# **Coin Dispenser Solution – Project Brief**

## **Overview**

A simple end-to-end .NET solution that computes the minimum coin change using a modular architecture:

* **Core Library**: Implements the coin change algorithm, DTOs, and interfaces.
* **Web API**: ASP.NET Core API with EF Core persistence and middleware.
* **Frontend**: Razor Pages web app that consumes the API.
* **Database**: SQL for Database management.
* **Testing**: xUnit-based unit tests for core logic.

Github Repository : [Nhlelo/CoinDispenserApp: CoinDispenserApp](https://github.com/Nhlelo/CoinDispenserApp)

## **Prerequisites**

* .NET 9 SDK (or adjust target frameworks to your installed SDK)
* EF Core CLI tool (optional for migrations): dotnet tool install --global dotnet-ef

## **Build Instructions**

From the solution root run following command using dotnet CLI:

dotnet restore  
dotnet build

An Alternative would be to use build solution on Visual studio

## **Running the Application**

### **API Component**

cd CoinDispenser.Api  
dotnet run

* Ensure appsettings.json includes your connection string.
* Migrations are auto-applied on startup.
* Default URL: [https://localhost:44373](https://localhost:44373/)
* Endpoint:

POST [https://localhost:44373/api/coinchange](https://localhost:5001/api/coinchange)

Headers:

Body: {  
 "denominations": [1, 2, 5, 10],  
 "amount": 18  
}

### **Manual Migrations (Optional)**

cd CoinDispenser.Api  
dotnet ef migrations add InitialCreate  
dotnet ef database update

### **Web Frontend**

cd CoinDispenser.Web  
dotnet run

* Ensure appsettings.json includes matching ApiBaseUrl and ApiKey.
* Access via printed URL (e.g., [https://localhost:44358](https://localhost:44358/)).

### **Tests**

cd tests/CoinDispenser.Tests  
dotnet test

## **Architecture Summary**

CoinDispenser.Core → Core logic and interfaces  
CoinDispenser.Api → Web API with EF Core  
CoinDispenser.Web → Razor Pages frontend  
CoinDispenser.Tests → xUnit test suite

CI/CD pipeline Built with Github Actions ([CI — build & test · Workflow runs · Nhlelo/CoinDispenserApp)](https://github.com/Nhlelo/CoinDispenserApp/actions/workflows/cicdpipeline.yml)

## **Configuration Notes**

* appsettings.json is used in both API and Web projects.

## **️ Screenshots**



