

## Overview:

The project aims to implement the requirements mentioned in the initial document for implementing a discount coupon service and a client to test the implementation.

In the initial document it specified that REST APIs should **not** be used for this implementation therefore the decision that was taken was to use GRPC.

As technologies for the implementation, it has been used as follows:

- .Net Core 3.1 for API development (a newer version could be used since this one is no longer supported)
- MSSQL database for storage system
- EF Core as an ORM to connect to the storage systems
- GRPC to ensure communication between the client application and the server that generates and persists the generated coupons.

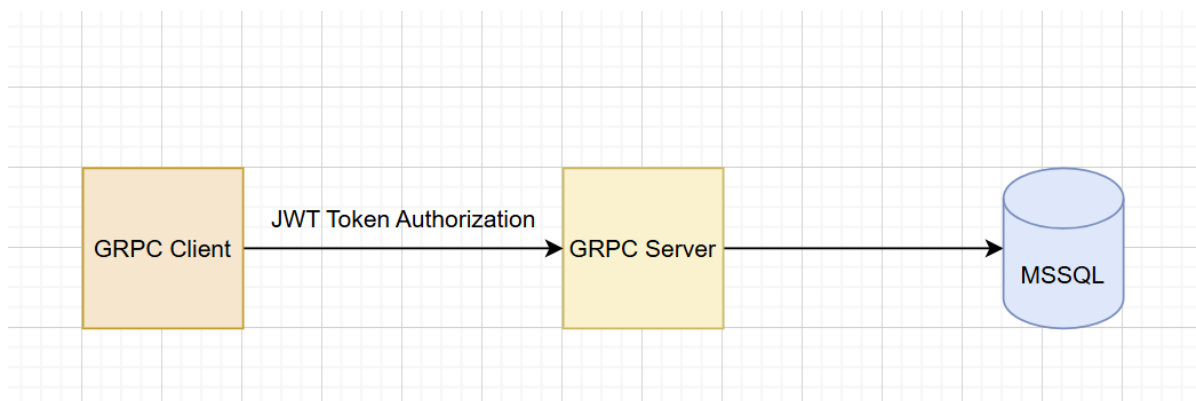


Fig 1.0 High Level Diagram

The project's structure follows clean architecture for internal application structure.

## API Structure:

The API is structured as follows:

**Presentation** -> GRPC API + Proto Configurations

**Core** -> Application + Domain

**Infrastructure** -> Persistence + Database

**Tests** -> Unit Tests

## Setup and Interaction:

To have the application working there is the need of an MSSQL Server Instance.

The application has a database project that contains all the schemas and seed data necessary to have the application running.

You can use the **Publish** action to have the Database Layer deployed on your SQL Server instance.

Before deploy it is important to update the connection string located in the **appsettings.json** file.

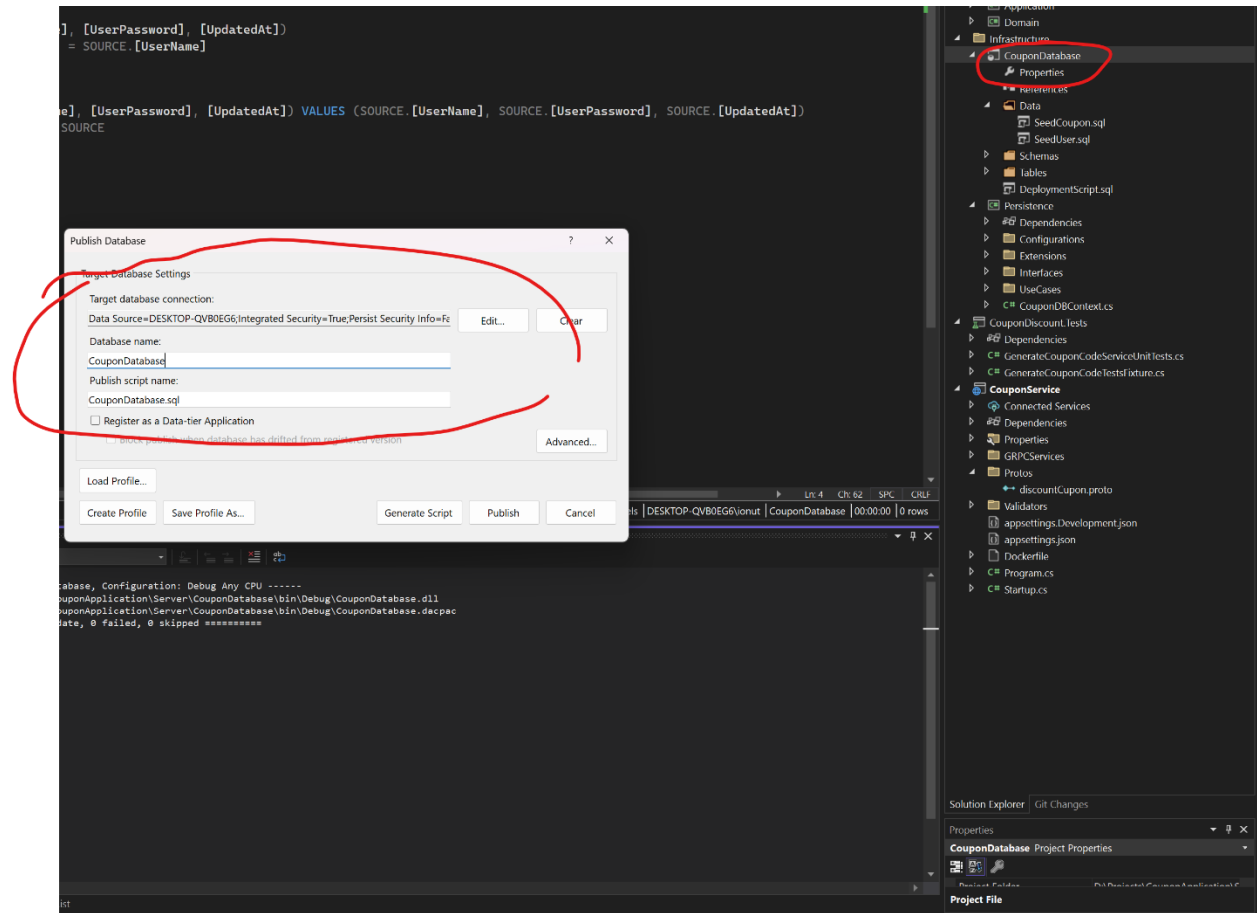


Fig. 1.1 Publish Database

If there are Build issues around SQL files, make sure that the Database SQL scripts the SQLCMD Mode button checked.

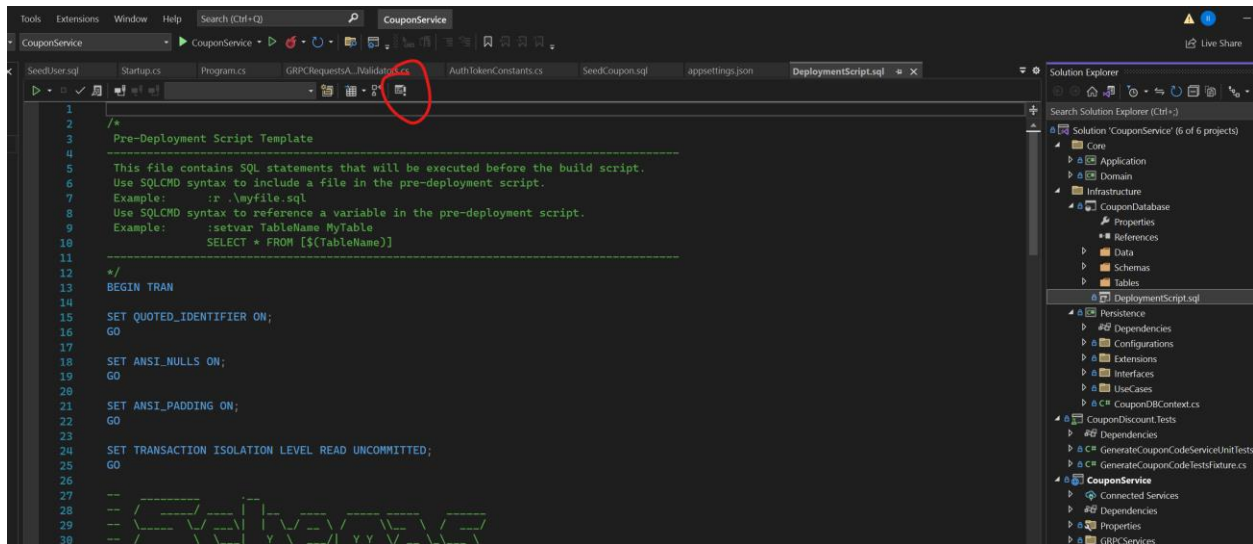


Fig. 1.2 SQLCMD Mode Option

After the database is published you can start the **CouponService** GRPC Server and the GRPC **Client Application**.

**Note:** The GRPC communication is based on the **.proto** files which are copied in both applications under the Proto directory. The **.proto** file specify describes GRPC Services and the object contracts that are shared between the applications.

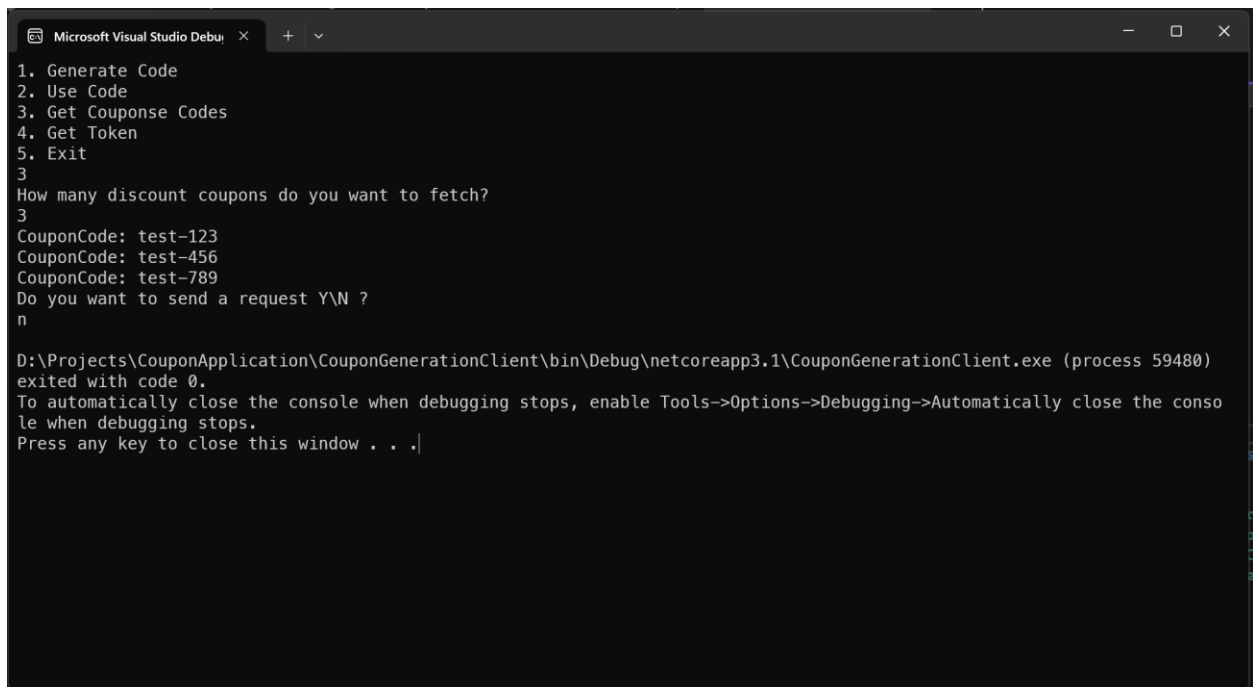


Fig. 1.3 GRPC Client Application

The GRPC Client Application offers an interactive menu with multiple options to select from such as:

1. Generate Code -> will generate discount coupon codes based on requested input
2. Use Code -> will mark a coupon code as being used
3. Get Coupon Codes -> Will list the available/non-used coupons
4. Get Token -> will request a token which is valid for 30 minutes to be able to authorize and communicate with the Server Application. Note: when you open the application it will request credentials, and it will request automatically a token to be able to interact with the applications. For credentials use the following:  
**UserName: admin** and **UserPassword: admin**