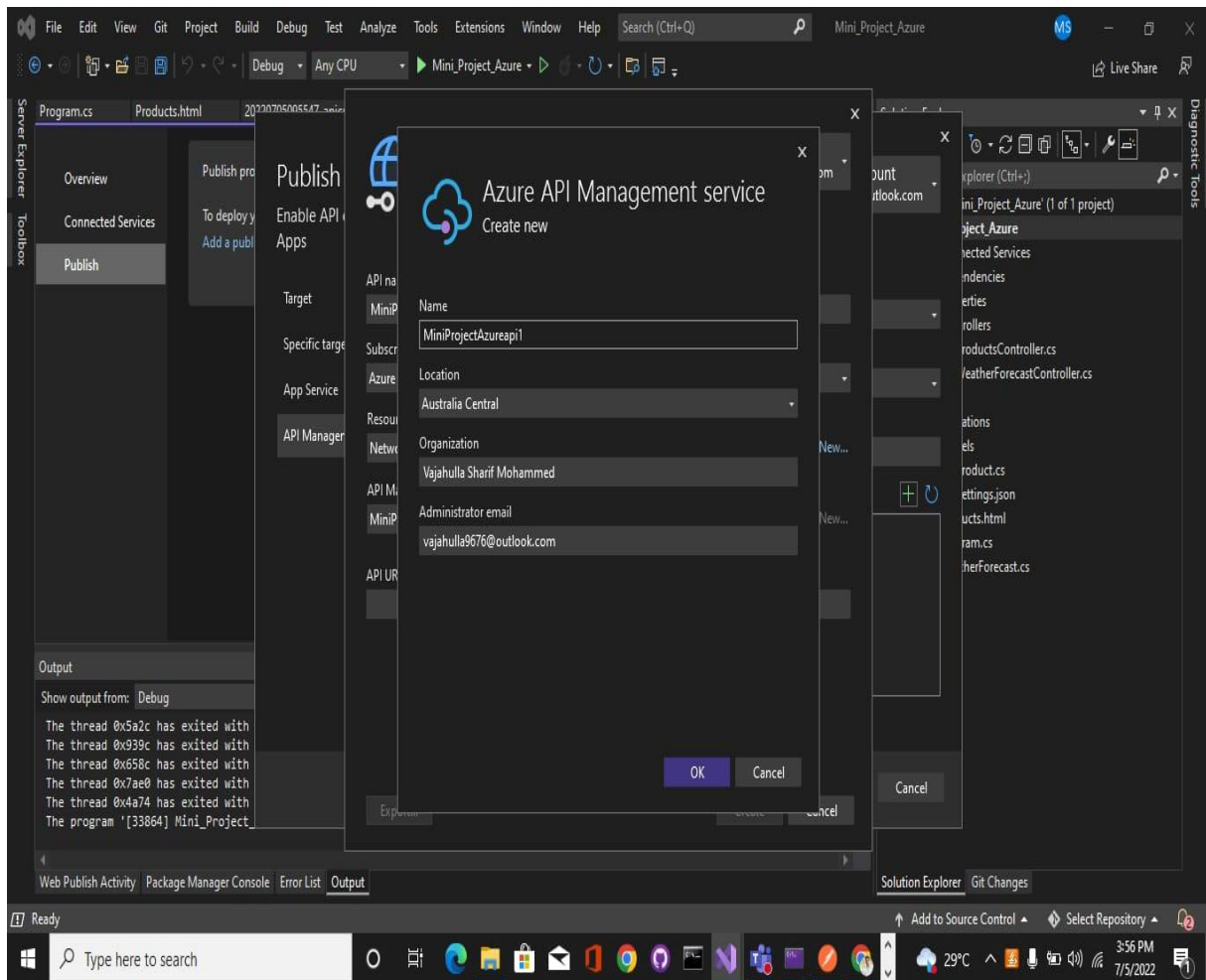
❖ After creation is completed, the dialog is automatically closed and the Publish dialog gets focus again. The instance that was created is automatically selected.



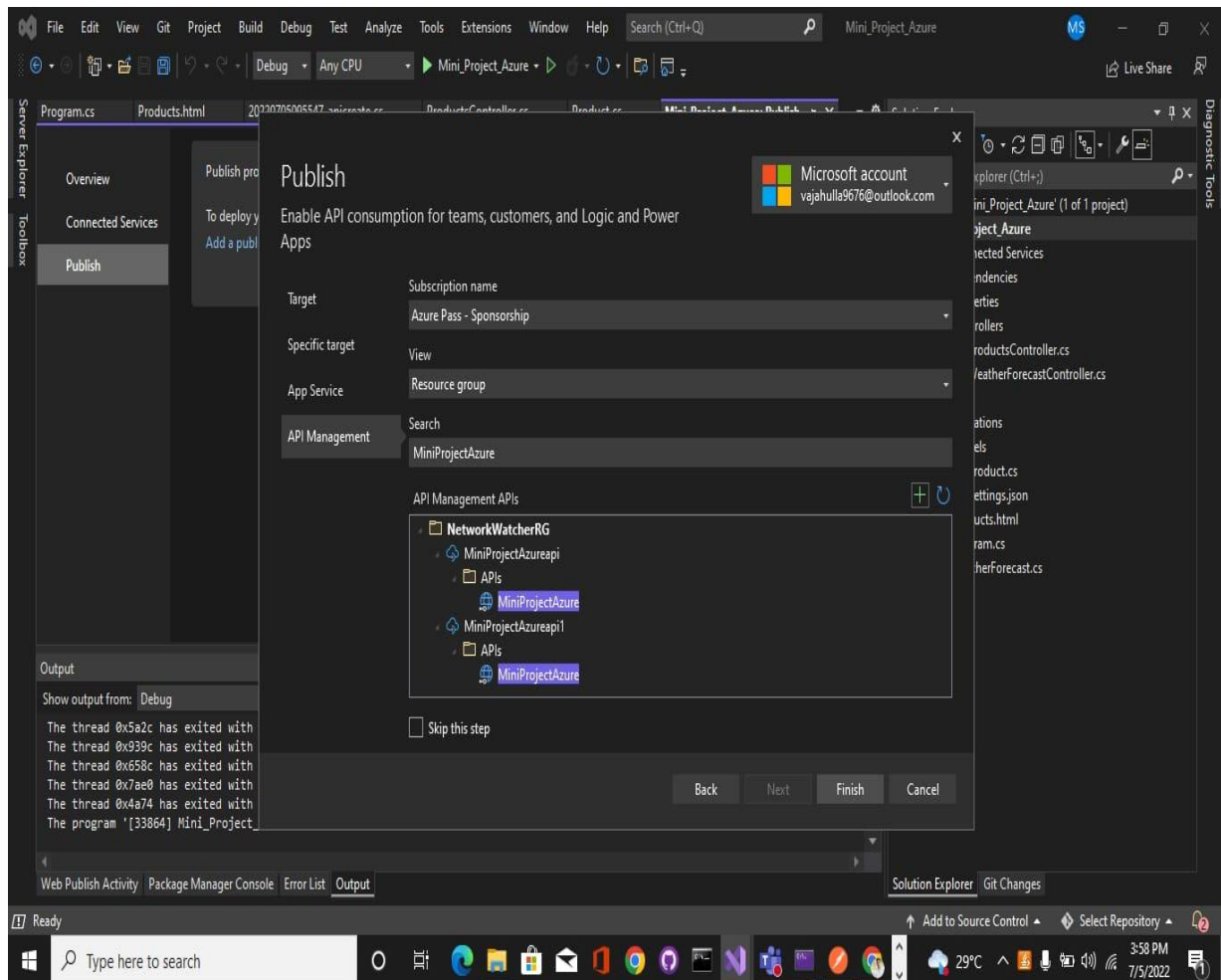
❖ The dialog now shows the Azure API Management service to create.



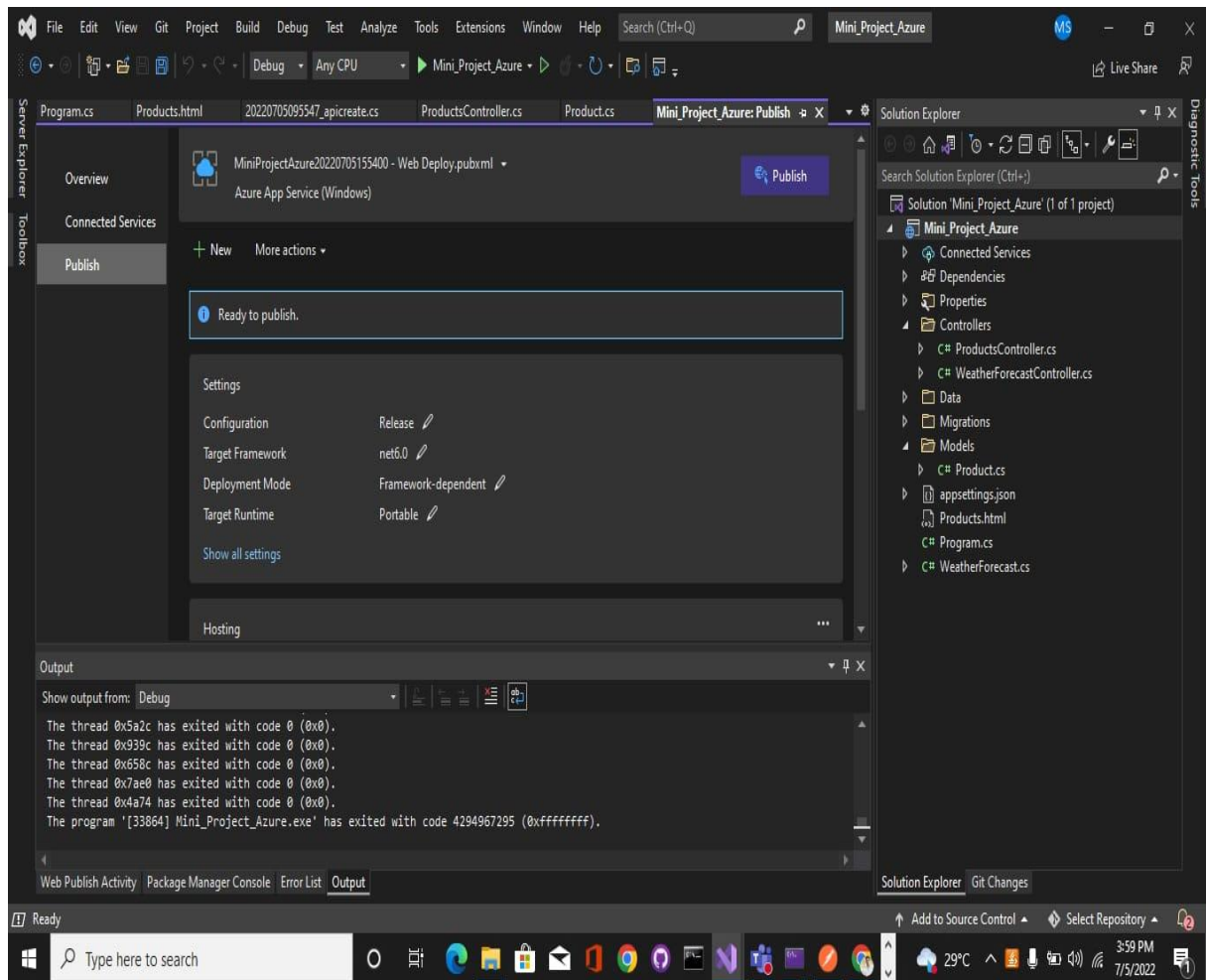
❖ The Create the Azure API Management service dialog appears. The App Name, Resource Group, and API Management service entry fields are populated. You can keep these names or change them. Select the Create button.



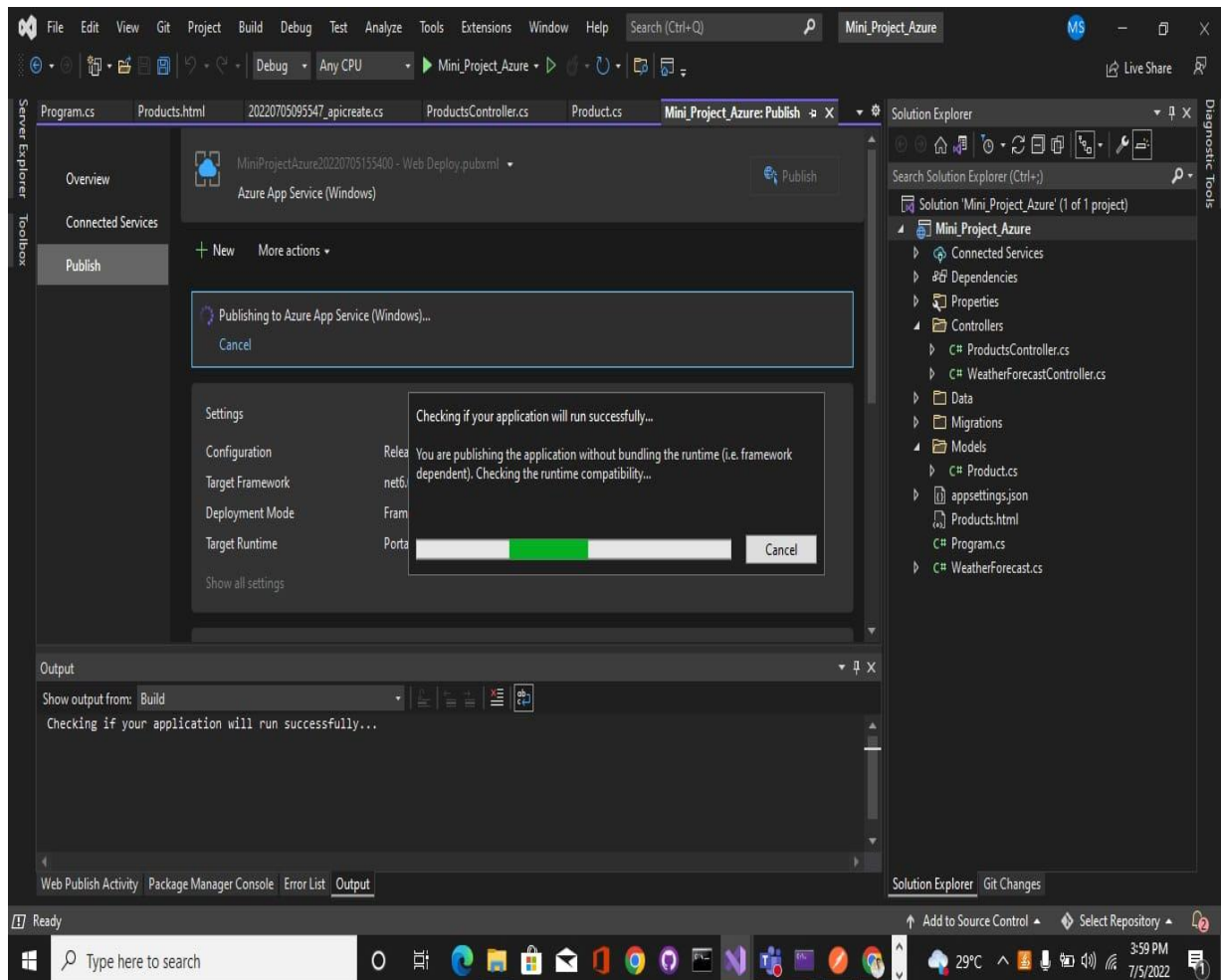
❖ After creation is completed, the dialog is automatically closed and the Publish dialog gets focus again. The instance that was created is automatically selected.



❖ The dialog closes and a summary screen appears with information about the publish. Select the Publish button.



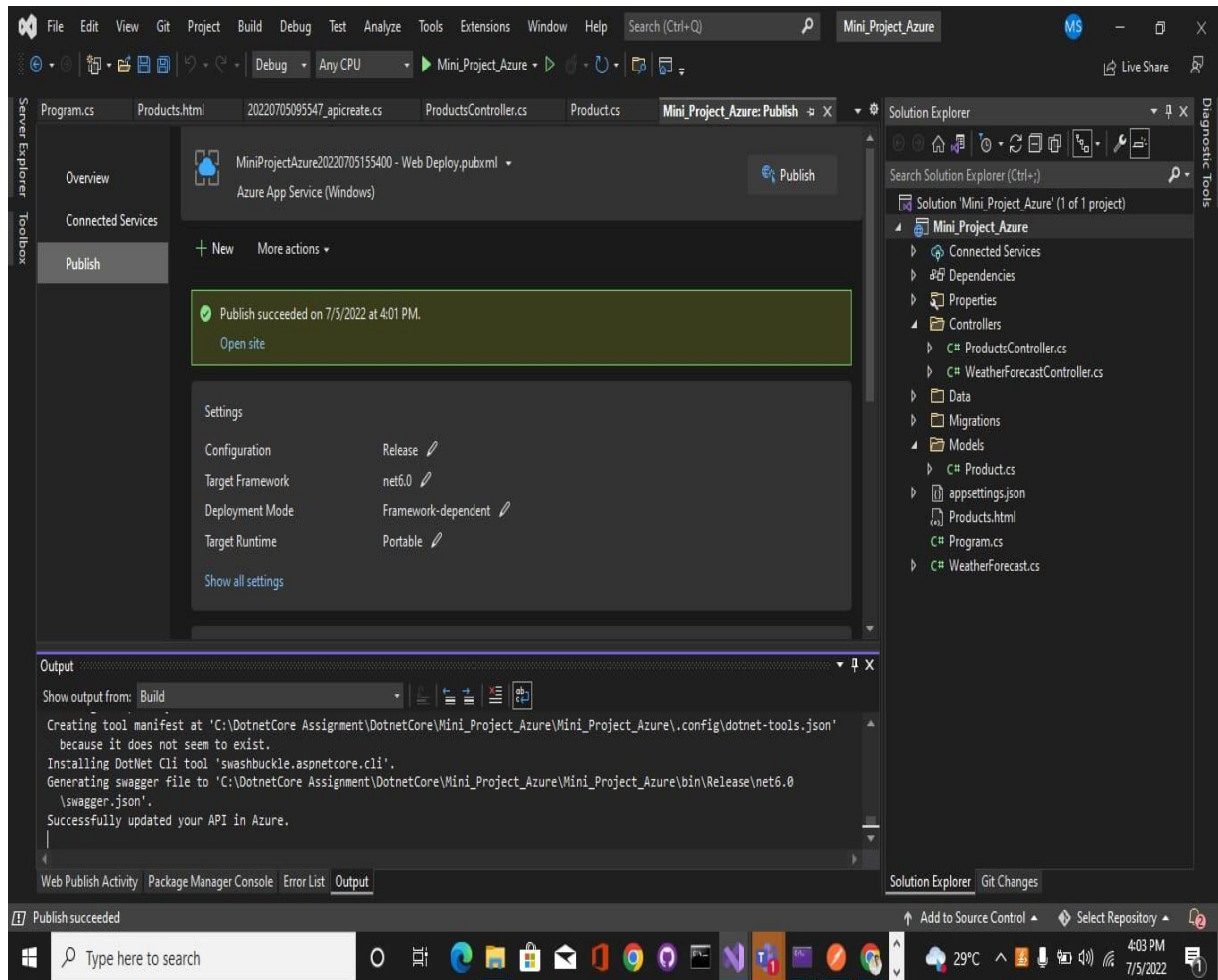
❖ Select the Publish button after that it will Publishing to Azure App Service(Window) and checking your application will run Successfully..



❖ 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. You can close that window.

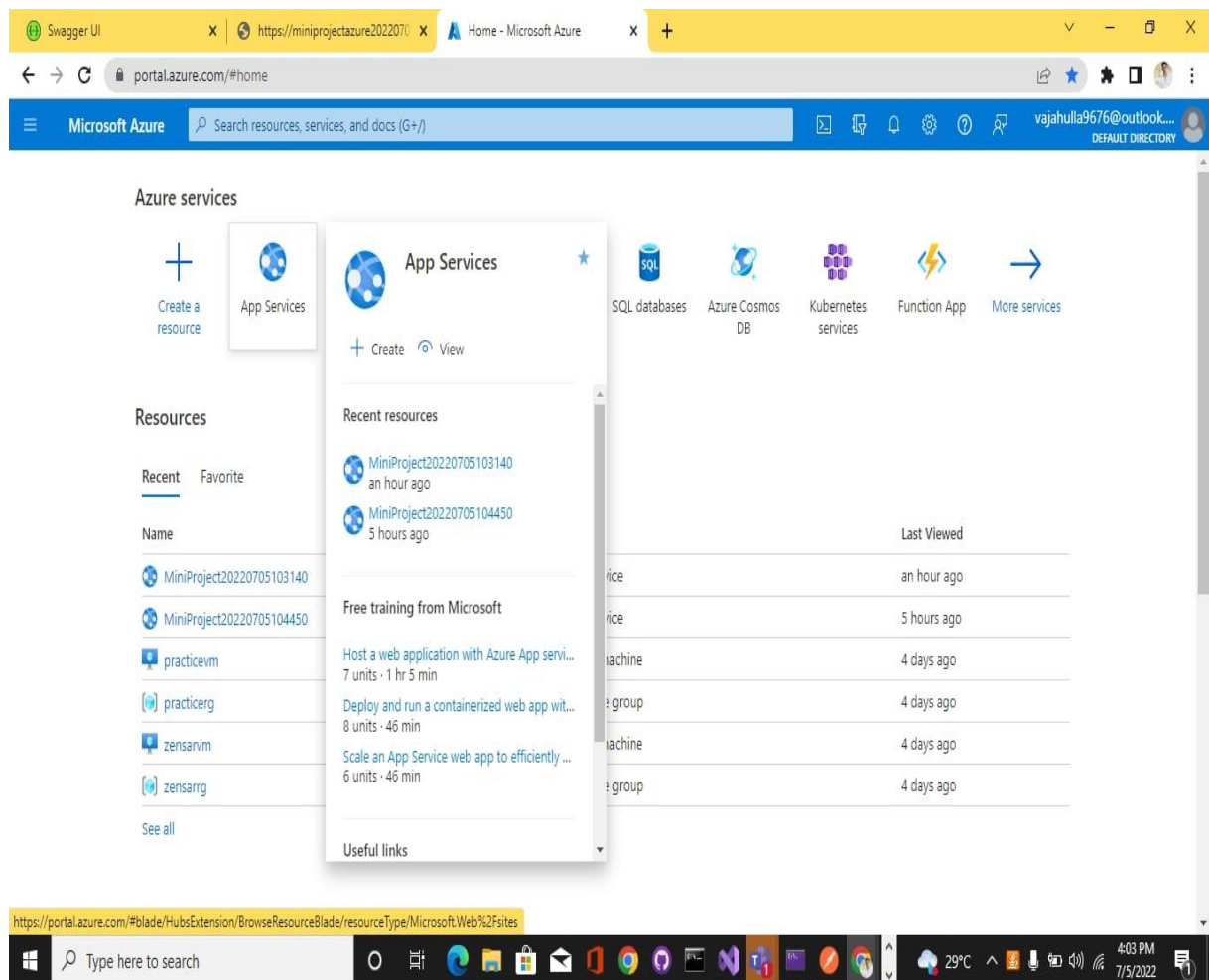


❖ Select the Publish button on site to open.

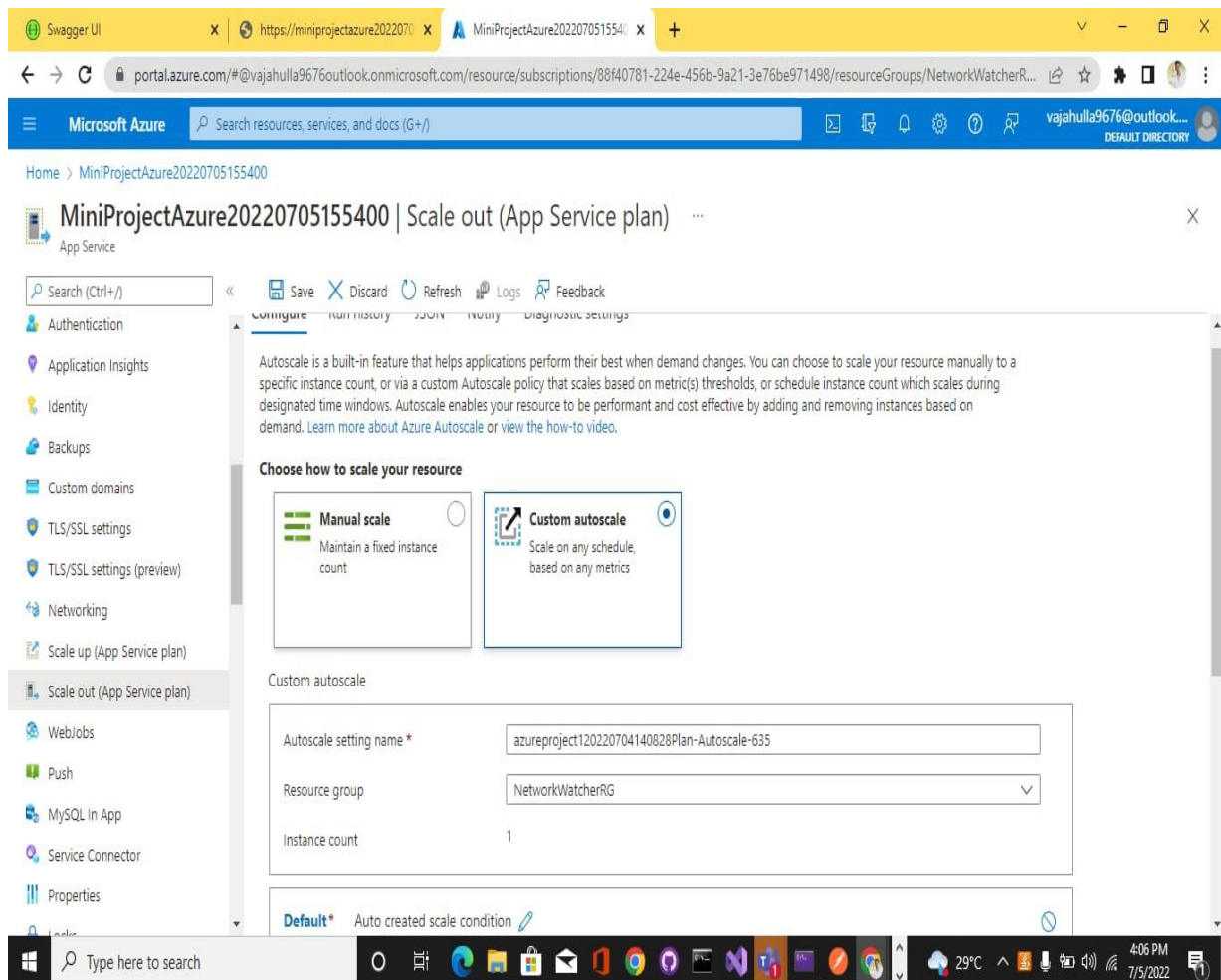


2. Configure Scale out by adding rules for custom scaling

❖ Switch back to the Azure API Management instance in the Azure portal. Refresh the browser window. Select the API you created in the preceding steps. It's now populated and you can explore around.



❖ Search and select Auto scale in the search bar and Select Custom Auto scale
In the Rules section of the default scale condition, select Add a rule. From the Metric source dropdown, select current resource. From Resource Type, select Application Insights.



❖ From the Resource dropdown, select your App services plan standard metrics. Select a Metric name to CPU Percentage and Select Enable metric divide by instance count so that the number of sessions per instance is measured. From the Operator dropdown, select Greater than.

The screenshot displays the Microsoft Azure portal interface for configuring a scale rule. The main view shows the 'Scale out (App Service plan)' settings for the resource 'MiniProjectAzure20220705155400'. The 'Resource group' is 'NetworkWatcherRG' and the 'Instance count' is '1'. The 'Scale mode' is set to 'Scale based on a metric'. The 'Rules' section shows a 'Default' rule with a 'Delete warning' and a 'Scale mode' of 'Scale based on a metric'. The 'Instance limits' are set to 'Minimum 1' and 'Maximum 1'. The 'Schedule' is set to 'This scale condition is executed when...'. The 'Scale rule' panel on the right shows the 'Metric source' as 'Current resource (azureproject120220704140828Plan)'. The 'Resource type' is 'App Service plans' and the 'Resource' is 'azureproject120220704140828Plan'. The 'Criteria' section shows 'Time aggregation' as 'Average' and 'Metric namespace' as 'App Service plans standard metrics'. The 'Metric name' is 'CPU Percentage'. The 'Dimension Name' is 'Instance', the 'Operator' is '=', and the 'Dimension Values' are 'All values'. The 'Add' button is visible at the bottom of the panel.

❖ Enter the Metric threshold to trigger the scale action, for example, 70 and Under Actions, set the Operation to Increase count and set the Instance count to 1 and Cool down by 5minutes and then click Add. Set the maximum number of instances that can be spun up in the Maximum field of the Instance limits section and Select Add.

The screenshot displays the Azure portal interface for configuring a scale rule. The left sidebar shows the navigation menu with 'Scale out (App Service plan)' selected. The main content area is titled 'MiniProjectAzure20220705155400 | Scale out (App Service plan)'. The 'Scale rule' configuration is shown in a right-hand pane, which includes a graph of 'CpuPercentage (Average)' over time. The configuration details are as follows:

- Resource group:** NetworkWatcherRG
- Instance count:** 1
- Scale mode:** Scale based on a metric (selected)
- Rules:**
 - Default:** Auto created scale condition
 - Delete warning:** The very last or default recurrence off autoscale.
 - Scale mode:** Scale based on a metric
 - Rules:** Scale is based on metric trigger rule. example: 'Add a rule that increases rules is defined, the resource will be'.
 - Instance limits:** Minimum 1, Maximum 1.
 - Schedule:** This scale condition is executed when...
- Action:**
 - Operation:** Increase count by
 - Cool down (minutes):** 5
 - Instance count:** 1

The 'Add' button is visible at the bottom of the configuration pane.

❖ After adding the scale it show Rules.

The screenshot shows the Microsoft Azure portal interface for configuring an App Service plan. The left sidebar contains navigation links for various services, with 'Scale out (App Service plan)' selected. The main content area displays the 'Default' auto-created scale condition. A 'Delete warning' message states: 'The very last or default recurrence rule cannot be deleted. Instead, you can disable autoscale to turn off autoscale.' The 'Scale mode' is set to 'Scale based on a metric'. The 'Rules' section shows a single rule for 'Scale out' with the condition 'When azureproject12022070... (Average) CpuPercentage > 70' and 'Increase count by 1'. The 'Instance limits' are configured with Minimum: 1, Maximum: 1, and Default: 1. The 'Schedule' section indicates that the scale condition is executed when none of the other scale condition(s) match.

3.Configure Deployment slots for staging and production

Azure Functions deployment slots allow your function app to run different instances called "slots". Slots are different environments exposed via a publicly available endpoint. One app instance is always mapped to the production slot, and you can swap instances assigned to a slot on demand. Function apps running under the Apps Service plan may have multiple slots, while under the Consumption plan only one slot is allowed.

The screenshot shows the Azure portal interface for an App Service named 'MiniProjectAzure20220705155400'. The 'Deployment slots' page is displayed, showing a message: 'You haven't added any deployment slots. Click here to get started.' Below this, a table lists the existing deployment slots.

NAME	STATUS	APP SERVICE PLAN	TRAFFIC %
miniprojectazure20220705155400	Running	azureproject120220704140828Plan	100
PRODUCTION			

❖ Add the Slot and Name as Staging and then Add the Slot .

The screenshot shows the Microsoft Azure portal interface. The main content area displays the 'Deployment slots' page for the resource 'MiniProjectAzure20220705155400'. A table lists the existing slot:

NAME	STATUS
miniprojectazure20220705155400	Running

The 'Add a slot' dialog is open on the right. The 'Name' field is set to 'staging'. The 'Clone settings from' dropdown is set to 'Do not clone settings'. The 'Add' button is visible at the bottom of the dialog.

Deployment slots are live apps with their own hostnames. App content and configuration are shared with the production slot.

❖ After Add Slot Successful both the Production and Staging is Displayed .

Home > MiniProjectAzure20220705155400

MiniProjectAzure20220705155400 | Deployment slots

App Service

Search (Ctrl+/) Save Discard Add Slot Swap Logs Refresh

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

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 %
miniprojectazure20220705155400 PRODUCTION	Running	azureproject120220704140828Plan	100
miniprojectazure20220705155400-staging	Running	azureproject120220704140828Plan	0

https://portal.azure.com/#@vajahulla9676outlook.onmicrosoft.com/resource/subs...

Type here to search

27°C 11:34 AM 7/7/2022

❖ Select Deployment slots, and then select Swap and Verify the configuration settings for your swap and select Swap.

Microsoft Azure portal interface showing the 'Swap' dialog for deployment slots.

Deployment Slots

Deployment slots are live apps with their own hostnames. App content and configuration are deployed to a specific slot.

NAME	STATUS
miniprojectazure20220705155400	Running
miniprojectazure20220705155400-staging	Running

Swap

Source: miniprojectazure20220705155400-staging

Target: **PRODUCTION** miniprojectazure20220705155400

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.

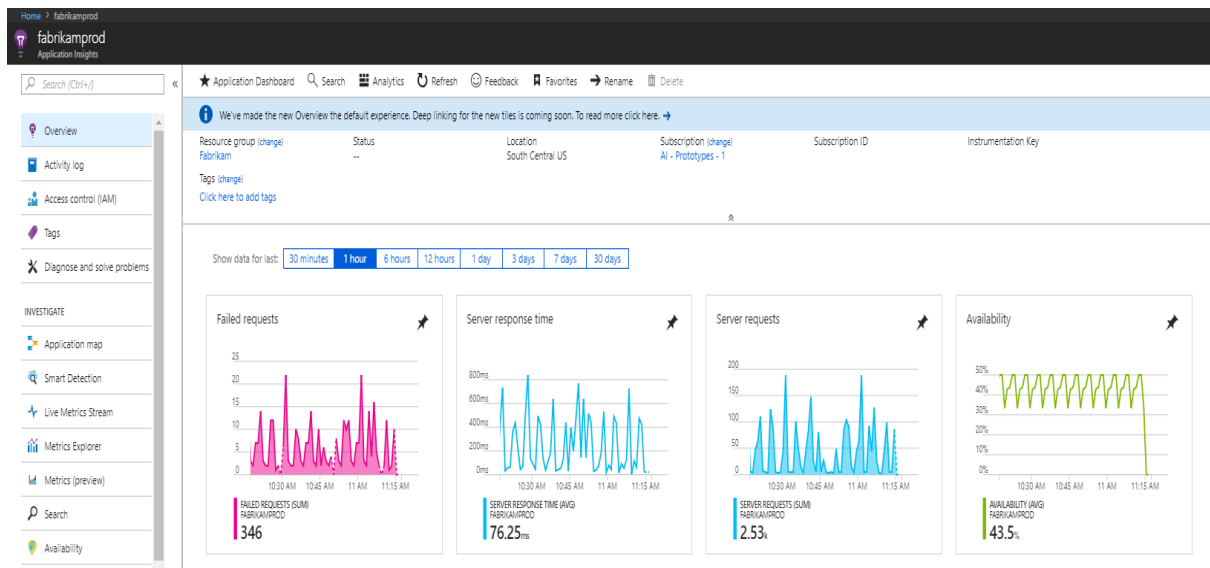
Source Changes		Target Changes	
SETTING	TYPE	OLD VALUE	NEW VALUE
NetFrameworkVersion	General	v4.0	v6.0

Buttons: Swap, Close

4. Configure Application Insights for the project

❖ Select the Application Insights

The screenshot shows the Microsoft Azure portal interface. The browser tabs at the top include 'MiniProjectAzure202207051...', 'Application Insights overview', 'Log Analytics tutorial - Azure', 'REST API Documentation To', and 'application insights in azure'. The address bar shows the URL: 'portal.azure.com/#@vajahulla9676outlook.onmicrosoft.com/resource/subscriptions/88f40781-224e-456b-9a21-3e76be971498/resourceGroups/NetworkWatcherR...'. The page title is 'MiniProjectAzure20220705155400 | Application Insights'. The left sidebar shows the 'Application Insights' option selected under the 'Settings' section. The main content area displays the 'Application Insights' configuration page. It includes a search bar, a 'Deployment' section with links to 'Quickstart', 'Deployment slots', and 'Deployment Center', and a 'Settings' section with links to 'Configuration', 'Authentication', 'Application Insights', 'Identity', 'Backups', 'Custom domains', 'TLS/SSL settings', and 'TLS/SSL settings (preview)'. The 'Application Insights' section has an 'Enable' button and a 'Disable' button. Below this, there is a 'Link to an Application Insights resource' section with a message: 'Instrumentation key will be added to App Settings. This will overwrite any instrumentation key value in web app configuration files. Your app will be connected to an auto-created Application Insights resource: MiniProjectAzure20220705155400'. There is also a 'Change your resource' link and an 'Apply' button. The bottom of the screen shows the Windows taskbar with the search bar and various application icons.



Search (Ctrl+Q)

Time range = Last 24 hours

Roles = All

client_Type != "Browser"

- Failures
- Performance
- Servers
- Browser
- Workbooks (preview)
- USAG (PREVIEW)
- Users
- Sessions
- Events
- Funnels
- User Flows
- Retention
- Impact
- Cohorts
- CONFIGURE
- Getting started
- Previews
- Properties

Operations

Dependencies

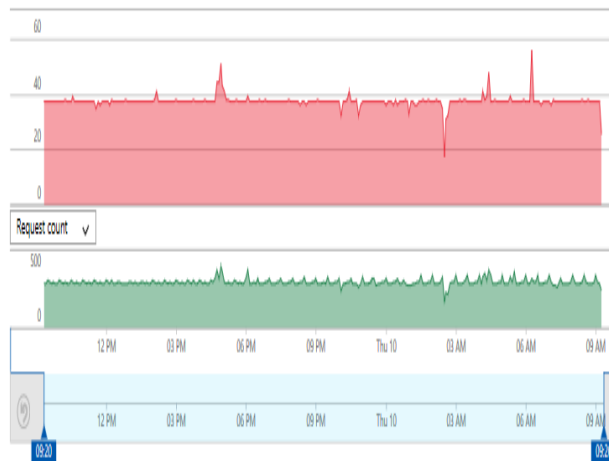
Exceptions

View in Analytics

Feedback

Refresh

Failed request count



Select operation

Search to filter items...

OPERATION NAME	USERS	COUNT (FAILED)	COUNT	PIN
Overall	6.24k	10.70k	82.89k	
GET ServiceTickets/Details	1.41k	4.33k	4.33k	
GET Customers/Details	2.02k	2.01k	2.01k	
GET Employees/Details	1.41k	1.44k	2.88k	
GET Employees/Create	1.41k	1.43k	1.43k	
POST ServiceTickets/Create	1.40k	1.43k	1.43k	
GET ServiceTickets/Escalate	-	29	29	

Overall

Top 3 response codes

	COUNT	FILTERING
500	9.21k	
404	1.48k	

Top 3 exception types

	COUNT	FILTERING
NullReferenceE...	5.77k	
HttpException	1.47k	
SqlException	1.44k	

Top 3 dependency failures

	COUNT	FILTERING
Azure blob	5.77k	
Azure table	2.55k	
SQL	1.44k	

Take action

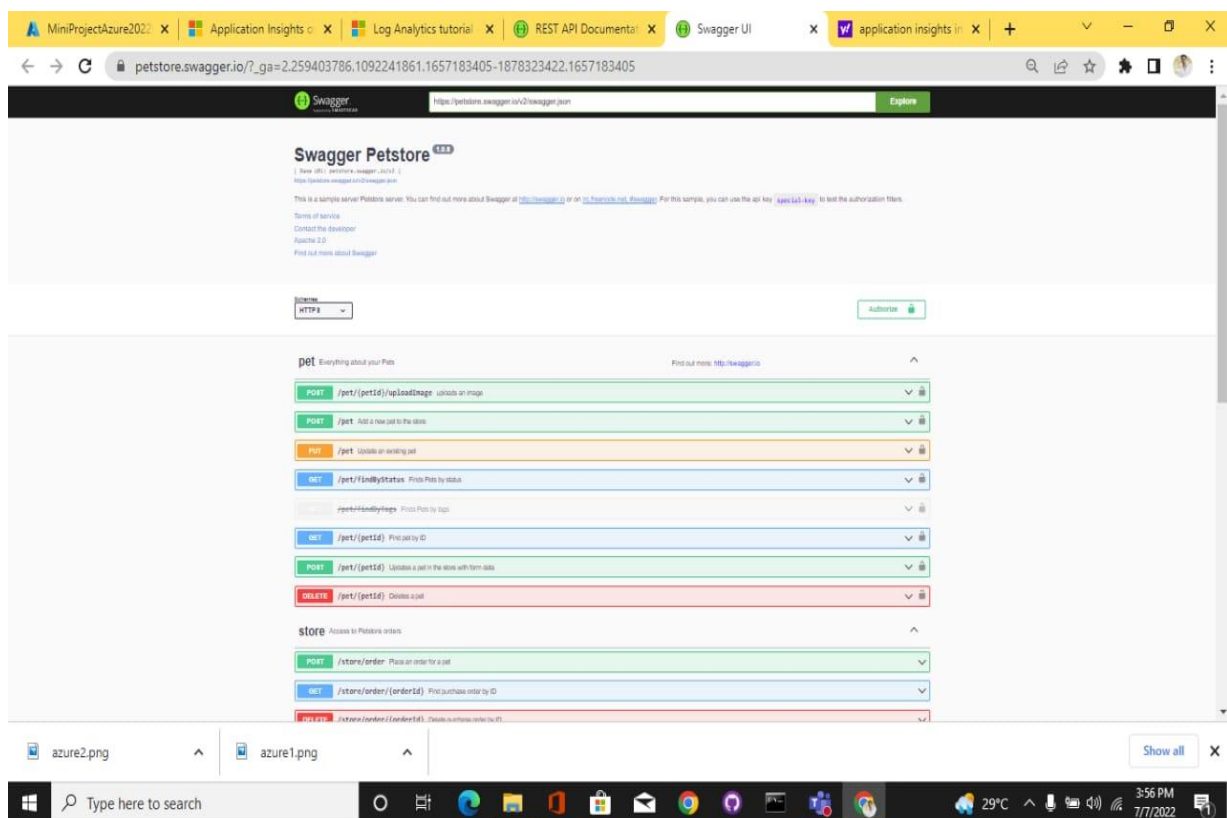
10.70k Operations

5. Configure Swagger for the API

Swagger UI allows anyone be it your development team or your end consumers to visualize and interact with the API's resources without having any of the implementation logic in place. It's automatically generated from your Open API (formerly known as Swagger) Specification, with the visual documentation making it easy for back end implementation and client side consumption.

Advantages :

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



GET

The screenshot shows the Swagger UI for the endpoint `GET /pet/findPetsByStatus`. The description states: "Finds Pets by status. Multiple status values can be provided with comma separated strings." The parameters section shows a required query parameter `status` of type `array(string)` with a description: "Status values that need to be considered for filter. Available values : available, pending, sold." A dropdown menu shows these three options. The responses section shows a 200 status code for a "successful operation" with an example JSON response:

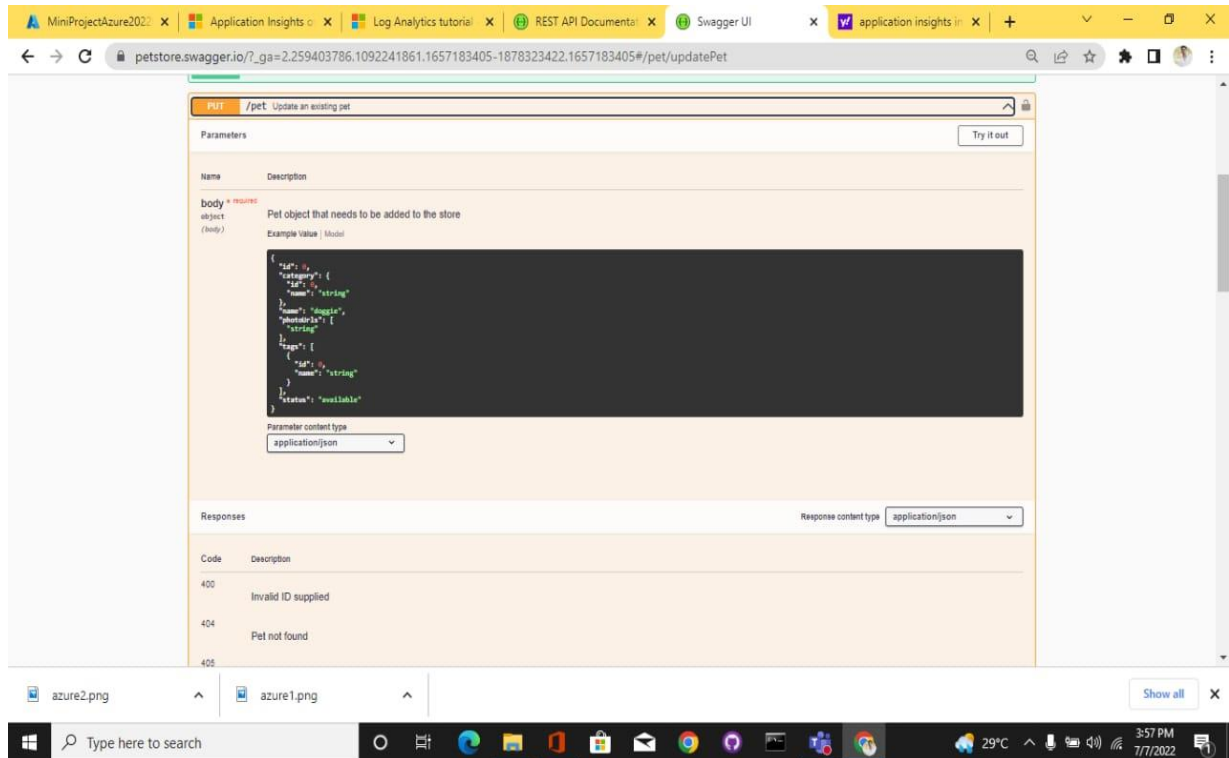
```
{  "id": 1,  "category": {    "id": 1,    "name": "string"  },  "name": "Angela",  "photoUrls": [    "string"  ],  "tags": [    {      "id": "string",      "name": "string"    }  ]}
```

POST

The screenshot shows the Swagger UI for the endpoint `POST /pet/(petId)/uploadImage`. The description states: "uploads an image". The parameters section shows three parameters: a required path parameter `petId` (integer) with description "ID of pet to update", a required body parameter `additionalMetadata` (string) with description "Additional data to pass to server", and a required body parameter `file` (file) with description "file to upload". The responses section shows a 200 status code for a "successful operation" with an example JSON response:

```
{  "code": 200,  "type": "string",  "message": "string"}
```

PUT

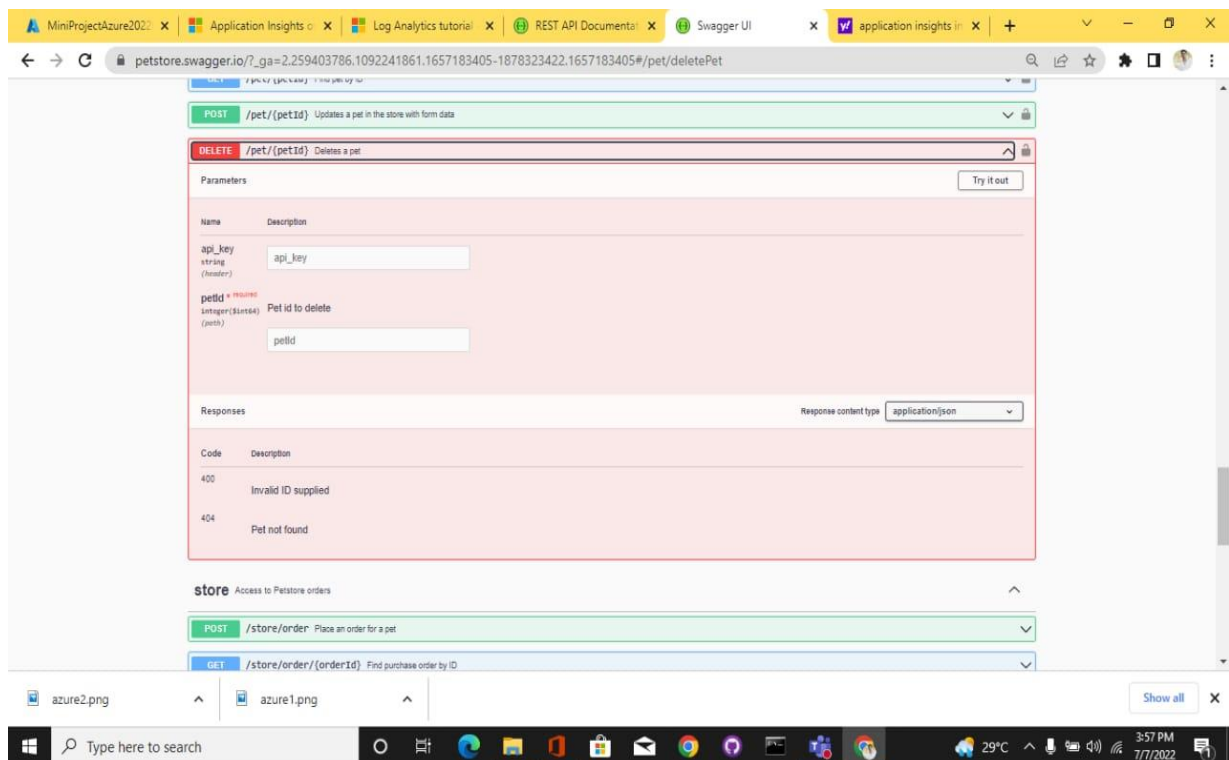


The image shows the Swagger UI for the PUT /pet endpoint. The URL bar displays the Swagger URL with a specific API key. The endpoint is titled "PUT /pet: Update an existing pet". The parameters section is empty. The body section is required and expects a "Pet object that needs to be added to the store". An example JSON body is provided:

```
{  "id": 1,  "category": {    "id": 1,    "name": "string"  },  "name": "string",  "photoUrls": [    "string"  ],  "tags": [    {      "id": "string",      "name": "string"    }  ],  "status": "available"}
```

 The parameter content type is set to "application/json". The responses section lists error codes: 400 (Invalid ID supplied), 404 (Pet not found), and 405. The bottom of the screen shows a Windows taskbar with the date 7/7/2022 and time 3:57 PM.

DELETE

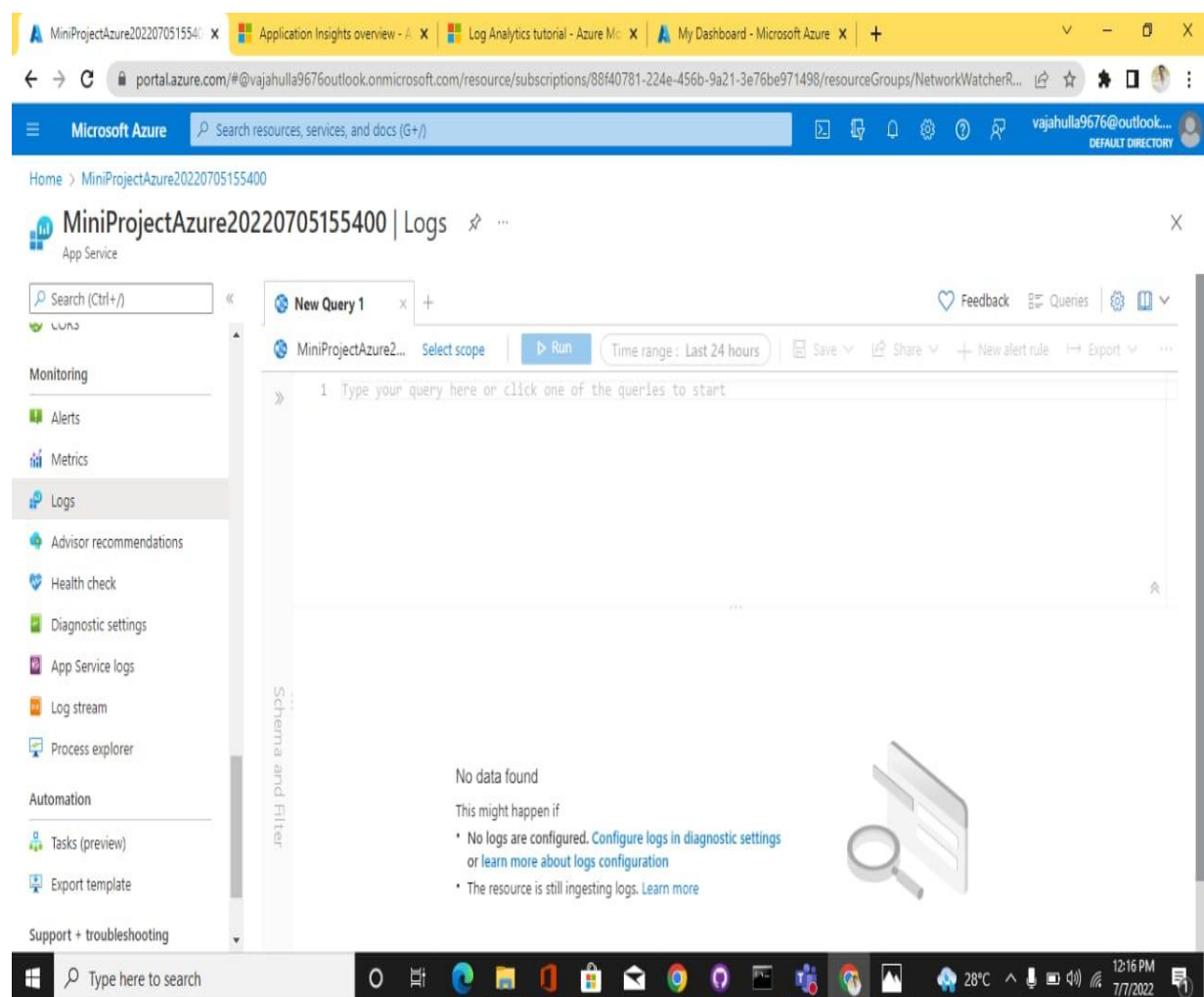


The image shows the Swagger UI for the DELETE /pet/{petId} endpoint. The URL bar displays the Swagger URL with a specific API key. The endpoint is titled "DELETE /pet/{petId}: Deletes a pet". The parameters section includes an "api_key" header parameter and a required "petId" path parameter. The responses section lists error codes: 400 (Invalid ID supplied) and 404 (Pet not found). Below the endpoint, there is a section for "store" with two other endpoints: "POST /store/order: Place an order for a pet" and "GET /store/order/{orderId}: Find purchase order by ID". The bottom of the screen shows a Windows taskbar with the date 7/7/2022 and time 3:57 PM.

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.

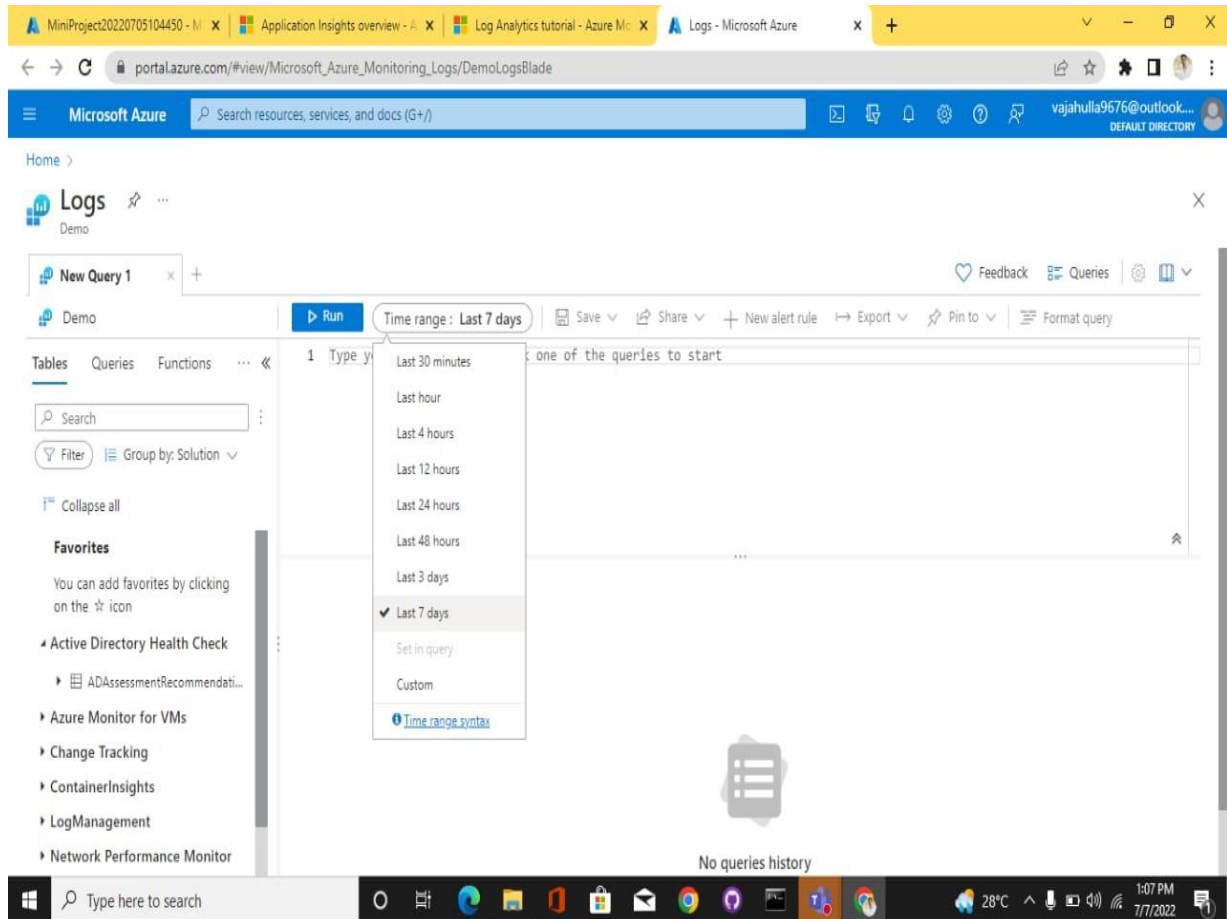
❖ Select the Logs in Azure Portal.



❖ 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 .

The screenshot displays the Microsoft Azure portal interface. At the top, the navigation bar shows the user is logged in as 'vjahulla9676@outlook...'. The main content area is titled 'Logs' and includes a search bar and a 'Run' button. A sidebar on the left lists various monitoring tools, with 'Active Directory Health Check' highlighted. A details pane for 'ADAssessmentRecommendation' is open, providing a description: 'Recommendations generated by AD assessments that are started through a scheduled task. When you schedule the assessment it runs by default every 7 days and upload the data into Azure Log Analytics'. The pane also includes a 'Useful links' section with a link to 'ADAssessmentRecommendation'. The bottom of the screen shows the Windows taskbar with the date and time as 1:07 PM on 7/7/2022.

❖ 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 12 hours 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 in a table. Run it by selecting the Run button or by selecting Shift+Enter with the cursor positioned anywhere in the query text and Select Run to return the results.

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo and a search bar. The main content area is titled 'Logs' and shows a query editor with the following query:

```
ADAssessmentRecommendation | where _ResourceId contains "ab"
```

The query is executed, and the results are displayed in a table. The table has the following columns: TimeGenerated [UTC], AssessmentId, AssessmentName, RecommendationId, and Recommendation. The results show 8 rows of data.

TimeGenerated [UTC]	AssessmentId	AssessmentName	RecommendationId	Recommendation
7/5/2022, 9:52:30.696 AM	22141292-68bc-4904-b030-5e894a7b1cb3	AD	e1fc9908-1810-455a-97de-5f35738141eb	Resolve Directory System
7/5/2022, 9:52:30.726 AM	22141292-68bc-4904-b030-5e894a7b1cb3	AD	c6eb7e0c-b86a-438f-9dce-9fbf50293dc9	Unless specifically requi
7/5/2022, 9:52:30.726 AM	22141292-68bc-4904-b030-5e894a7b1cb3	AD	4eabc96c-682a-4d81-9919-0c32af52aa3f	Amend dynamic port cc
7/5/2022, 9:52:30.726 AM	22141292-68bc-4904-b030-5e894a7b1cb3	AD	f676b73a-7a9b-4358-962f-60b4c3569536	Dynamic Port Ranges C
7/5/2022, 9:52:30.726 AM	22141292-68bc-4904-b030-5e894a7b1cb3	AD	11d49a22-7cad-43b7-81cf-f466cff77189	Amend dynamic port cc
7/5/2022, 9:52:30.726 AM	22141292-68bc-4904-b030-5e894a7b1cb3	AD	d8640839-78cd-45a1-a942-10b536923f52	Domain Controllers witi
7/5/2022, 9:52:30.726 AM	22141292-68bc-4904-b030-5e894a7b1cb3	AD	4bcc1c2a-4168-49b8-b5bb-1d1c10ec7796	Disable the Allow Replic