

Absolutely—here's a tight recap of what we set up and why, plus the key commands/files.

# What we built

## Repo & apps

### Mono-repo layout

```
tour-visualization/  
  backend/  
    api/          # .NET 8 Web API (C#)  
  frontend/  
    tour-frontend/ # Angular 20 app
```

- 
- **Angular app** created with SCSS, no SSR, not zoneless.

## Backend (.NET / C#)

### Scaffolded API

```
cd backend  
dotnet new webapi -n Api --framework net8.0  
cd Api
```

- 1.
2. **Port configuration**  
We run on <http://localhost:3000> (avoids random ports).

- One-off: `dotnet run --urls http://localhost:3000`

Or permanent in `Properties/launchSettings.json`:

```
"applicationUrl": "http://localhost:3000"
```

-

## **Hot reload for dev**

```
dotnet watch run --urls http://localhost:3000
```

3.

## **4. Endpoints**

Health/smoke test:

```
app.MapGet("/api/ping", () => new { ok = true, msg = "pong" })  
}.WithOpenApi();
```

o

- o Swagger enabled in Development (default):  
`http://localhost:3000/swagger`

## **Frontend (Angular)**

**Dev proxy to backend** to avoid CORS & hardcoded URLs

```
frontend/tour-frontend/proxy.config.json
```

```
{  
  "/api": { "target": "http://localhost:3000", "secure": false,  
  "changeOrigin": true }  
}
```

1.

## **Start Angular with proxy**

```
cd frontend/tour-frontend  
ng serve --proxy-config proxy.config.json  
# (optionally in package.json as "start:dev")
```

2.

## **Enable HttpClient (standalone)**

```
src/app/app.config.ts
```

```
providers: [provideRouter(routes), provideHttpClient()]
```

3.

#### Call the API (example)

`src/app/app.ts`

```
ngOnInit() {  
    this.http.get('/api/ping').subscribe(res => console.log('API:',  
res));  
}
```

4.

5. **Result:** In the browser console you saw `{ ok: true, msg: 'pong' }`  
→ proves Angular → proxy → .NET API works.

## Troubleshooting we handled

- **Env var syntax (PowerShell)** and being in the **right folder** with the `.csproj`.
- **Port already in use** → killed process or switched ports.
- **Proxy not used** → ensured filename/flag, restarted `ng serve`, and matched paths (`/api/...`).
- **HTTPS redirect warning** → safe to ignore or comment `UseHttpsRedirection()` when serving HTTP only.

## What you can do next (pick any)

- Add real endpoint: `/api/events` that calls Ticketmaster (with your `TM_API_KEY`).
- Render events in Angular (simple list/grid).
- Add caching/rate-limiting in .NET (IMemoryCache + AddRateLimiter).
- Dockerize both and add `docker-compose.yml` for a one-command spin-up.
- Add EF Core + SQL Server for saved favorites.

```
tour.visualization > backend > api > Program.cs
11  // Test comments
12  using Microsoft.AspNetCore.WebUtilities;
13
14  app.MapGet("/api/events", async (HttpContext ctx, IHttpClientFactory http, IConfiguration cfg) =>
15  {
16      var apiKey = cfg["TM_API_KEY"];
17      if (string.IsNullOrEmptyWhiteSpace(apiKey))
18          return Results.Problem("TM_API_KEY not configured.");
19
20      // Pass through Angular's query params and inject your key
21      var q = ctx.Request.Query.ToDictionary(kv => kv.Key, kv => kv.Value.ToString());
22      q["apikey"] = apiKey;
23
24      var url = QueryHelpers.AddQueryString(
25          "https://app.ticketmaster.com/discovery/v2/events.json", q);
26
27      var client = http.CreateClient();
28      using var res = await client.GetAsync(url, ctx.RequestAborted);
29      var body = await res.Content.ReadAsStringAsync(ctx.RequestAborted);
30      return Results.Content(body, "application/json", (int)res.StatusCode);
31  })
32  .WithOpenApi();
33
34  app.Run();
35
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
Press "Ctrl + R" to restart.
dotnet watch ⚡ Building C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api\api.csproj ...
dotnet watch 🏁 Build succeeded: C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api\api.csproj
Using launch settings from C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api\Properties\launchSettings.json...
info: Microsoft.Hosting.Lifetime[14]
  Now listening on: http://localhost:3000
info: Microsoft.Hosting.Lifetime[0]
  Application started. Press Ctrl+C to shut down.
info: Microsoft.Hosting.Lifetime[0]
  Hosting environment: Development
info: Microsoft.Hosting.Lifetime[0]
  Content root path: C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api
dotnet watch 📄 File updated: .\Program.cs
dotnet watch 🔍 Unable to apply hot reload due to compilation errors.
dotnet watch ✘ C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api\Program.cs(22,1): error CS1529: A using clause must precede all other elements defined in the namespace except extern alias declarations
dotnet watch 💀 Shutdown requested. Press Ctrl+C again to force exit.
info: Microsoft.Hosting.Lifetime[0]
  Application is shutting down...
dotnet watch 🚫 [api (net8.0)] Exited
PS C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api> dotnet watch run --urls http://localhost:3000
dotnet watch 🔍 Hot reload enabled. For a list of supported edits, see https://aka.ms/dotnet/hot-reload.
  Press "Ctrl + R" to restart.
dotnet watch 🚫 Building C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api\api.csproj ...
dotnet watch 🚫 Build failed: C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api\api.csproj
dotnet watch 🚫 Determining projects to restore...
dotnet watch 🚫 All projects are up-to-date for restore.
dotnet watch ✘ C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api\Program.cs(22,1): error CS1529: A using clause must precede all other elements defined in the namespace except extern alias declarations [C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api\api.csproj]
dotnet watch 🚫 Waiting for a file to change before restarting ...
dotnet watch 💀 Shutdown requested. Press Ctrl+C again to force exit.
PS C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api> setx TM_API_KEY "uAozM4I3P0B32IAmfxf5zdApahnWzsH"

SUCCESS: Specified value was saved.
PS C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api> dotnet watch run --urls http://localhost:3000
dotnet watch 🔍 Hot reload enabled. For a list of supported edits, see https://aka.ms/dotnet/hot-reload.
  Press "Ctrl + R" to restart.
dotnet watch 🚫 Building C:\Users\levim\Documents\academic\projects\tour-visualization\backend\api\api.csproj ...
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