

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:

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

Use Data Annotations to

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

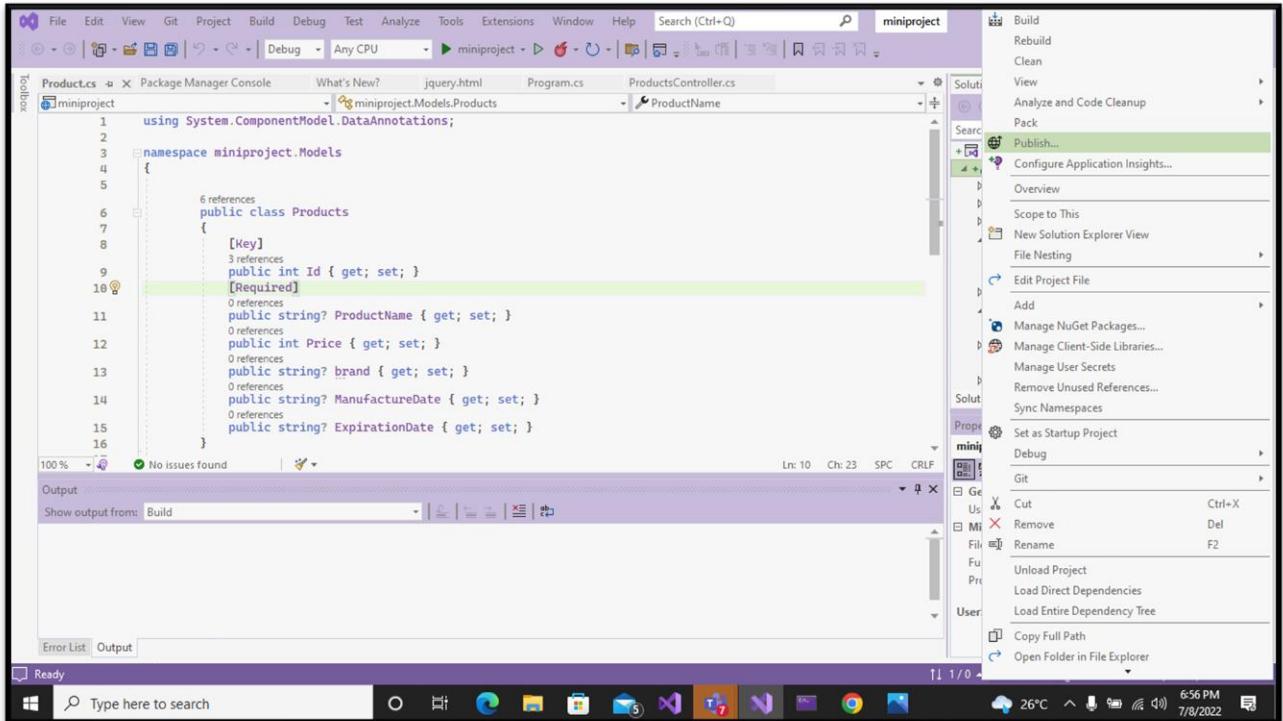
Create a JQuery and AJAX Client to consume the Web API and show the result.

Azure Hosting:

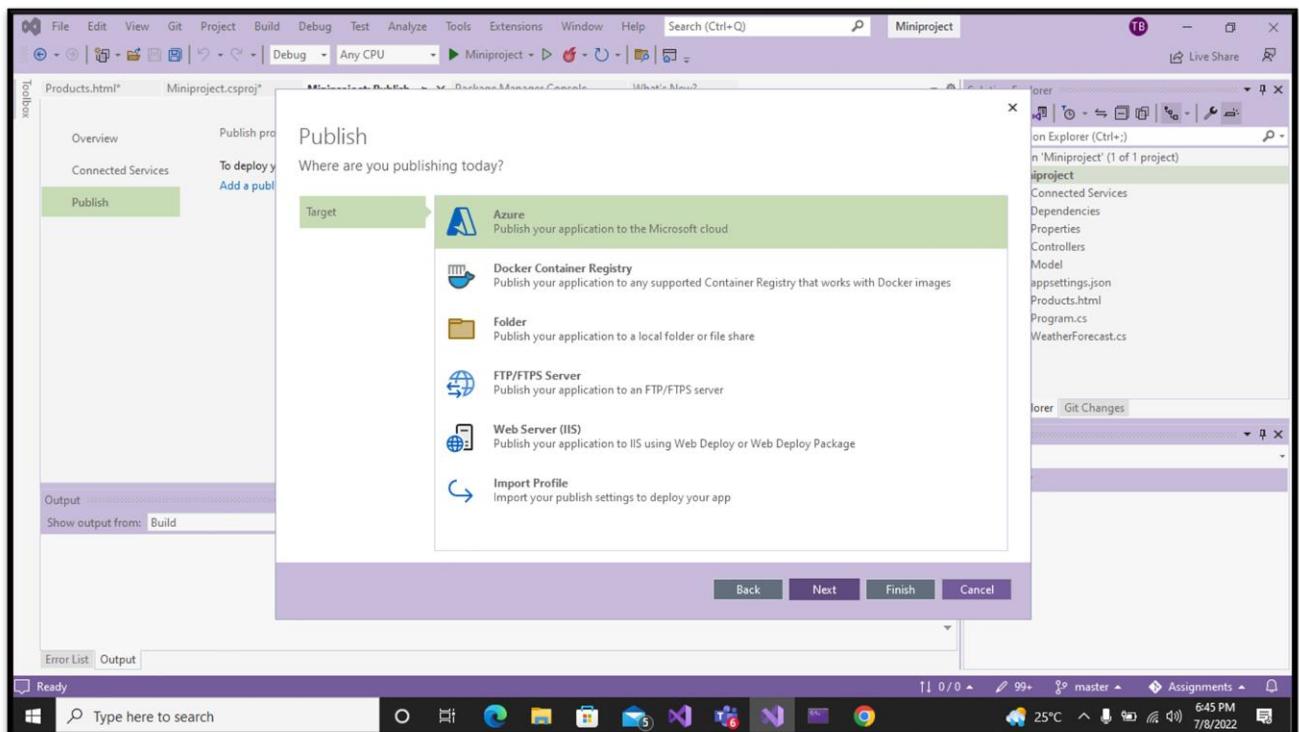
- Host the web api in azure and consume the same using JQuery Client.
- Configure Scale out by adding rules for custom scaling.
- Configure Deployment slots for staging and production.
- Configure Application Insights for the project.
- Configure Swagger for the api.
- Work with Log Analytics with the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

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

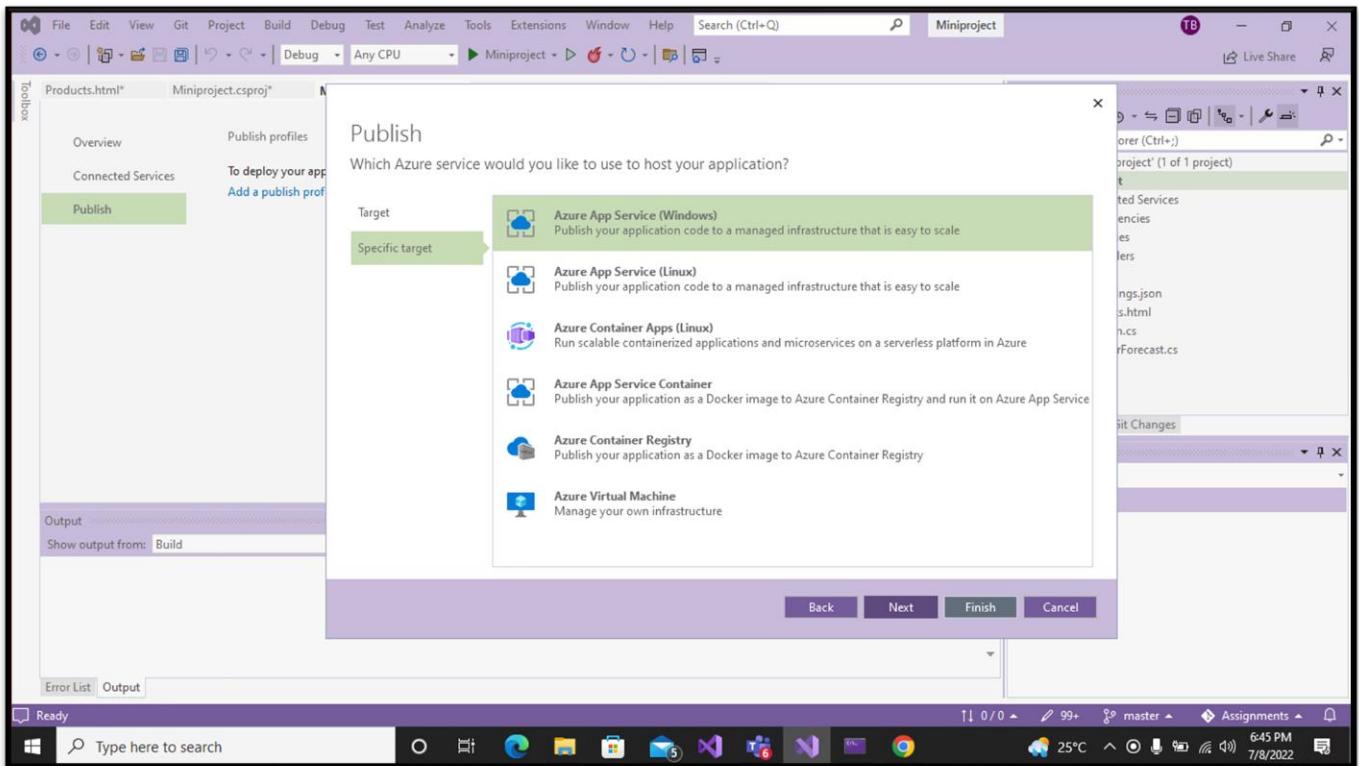
Give a right click on project and publish



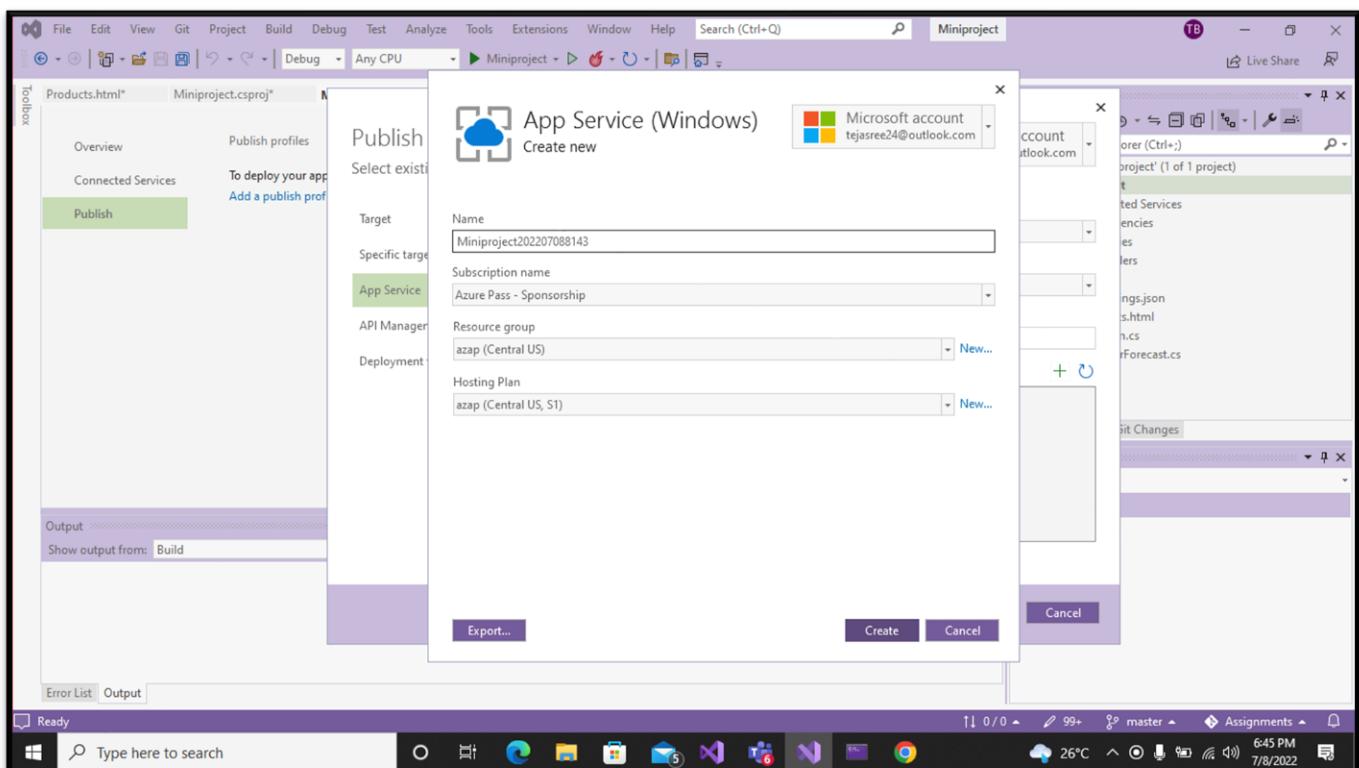
Select Azure and click on next.



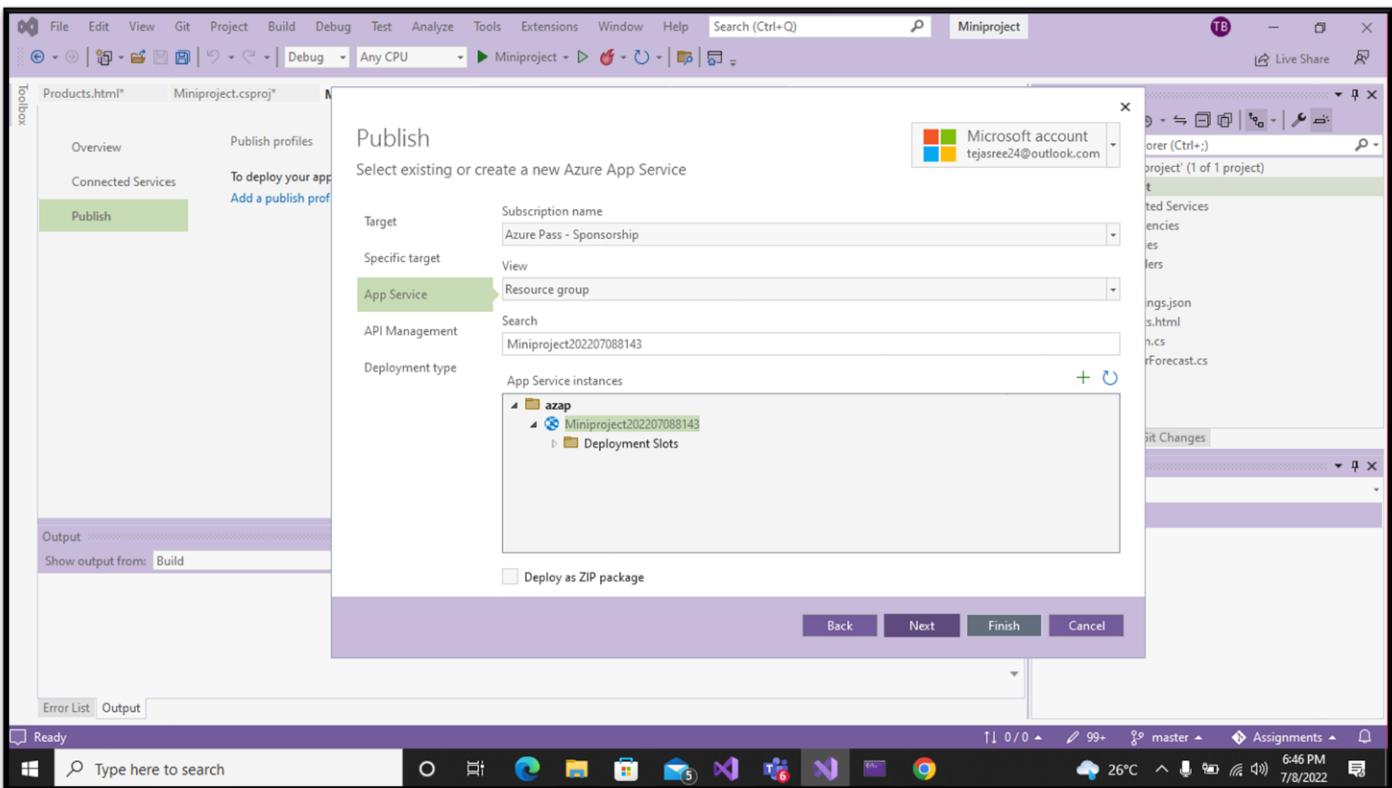
Select Azure App Service (windows) and click on next.



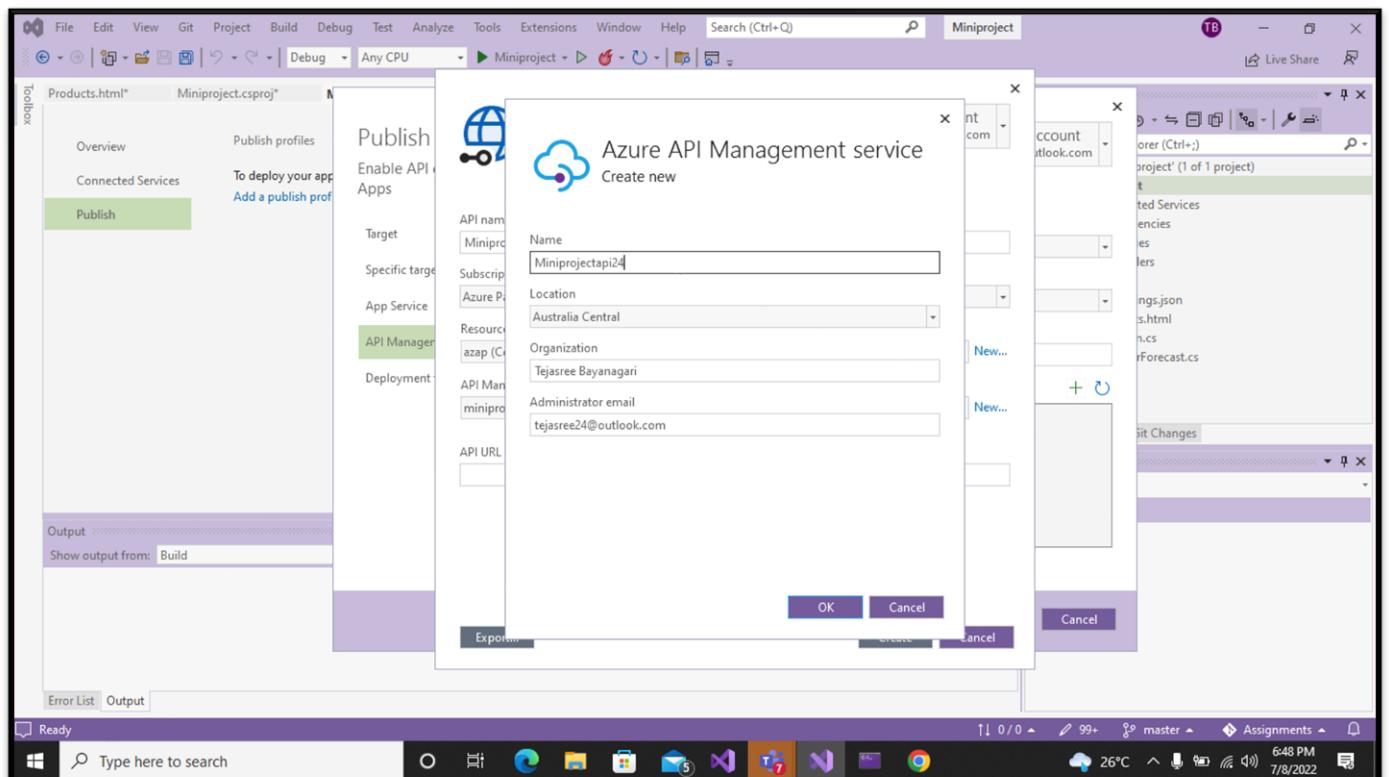
Enter app name, resource group and app service and click on create.



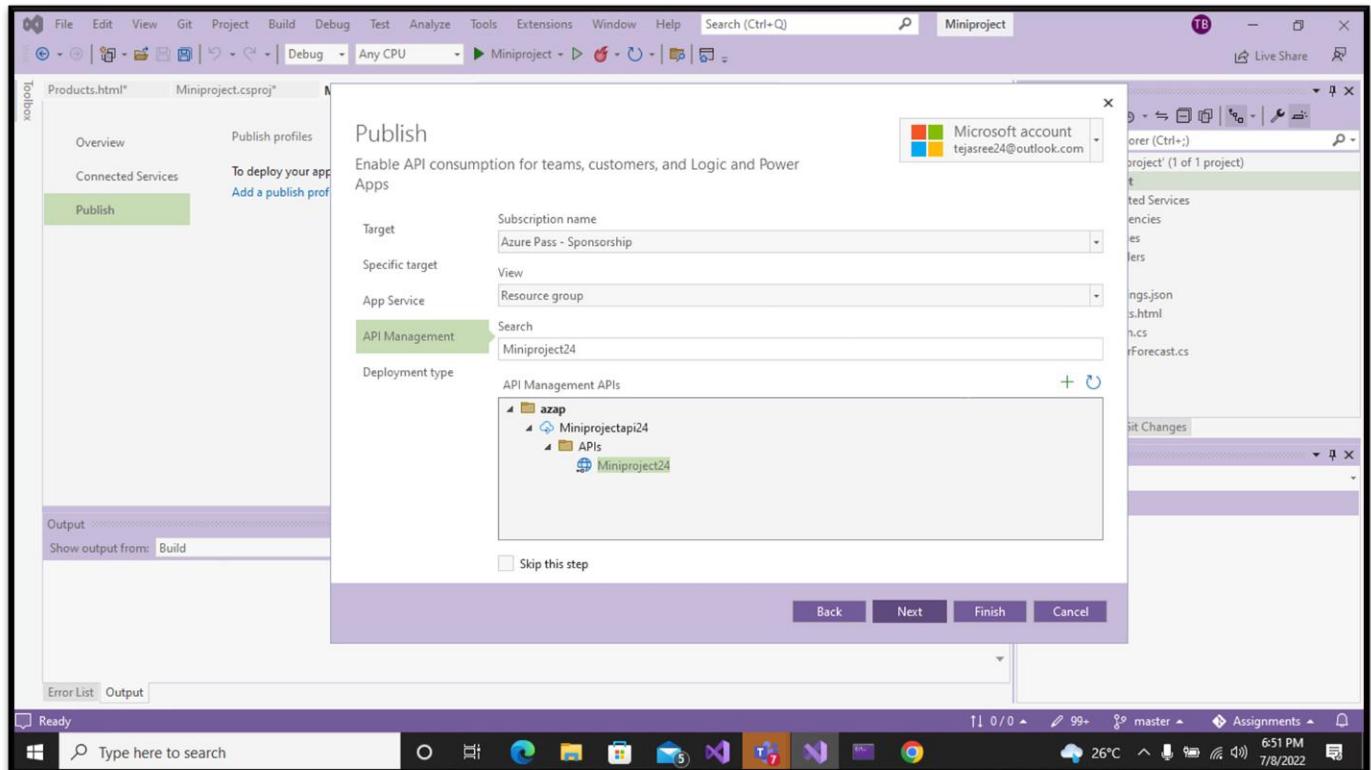
Select created instance project.



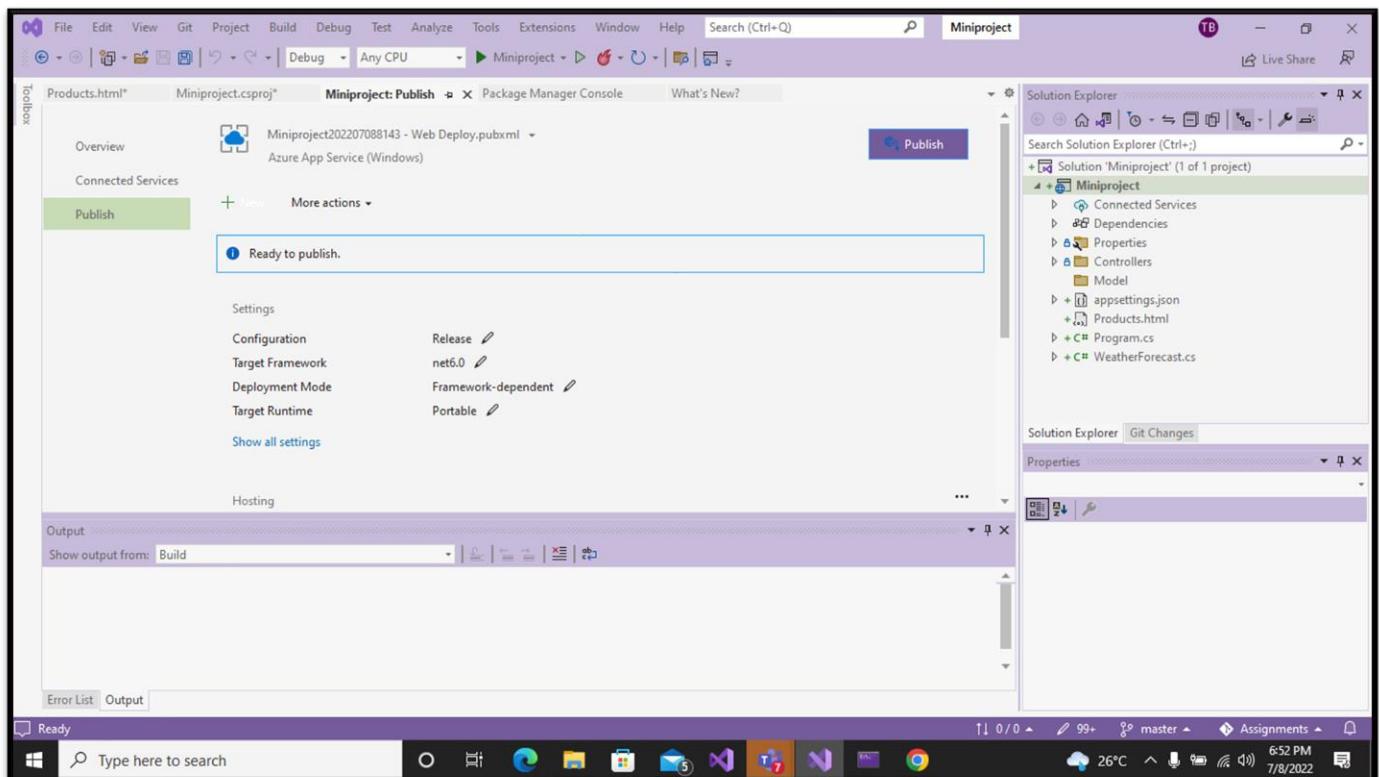
Create the azure API management service.



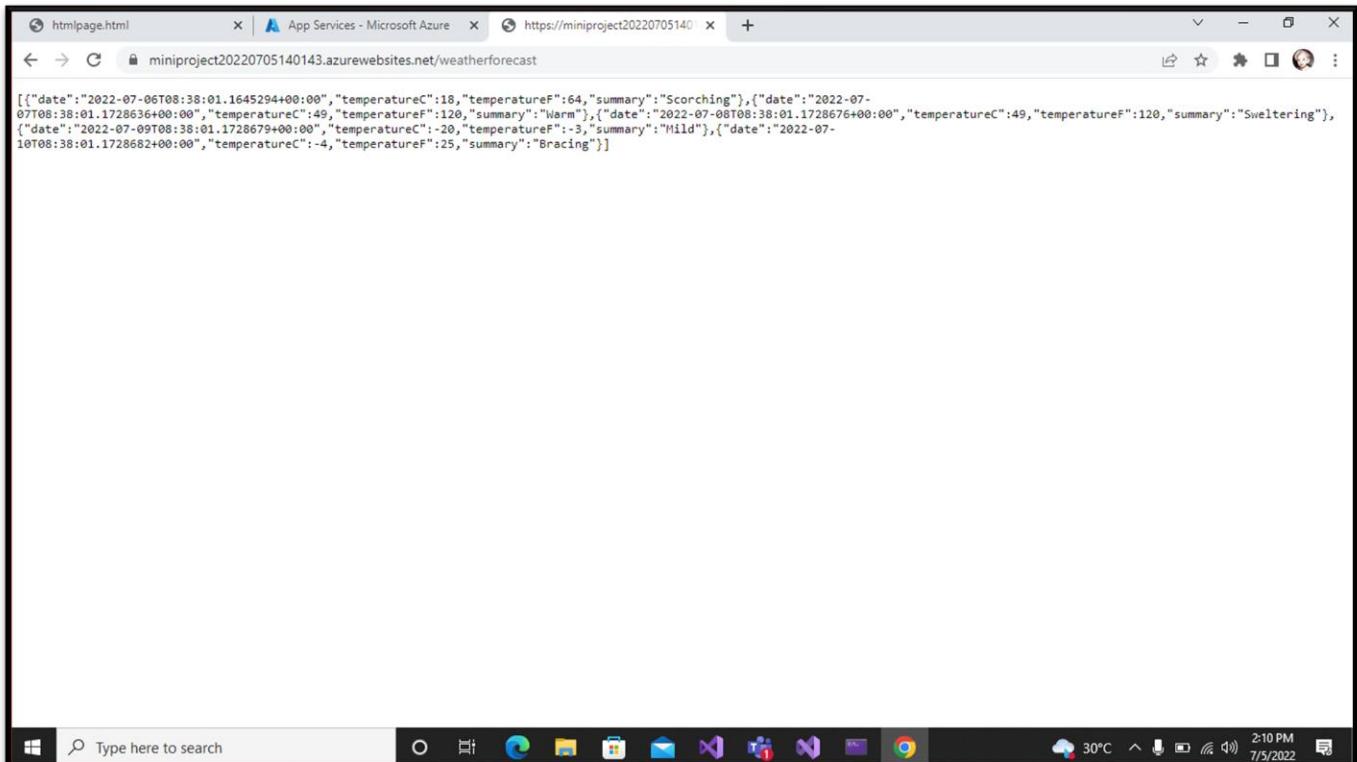
Select the API management APIs instance.



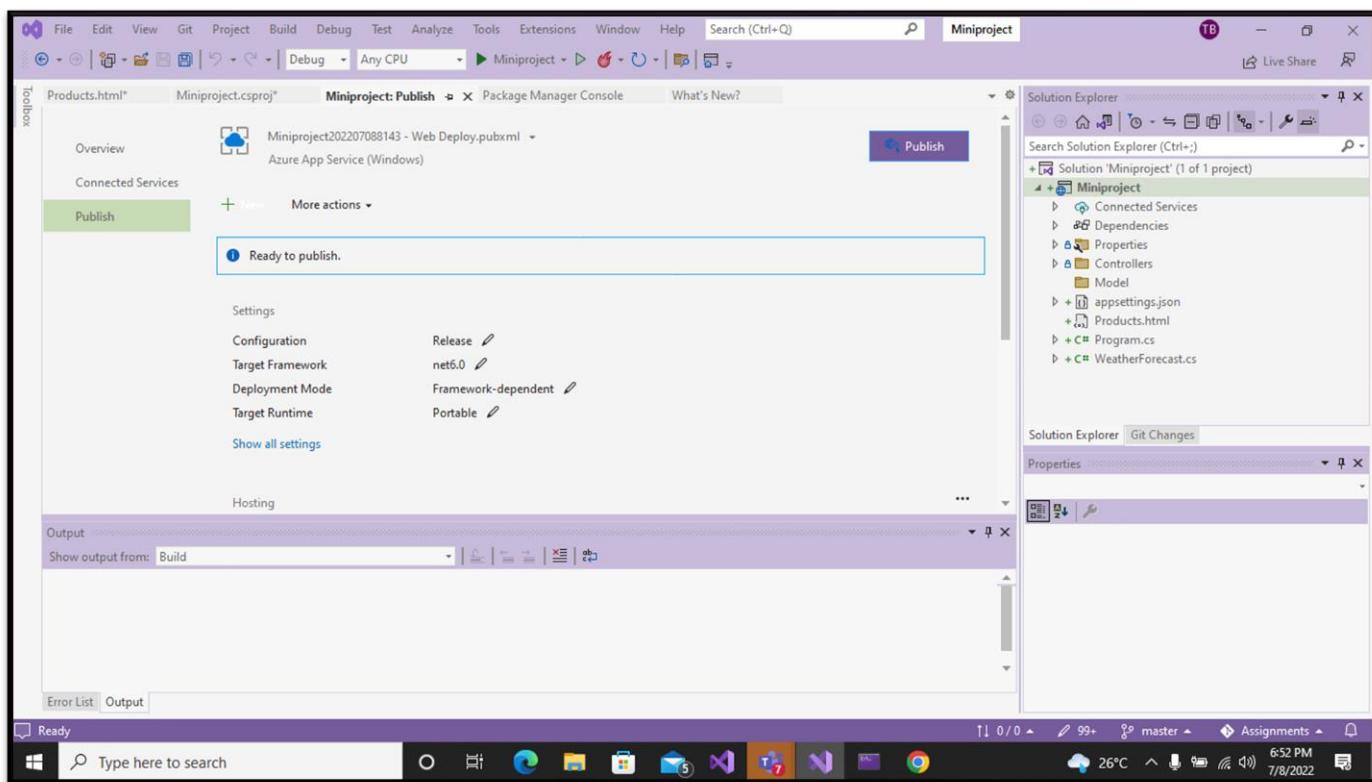
Click on the publish.



The web API will publish and the output open in web browser.



Now click on the Ready to Publish.



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

Switch to Azure portal, Select the API we created and following step to scale out.

The screenshot shows the Azure portal interface for managing an App Service. The left sidebar lists various services under 'App Services'. The main content area is titled 'miniproject20220705140143 | Scale out (App Service plan)'. The 'Configure' tab is selected. In the 'Choose how to scale your resource' section, 'Custom autoscale' is chosen. Below it, the 'Custom autoscale' settings are displayed, including an 'Autoscale setting name' of 'azap-Autoscale-657', a 'Resource group' of 'azap', and an 'Instance count' of '1'. A 'Default' scale condition is listed. At the bottom, there's a 'Delete warning' message. The status bar at the bottom shows the date and time as 09-07-2022 14:26 UTC+05:30.

This screenshot shows the 'Scale rule' configuration page for the same app service. The 'Scale on instance count based on metric' section is selected. The configuration includes an 'Autoscale setting name' of 'azap-Autoscale-657', a 'Resource group' of 'azap', and an 'Instance count' of '1'. A 'Default' scale condition is listed. The right side of the screen displays a chart of 'CpuPercentage (Average)' over time, with a red line showing a peak around 8.09% at 2:25 PM. Below the chart, there are sections for 'Delete warning', 'Scale mode' (set to 'Scale based on metric'), 'Rules' (with a note about scaling rules), and 'Instance limits' (minimum of 1). The status bar at the bottom shows the date and time as 09-07-2022 14:32 UTC+05:30.

After adding the scale it show rules.

The screenshot shows the Microsoft Azure portal interface for managing an App Service. The left sidebar lists several App Services, including 'azap20220704180111', 'miniproject123', 'miniproject20220705140143' (which is selected), 'Miniproject20220708143', 'Miniproject202207088143', 'miniproject20220704172949', and 'mipro20220704174843'. The main content area displays the configuration for 'miniproject20220705140143 | Scale out (App Service plan)'. The 'Resource group' is set to 'azap' and the 'Instance count' is currently 1. A 'Default' scale condition is shown, which is an auto-created rule based on the metric '(Average) CpuPercentage > 70' with an increase count of 1. There is a note indicating that this scale condition is executed when none of the other scale condition(s) match. The bottom status bar shows the date as 09-07-2022 and the time as 14:35.

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 Microsoft Azure portal interface for managing App Services. The left sidebar lists several app services, including 'azap20220704180111', 'miniproject123', 'miniproject20220705140143', 'Miniproject20220708143', 'Miniproject202207088143', 'miniproject20220704172949', and 'mipro20220704174843'. The selected app service is 'miniproject20220705140143'. The main content area is titled 'Deployment slots' and displays a message: 'You haven't added any deployment slots. Click here to get started.' Below this, a table shows the current deployment slot configuration:

NAME	STATUS	APP SERVICE PLAN	TRAFFIC %
miniproject20220705140143	Running	azap	100

The screenshot shows the Microsoft Azure portal interface for managing App Services. The left sidebar lists several app services, including 'azap20220704180111', 'miniproject123', 'miniproject20220705140143', 'Miniproject20220708143', 'Miniproject202207088143', 'miniproject20220704172949', and 'mipro20220704174843'. The selected app service is 'miniproject20220705140143'. A modal window titled 'Add a slot' is open, showing the 'Name' field set to 'Miniproject'. The 'Clone settings from:' dropdown is set to 'miniproject20220705140143'. The main content area is titled 'Deployment slots' and displays a message: 'Deployment slots are live apps with their own hostnames including the production slot.' Below this, a table shows the current deployment slot configuration, which now includes the new slot:

NAME	STATUS
miniproject20220705140143	Running
miniproject20220705140143-Miniproject	Running

A success message at the bottom right of the modal window states: 'Successfully created slot 'Miniproject''. There are 'Add' and 'Close' buttons at the bottom of the modal.

After add a slot Successful both the production and staging ,then after swaping deployment will complete.

The screenshot shows the Microsoft Azure portal interface. The main window displays the 'Overview' page for a Function App named 'Microsoft.Web-FunctionApp-Portal-fbbc4f9d-8ffd'. A prominent green checkmark indicates that the deployment is complete. Deployment details are listed, including the name, subscription, and resource group. Below this, there are sections for 'Deployment details' and 'Next steps', along with a 'Go to resource' button. To the right, there are promotional cards for 'Cost Management', 'Microsoft Defender for Cloud', and 'Free Microsoft tutorials'. The bottom of the screen shows the Windows taskbar with various pinned icons and system status indicators.

4. Configure Application Insights for the project

Select the Application Insights.

The screenshot shows the Microsoft Azure portal interface. The left sidebar navigation bar includes links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Security, Events (preview), Deployment (Quickstart, Deployment slots, Deployment Center), Settings (Configuration, Authentication, Application Insights, Identity, Backups), and Weather (31°C, Mostly cloudy). The main content area is titled "Miniproject (miniproject20220705140143/Miniproject) | Application Insights". It displays the "Application Insights" section with a summary message: "Collect application monitoring data using Application Insights" and a "Enable" button. Below this, there's a "Link to an Application Insights resource" section stating "Your app is connected to Application Insights resource: miniproject20220705140143". A note below explains data collection and a link to learn more. Under "Change your resource", there's a "Create new resource" section with a "New resource name" input field containing "miniproject20220705140143/0220709094R" and a "Location" dropdown set to "Central US". An "Apply" button is at the bottom. The top navigation bar shows tabs for Miniproject (miniproject20220705140143), Microsoft Teams, New Tab, and Logs - Microsoft Azure. The status bar at the bottom right shows the date (09-07-2022), time (15:19), and battery level.

The screenshot shows the Microsoft Azure portal interface with the same navigation bar as the previous screenshot. The main content area is titled "miniproject20220705140143 | Application Insights". It displays the "Application Dashboard" with sections for Overview, Essentials, Investigate, Monitoring, and Metrics. The "Essentials" section provides details about the resource group (azap), location (Central US), subscription (Azure Pass - Sponsorship), subscription ID (67580c86-6f48-4caa-a8eb-10cc18570ed4), and workspace (DefaultWorkspace-67580c86-6f48-4caa-a8eb-10cc18570ed4-CUS). It also shows instrumentation key (a34aeefba-3f90-4ece-bb00-37104548d009) and connection string (InstrumentationKey=a34aeefba-3f90-4ece-bb00-37104548d009;Ingestio...). Below this, there are three charts: "Failed requests", "Server response time", and "Server requests", all showing data for the last hour. The "Failed requests" chart has a single spike at 3 PM. The "Server response time" chart shows an average of 331.32 ms. The "Server requests" chart has a single spike at 3 PM. The top navigation bar shows tabs for Miniproject (miniproject20220705140143), Microsoft Teams, New Tab, and Logs - Microsoft Azure. The status bar at the bottom right shows the date (09-07-2022), time (15:21), and battery level.

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

Swagger UI's Features

- The UI works in any development environment, be it locally or in the web
- Allow end developers to effortlessly interact and try out every single operation your API exposes for easy consumption
- Quickly find and work with resources and endpoints with neatly categorized documentation
- Cater to every possible scenario with Swagger UI working in all major browsers

The screenshot shows the Swagger UI interface running in a browser window. The title bar indicates the page is at `localhost:5005/swagger/index.html`. The main content area displays the 'MiniProject v1' API documentation. The 'Products' section is expanded, showing five operations: GET /api/Products (blue), POST /api/Products (green), GET /api/Products/{id} (light blue), PUT /api/Products/{id} (orange), and DELETE /api/Products/{id} (red). The 'WeatherForecast' section is collapsed. At the bottom, there is a 'Schemas' section which is also collapsed. The browser taskbar at the bottom shows various open tabs and system icons.

GET

The screenshot shows the Swagger UI interface for a 'MiniProject' application. The main title 'MiniProject' is displayed with '1.0' and 'OAS3' badges. Below it, the URL 'http://localhost:5005/swagger/v1/swagger.json' is shown. The 'Products' section is expanded, revealing the 'WeatherForecast' controller. The 'GET /WeatherForecast' endpoint is selected. The 'Parameters' section indicates 'No parameters'. The 'Responses' section shows a single 200 Success response with a 'text/plain' media type. A dropdown menu for 'Accept' header is open, showing 'text/plain' as the selected option. A 'Try it out' button is visible in the top right corner. The system tray at the bottom shows the date and time as 09-07-2022 15:39.

POST

The screenshot shows the Swagger UI interface for a 'MiniProject' application. The main title 'MiniProject' is displayed with '1.0' and 'OAS3' badges. Below it, the URL 'http://localhost:5005/swagger/v1/swagger.json' is shown. The 'Products' section is expanded, revealing the 'Products' controller. The 'POST /api/Products' endpoint is selected. The 'Parameters' section indicates 'No parameters'. The 'Request body' section shows a JSON schema for a product object with fields: productId (string), price (string), brand (string), manufactureDate (date-time), and expirationDate (date-time). An example value is provided: { "productId": "0", "price": "string", "brand": "string", "manufactureDate": "2022-07-09T10:10:09.954Z", "expirationDate": "2022-07-09T10:10:09.954Z" }. The 'Responses' section shows a single 200 Success response with a 'text/plain' media type. A dropdown menu for 'Accept' header is open, showing 'text/plain' as the selected option. A 'Try it out' button is visible in the top right corner. The system tray at the bottom shows the date and time as 09-07-2022 15:40.

PUT

The screenshot shows the Swagger UI interface for a PUT request. The URL is `/api/Products/{id}`. The parameters section shows a required parameter `id` of type `integer($int32)` with a description of `(path)`. The request body is specified as `application/json`. An example value for the schema is provided:

```
{
  "productId": 0,
  "productName": "string",
  "price": "string",
  "brand": "string",
  "manufactureDate": "2022-07-09T10:11:56.004Z",
  "expirationDate": "2022-07-09T10:11:56.004Z"
}
```

The responses section indicates a 200 status code with a description of `Success` and no links.

DELETE

The screenshot shows the Swagger UI interface for a DELETE request. The URL is `/api/Products/{id}`. The parameters section shows a required parameter `id` of type `integer($int32)` with a description of `(path)`. The responses section indicates a 200 status code with a description of `Success` and no links.

Below the main interface, there is a section titled **WeatherForecast** which includes a **Schemas** section showing a partial definition for a `Product` schema:

```
Product <-
  productId: integer($int32)
  productName: string
  nullable: true
```

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 analyse their results. You can use Log Analytics queries to retrieve records that match particular criteria, identify trends, analyse patterns, and provide various insights into your data.

Select the logs in Azure Portal.

The screenshot shows the Azure Log Analytics interface. The left sidebar is titled 'miniproject20220705140143 | Logs' and includes sections for Application Insights, Monitoring (Alerts, Metrics, Diagnostic settings), Usage (Users, Sessions, Events, Funnels, User Flows, Cohorts), and Configure. The 'Logs' section is selected. The main area has a 'New Query 1' editor with a search bar, a 'Run' button, and a dropdown for 'Time range: Last 24 hours'. Below the editor is a 'Tables' tab, a 'Queries' tab, and a 'Functions' tab. A 'Favorites' section lists items like availabilityResults, browserTimings, customEvents, customMetrics, dependencies, exceptions, pageViews, performanceCounters, requests, and traces. To the right, there's a 'Queries History' section which says 'No queries history' and 'You haven't run any queries yet. To start, go to Queries on the side pane or type a query in the query editor.' The bottom status bar shows the date and time as 09-07-2022 15:49.

Select Logs from Azure menu

This screenshot is identical to the one above, showing the Azure Log Analytics interface for the same resource group. It displays the 'Logs' blade with the 'New Query 1' editor, the 'Tables' tab selected, and the 'Favorites' section. The 'Queries History' section also indicates 'No queries history' and provides instructions to start running queries. The status bar at the bottom shows the date and time as 09-07-2022 15:49.

The query ADAssessmentRecommendation | where _ResourceId contains "ab" returns result to get records.

The screenshot shows the Microsoft Azure Log Analytics interface. The top navigation bar includes tabs for 'Miniproj In', 'Microsoft Azure', 'miniproj2...', 'Microsoft Te...', 'New Tab', 'Logs - Micro...', 'New Tab', 'Logs - Micro...', 'Logs - Micro...', and a '+' button. The URL is 'portal.azure.com/#view/Microsoft_Azure_Monitoring_Logs/DemoLogsBlade'. The user 'tejasree24@outlook.com' is logged in.

The main interface has a 'Logs' section with a 'Demo' workspace selected. A 'New Query 1*' tab is open, showing the query: '1 ADAssessmentRecommendation | where _ResourceId contains "ab"'. The time range is set to 'Last 7 days'. The results table displays 8 rows of data:

TimeGenerated [UTC]	AssessmentId	AssessmentName	RecommendationId	Recommendation
> 7/5/2022, 8:52:01.972 PM	acb0e527-3e41-4997-90a8-7f71a9c07cce	AD	e1fc9908-1810-455a-97de-5f35738141eb	Resolve Directory System Agent (DSA) Issues that are pre...
> 7/5/2022, 8:52:02.012 PM	acb0e527-3e41-4997-90a8-7f71a9c07cce	AD	c6eb7e0c-b86a-43bf-9dce-9fbf50293dc9	Unless specifically required always enable strict replication c...
> 7/5/2022, 8:52:02.012 PM	acb0e527-3e41-4997-90a8-7f71a9c07cce	AD	4eab596c-682a-4d81-9919-0c32af52aa3f	Amend dynamic port configuration on domain controllers...
> 7/5/2022, 8:52:02.012 PM	acb0e527-3e41-4997-90a8-7f71a9c07cce	AD	f676b73a-79fb-435b-962f-6064c3569536	Dynamic Port Range Configuration - Range Includes Less T...
> 7/5/2022, 8:52:02.012 PM	acb0e527-3e41-4997-90a8-7f71a9c07cce	AD	11d49a22-7cad-43b7-81cf-f466cf77189	Amend dynamic port configuration settings on domain con...
> 7/5/2022, 8:52:02.012 PM	acb0e527-3e41-4997-90a8-7f71a9c07cce	AD	d8640339-78cd-45a1-a942-10b536923152	Domain Controllers with a disjoined DNS namespace shoul...
> 7/5/2022, 8:52:02.012 PM	acb0e527-3e41-4997-90a8-7f71a9c07cce	AD	4bcc1c2a-4168-49b3-b5bb-1d1c10ec7796	Disable the Allow Replication With Divergent and Corrupt P...
> 7/5/2022, 8:52:02.017 PM	acb0e527-3e41-4997-90a8-7f71a9c07cce	AD	aa71fc85-137e-4b46-a426-26494fc0930	Reconfigure our backup jobs to skip locked open files...

Below the table, it says '1s 908ms | Display time (UTC+00:00)'. The bottom right corner shows 'Query details | 1 - 8 of 366', 'ENG IN', and the date '09-07-2022'.