A REST API was created to manage the specified requirements.

To install the API, simply download the source code from Github and publish it wherever you want.

The scripts for creating the tables are also on Github.

The API has Swagger enabled, meaning you just need to call its installation address with /Swagger at the end.

An internal singleton service was created that is triggered when the API goes up and at time intervals defined in seconds, according to a parameter created in appsettings.json.

APPSettings Configurations

* APISettings – Fraud – Interval Maximum time interval in seconds between two transactions of the same value on the same card to characterize fraud.
* ApiSettings – Generator Time interval in seconds for the API's internal service to generate new rates.
* ConnectionStrings – Default Connection string for accessing the SQL Server database
* Security – List of Id and Token Users and passwords to be sent to the /TOKEN endpoint to generate the Bearer authentication token for the endpoints. To facilitate manual testing, it is valid for 1 hour.

Endpoints:

Interface gráfica do usuário, Aplicativo

O conteúdo gerado por IA pode estar incorreto.

Endpoints to include, delete, modify, list, and query cards. The card number is encrypted in the database.

Interface gráfica do usuário, Aplicativo

O conteúdo gerado por IA pode estar incorreto.

Endpoints for listing and querying logs. Logs are generated only when cards are modified.

Interface gráfica do usuário, Aplicativo

O conteúdo gerado por IA pode estar incorreto.

Endpoints for listing, querying, and generating new rates. The Post endpoint is called by the singleton service to generate new rates at time intervals. It can be called via Swagger if you want to generate a new rate before the time.

Interface gráfica do usuário, Aplicativo

O conteúdo gerado por IA pode estar incorreto.

Endpoints for listing and querying transactions (payments made) and for requesting new payments. These payments will be validated before being processed. In the payment processing, a transaction is generated to prevent two requests for the same card from being processed simultaneously and seeing the wrong balance value. Originally, a request queue mechanism was thought of for this, but as this would complicate testing, the methods were created but are not being used, as well as the endpoints for this, which would be called by an external robot to the API.

Interface gráfica do usuário, Aplicativo

O conteúdo gerado por IA pode estar incorreto.

Endpoints for listing and querying payment requests that have been launched, regardless of whether they have been approved or rejected. Approved requests turn into transactions, listed and queried in the previous endpoint.

Aplicativo

O conteúdo gerado por IA pode estar incorreto.

Endpoint for generating the Bearer token. It is valid for 1 hour.