## Azure Services Used

This section showcases a simple demonstration of below 5 Azure Services.

1. Azure Functions
2. Azure Service Bus
3. Azure Web API Apps
4. Azure Container Instance
5. Azure Static Web App

## Steps and Azure Resources Used

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| --- | --- | --- |
| **Step** | **Azure Service and resource used** | **Explanation of the step** |
| 1 | Azure Static Web App | * This application allows user to input an integer. * And it posts that integer value to a backend .NET Web API which is hosted on Azure App Service. |
| 2 | .NET Web API | * Hosted on an Azure API App Service. * An endpoint in this API accepts this posted number. * Then invokes an HTTP Request triggered Azure function passing this integer. * This uses .NETs **HTTP Client Factory** to manage to manage life cycle of HTTP Client object. * And this uses **Polly** to retry (with exponential backoff) posting to Azure function if fails. |
| 3 | Azure Function - Post To Service Bus FN | * An Azure Function. * Triggered by HTTP Requests. * It accepts the number posted from .NET Web API end point. * Then it publishes that number to Azure Service Bus Topic. |
| 4 | Azure Service Bus | * Azure Service Bus contains a topic named ‘OddEven’ * Step 3s Azure Function publishes messages to this topic. |
| 5 | Azure Function – Subscribes to Service Bus | * An Azure function. * Triggered by Azure Service Bus Topic Publishes. * This subscribes to the topic ‘OddEven’ of azure service Bus. * So when numbers are posted to service bus this function gets triggered. * If the number coming from Service Bus Topic * Is Even, it will post to an API which is hosted on Azure Container Instance * Is Odd, it will post to another API which is hosted on Azure Web API app |
| 6 | .NET API - Hosted using Azure Web API app | * This is hosted on Azure API App * It is a .NET 8 minimal API * It accepts number which posted from Azure Function in Step 5 * Stores these numbers in EF Core In-Memory DB * When Get All Endpoint is invoked it gives all the numbers which was posted * This service should only return EVEN number posted |
| 7 | .NET API – Hosted using Azure Container Instance | * This is hosted on Azure Container Instance * This Azure Container Instance is linked to deploy Public Docker image which is hosted in Docker Hub * URL - <https://hub.docker.com/r/gsoft85512/docker-number-minimal-api> * It is also a .NET 8 minimal API * It accepts number which posted from Azure Function in Step 5 * Stores these numbers in EF Core In-Memory DB * When Get All Endpoint is invoked it gives all the numbers which was posted * This service should only return ODD number posted |
| 8 | Azure Static Web App | * Same Web App used in Step 1 * Consumes .NET API - Hosted using Azure Web API app for EVEN numbers * Displays EVEN Numbers posted * Consumes .NET API – Hosted using Azure Container Instance for ODD numbers * Displays ODD Numbers posted |

## Workflow

A diagram of a cloud service

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