**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.

A graph with a yellow square

Description automatically generated

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.

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

A screenshot of a computer screen

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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.

A screenshot of a computer

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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.

A screenshot of a computer

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Fig. 1.3 GRPC Client Application

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

1. Generate Code -> will generate discount coupon codes based on requested input
2. Use Code -> with 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**