

# How to deploy to Docker Desktop a .NET8 WebAPI CRUD CosmosDB Microservice

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## 0. Prerequisites

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- Download and run Docker Desktop
- Install Visual Studio 2022 Community Edition

## 1. Create .NET8 WebAPI CRUD CosmosDB Microservice

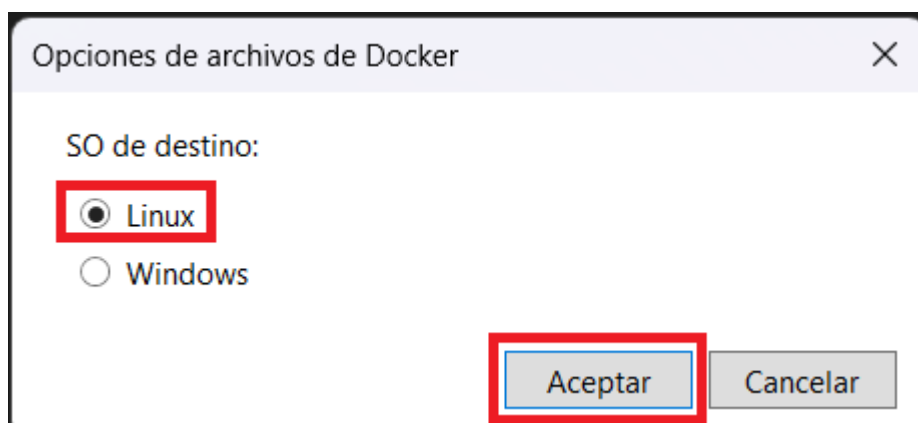
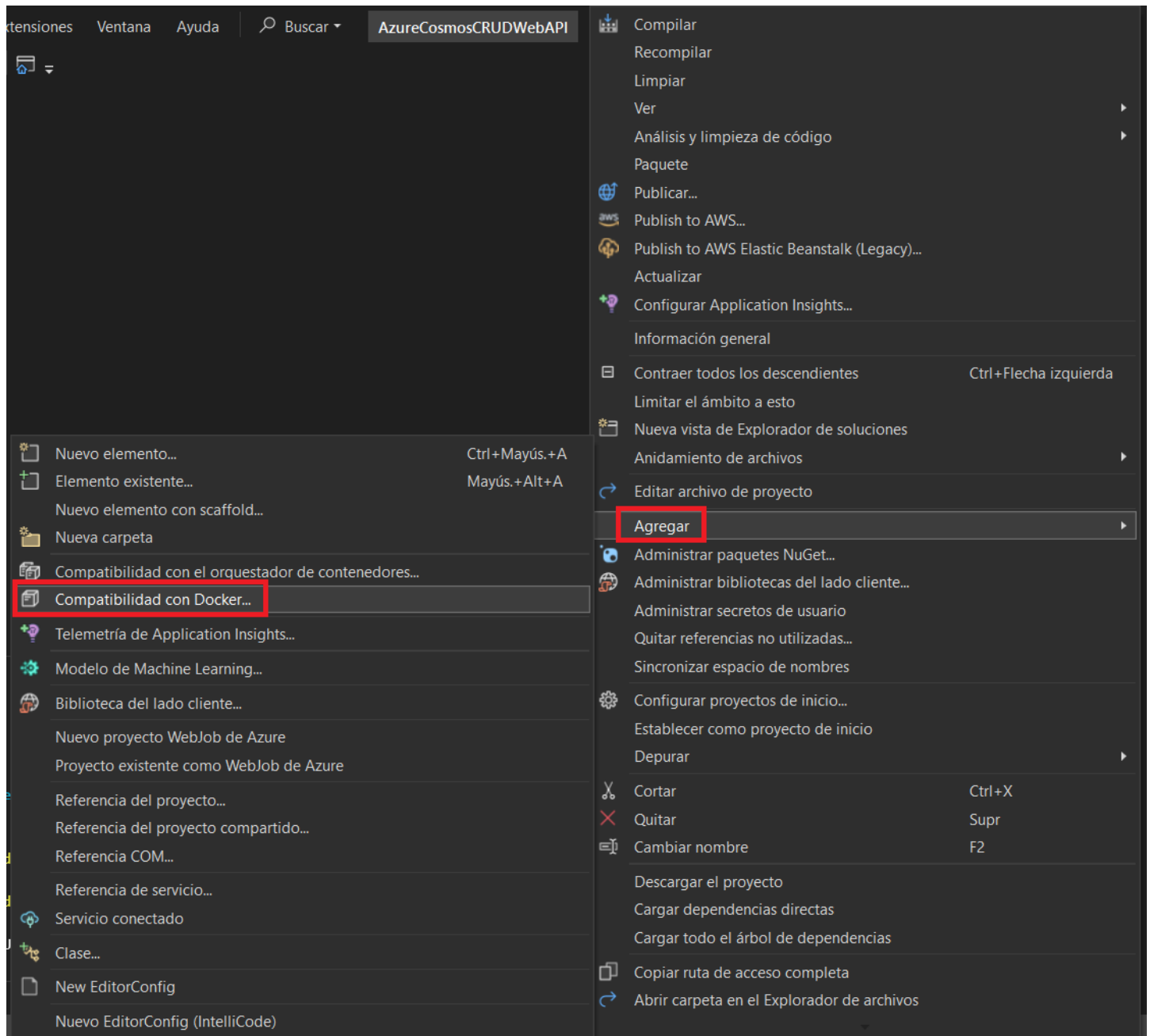
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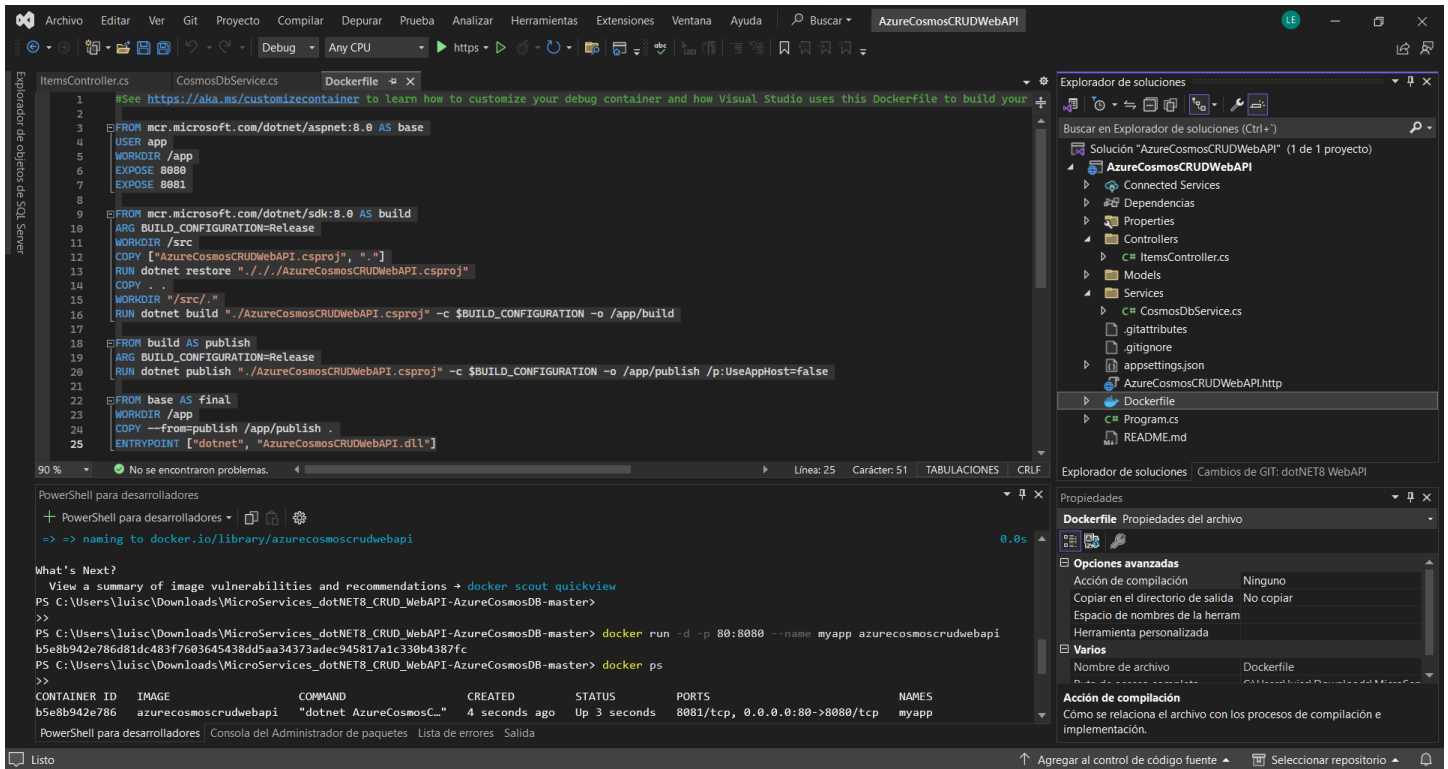
See this repo: [https://github.com/luiscoco/MicroServices\\_dotNET8\\_CRUD\\_WebAPI-AzureCosmosDB](https://github.com/luiscoco/MicroServices_dotNET8_CRUD_WebAPI-AzureCosmosDB)

## 2. Create the Dockerfile

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We add Docker support in the application and automatically Visual Studio creates a Dockerfile





This is the **Dockerfile** source code

#See <https://aka.ms/customizecontainer> to learn how to customize your debug container and how

```
FROM mcr.microsoft.com/dotnet/aspnet:8.0 AS base
USER app
WORKDIR /app
EXPOSE 8080
EXPOSE 8081

FROM mcr.microsoft.com/dotnet/sdk:8.0 AS build
ARG BUILD_CONFIGURATION=Release
WORKDIR /src
COPY ["AzureCosmosCRUDWebAPI.csproj", "."]
RUN dotnet restore "./././AzureCosmosCRUDWebAPI.csproj"
COPY . .
WORKDIR "/src/."
RUN dotnet build "./AzureCosmosCRUDWebAPI.csproj" -c $BUILD_CONFIGURATION -o /app/build

FROM build AS publish
ARG BUILD_CONFIGURATION=Release
RUN dotnet publish "./AzureCosmosCRUDWebAPI.csproj" -c $BUILD_CONFIGURATION -o /app/publish /p

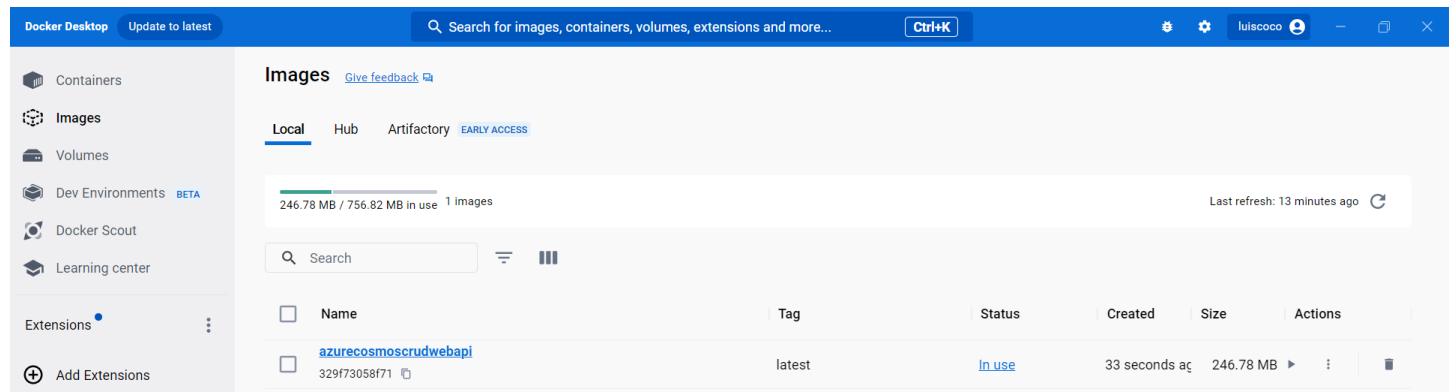
FROM base AS final
WORKDIR /app
COPY --from=publish /app/publish .
ENTRYPOINT ["dotnet", "AzureCosmosCRUDWebAPI.dll"]
```

### 3. Create the Docker image

```
docker login
```

```
docker build -t azurecosmoscrudwebapi .
```

We can see the new docker image

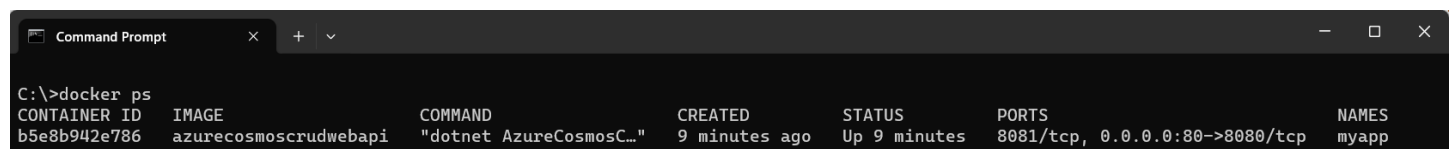


### 4. Run the Docker container

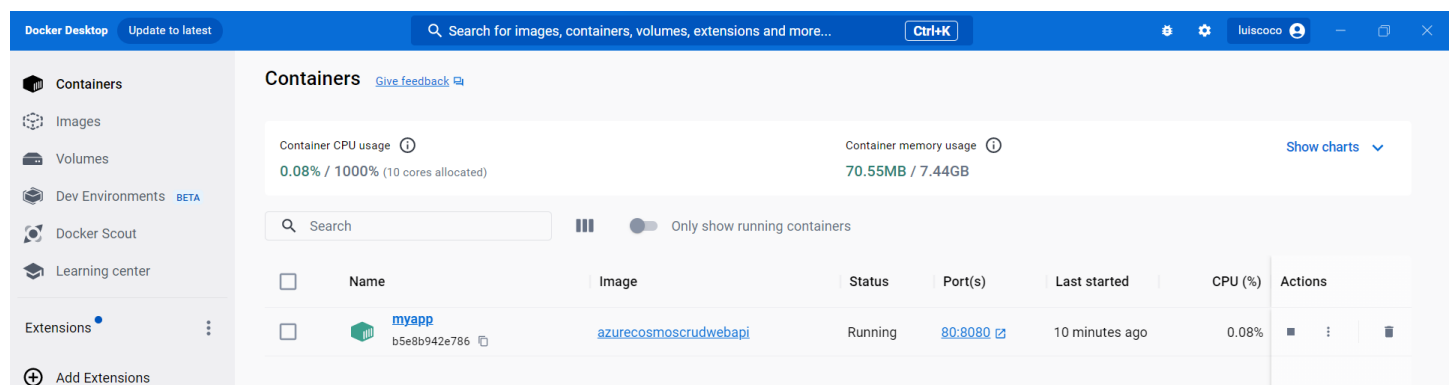
```
docker run -d -p 80:8080 --name myapp azurecosmoscrudwebapi
```

We verify the running container docker image

```
docker ps
```



We also can see in Docker Desktop the running Docker image

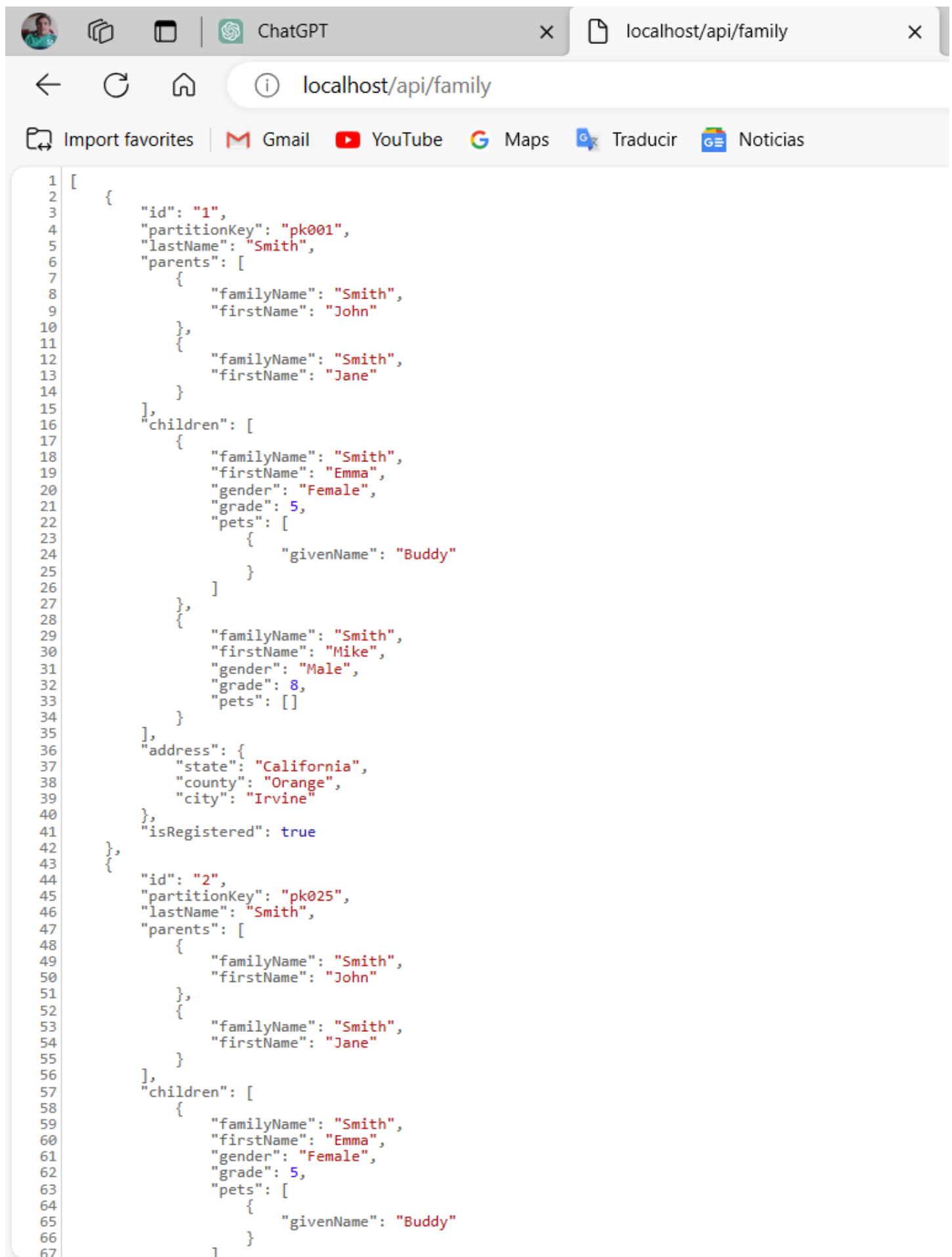


## 5. Verify the application

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We send the Get all items request

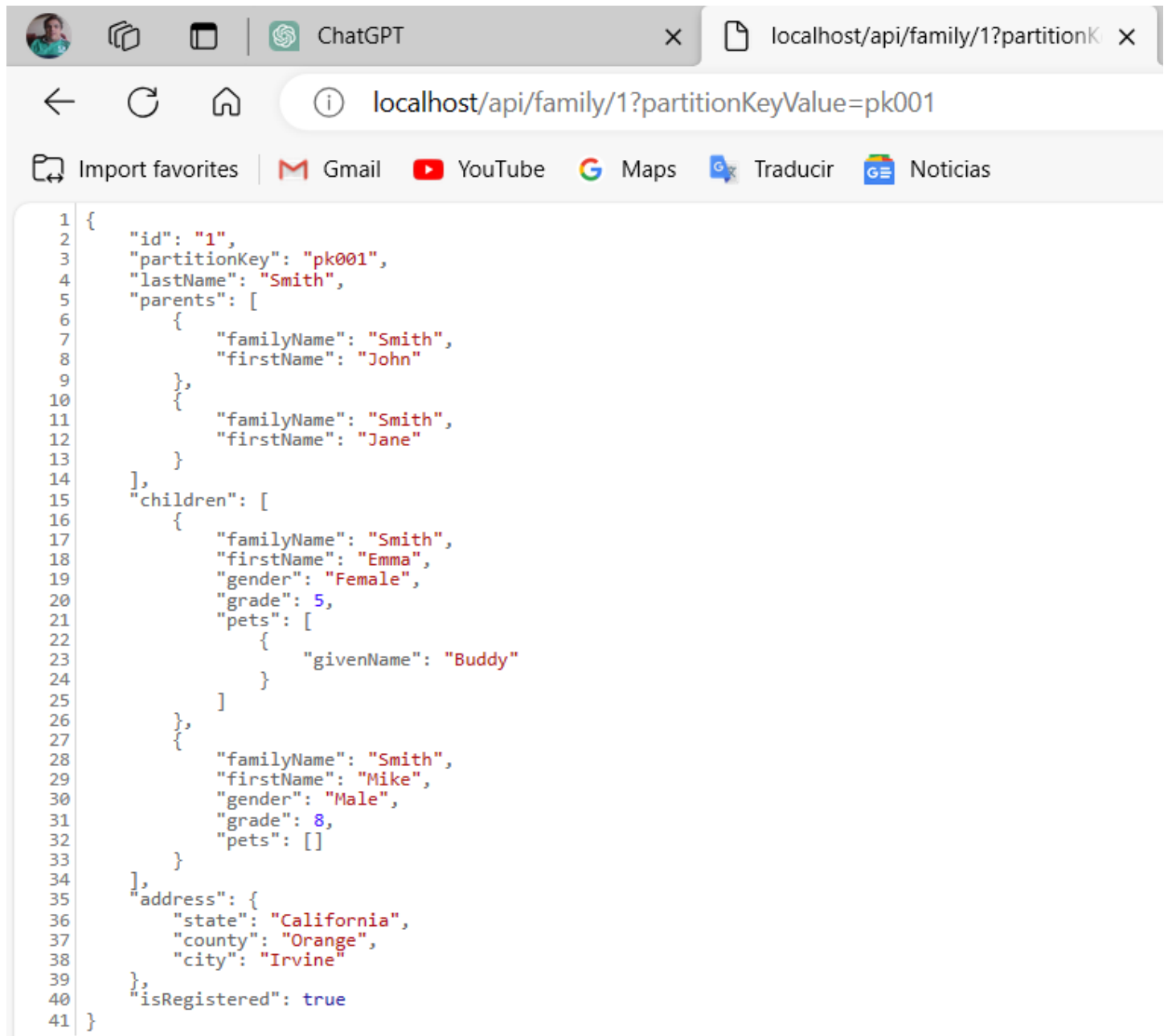
<http://localhost/api/family>



```
1 [
2   {
3     "id": "1",
4     "partitionKey": "pk001",
5     "lastName": "Smith",
6     "parents": [
7       {
8         "familyName": "Smith",
9         "firstName": "John"
10      },
11      {
12        "familyName": "Smith",
13        "firstName": "Jane"
14      }
15    ],
16    "children": [
17      {
18        "familyName": "Smith",
19        "firstName": "Emma",
20        "gender": "Female",
21        "grade": 5,
22        "pets": [
23          {
24            "givenName": "Buddy"
25          }
26        ]
27      },
28      {
29        "familyName": "Smith",
30        "firstName": "Mike",
31        "gender": "Male",
32        "grade": 8,
33        "pets": []
34      }
35    ],
36    "address": {
37      "state": "California",
38      "county": "Orange",
39      "city": "Irvine"
40    },
41    "isRegistered": true
42  },
43  {
44    "id": "2",
45    "partitionKey": "pk025",
46    "lastName": "Smith",
47    "parents": [
48      {
49        "familyName": "Smith",
50        "firstName": "John"
51      },
52      {
53        "familyName": "Smith",
54        "firstName": "Jane"
55      }
56    ],
57    "children": [
58      {
59        "familyName": "Smith",
60        "firstName": "Emma",
61        "gender": "Female",
62        "grade": 5,
63        "pets": [
64          {
65            "givenName": "Buddy"
66          }
67        ]
68      }
69    ]
70  }
71 ]
```

We can also send the Get by Id item request

<http://localhost/api/family/1?partitionKeyValue=pk001>



```
1 {
2   "id": "1",
3   "partitionKey": "pk001",
4   "lastName": "Smith",
5   "parents": [
6     {
7       "familyName": "Smith",
8       "firstName": "John"
9     },
10    {
11      "familyName": "Smith",
12      "firstName": "Jane"
13    }
14  ],
15  "children": [
16    {
17      "familyName": "Smith",
18      "firstName": "Emma",
19      "gender": "Female",
20      "grade": 5,
21      "pets": [
22        {
23          "givenName": "Buddy"
24        }
25      ]
26    },
27    {
28      "familyName": "Smith",
29      "firstName": "Mike",
30      "gender": "Male",
31      "grade": 8,
32      "pets": []
33    }
34  ],
35  "address": {
36    "state": "California",
37    "county": "Orange",
38    "city": "Irvine"
39  },
40  "isRegistered": true
41 }
```