Game Currency

Preparation

Before starting, you will need:

- Git
- Github/Bitbucket/Gitlab account
- Your own dev set up
- Docker with docker-compose
- 6 hours of your time

The Exercise

For this exercise, you will be creating a set of APIs to be used by front-end developers to develop an application that stores and displays game currencies following the requirements in the user stories.

Please use following technologies:
- Any backend/framework that you prefer (using golang would be a plus)
- Docker for deployment with docker-compose
- Database

Only `docker-compose up` should be required to start the whole system.

User Stories

1. **As a user, I want to add a currency**

The form UI may look like this:

Fields	Example
ID	1
Name	Knut

2. **As a user, I want to see the list of all currencies.**

The UI may look like this:

Name	ID
Knut	1
Sickle	2
Galleon	3

3. As a user, I want to add a conversion rate.

The form UI may look like this:

Fields	Example
CurrencyID From	2
CurrencyID To	1
Rate	29

Note:
- Unlike in the human world, game currency doesn't fluctuate by time.
- If the conversion rate has already existed, it will trigger a bad request error.
- Furthermore adding `{ CurrencyID From: 1, CurrencyID To: 2 }` will trigger an error when `{ CurrencyID From: 2, CurrencyID To: 1 }` already exists.

4. As a user, when I input the currency pair and amount, I get the converted currency.

The form UI may look like this:

Fields	Example
CurrencyID From	1
CurrencyID To	2
Amount	580

The Result look like this:

Result	20

Even though initially we only added `{ CurrencyID From: 2, CurrencyID To: 1 }` to the database, the system can also convert the rate in the opposite direction.

Evaluation Checklist

1. Correctness of the solution
2. Code quality & readability
3. Software design
4. Engineering best practices
5. Any automated tests

Submission

Please submit the following items:
- Documentation for your REST API.
- Documentation for your database structure.
- Git repository for your code (please make it openly available on Github/Bitbucket/Gitlab.)