Payment API

Design document

This is the design document for Magnus Coding Exercise.

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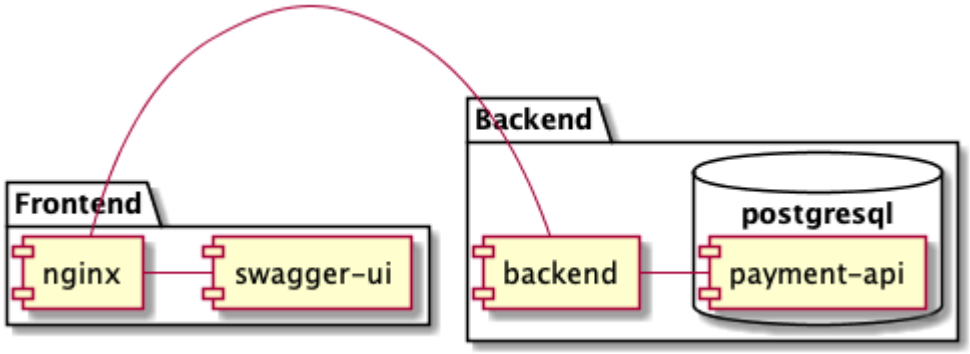
Introduction

The API is implemented in go running in a stack of docker containers.

Components

A description of the components in the system



Component	Description
nginx	Web frontend calling swagger-ui for /api requests and calling backend for /api/v1 requests
swagger-ui	Swagger UI that shows the different operations and ability to examine the API
backend	Backend logic implemented in go
payment-api	PostgreSQL database that stores all payments and other information

Backend

The backend is implemented in go. Dependecies are managed through go modules.

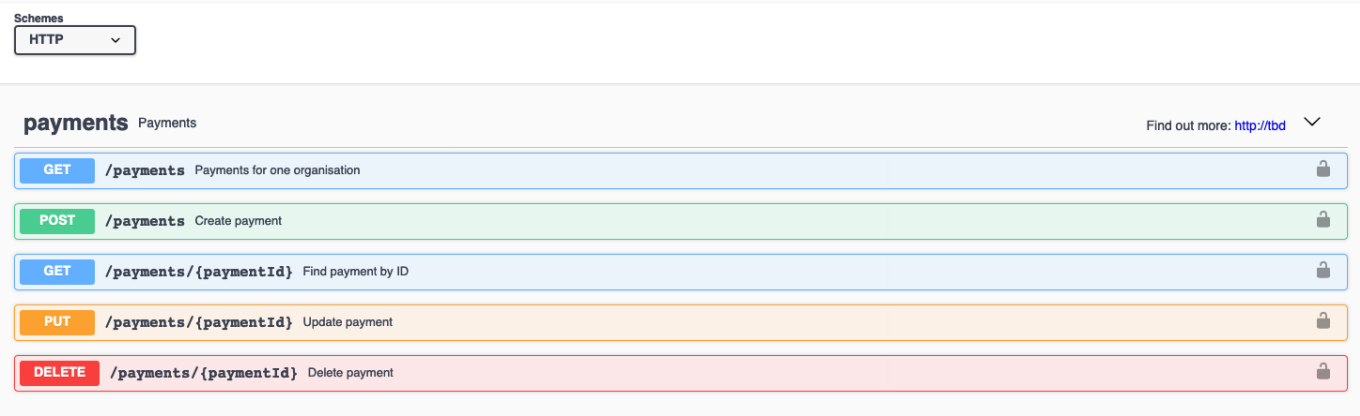
List of dependecies:

Dependecy	Usage
https://github.com/rs/zerolog	Logging framework
https://github.com/jinzhu/gorm	ORM framework
https://github.com/go-playground/validator	Validation of structs
https://github.com/gin-gonic/gin	HTTP Routing framework
https://github.com/google/uuid	UUID generator
https://github.com/smartystreets/goconvey	BDD testing framework

Swagger

The swagger UI can be reached at http://localhost/api

It shows all endpoints, with input and output data. The endpoints can also be examined from the UI.



Authentication

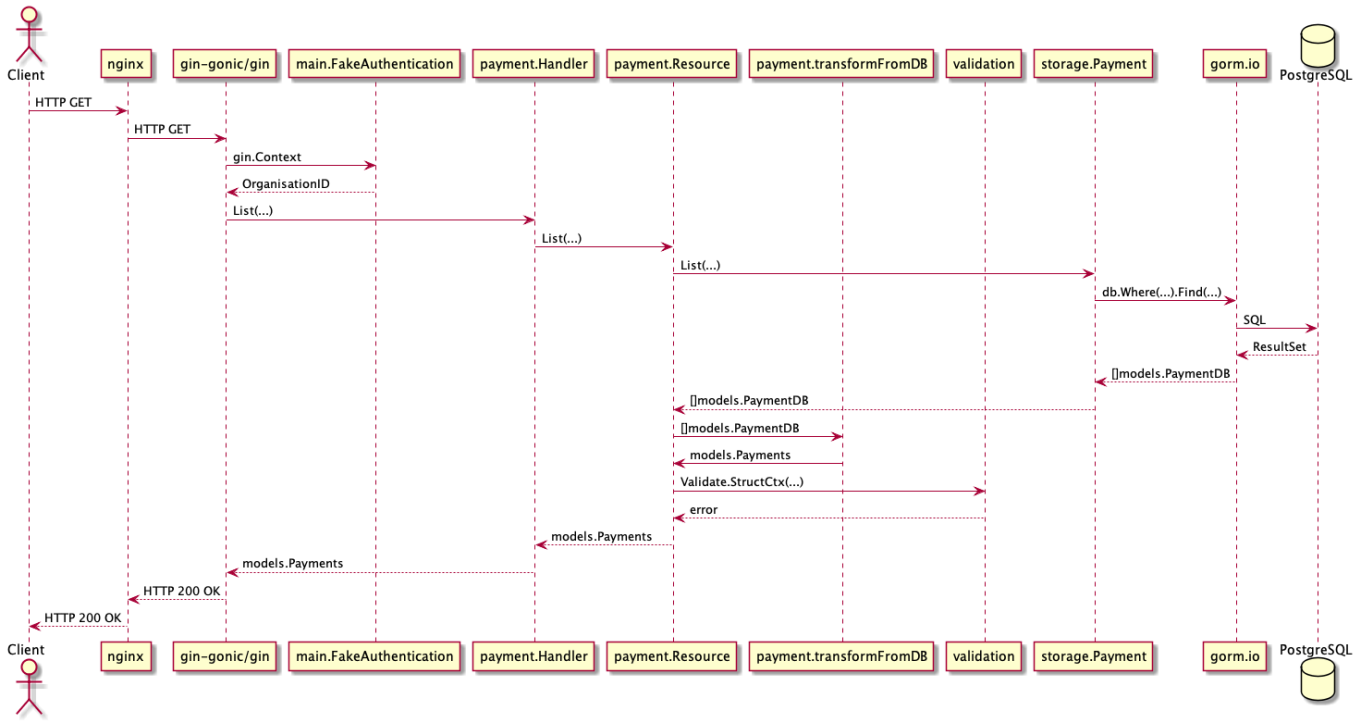
Since authentication is out of scope none has been implemented. But the system is simulating that a token of some sort is passed to the API from which an OrganisationID is extracted.

Operations

Each operation is described using a sequence diagram showing which steps that are taken for each type of operation.

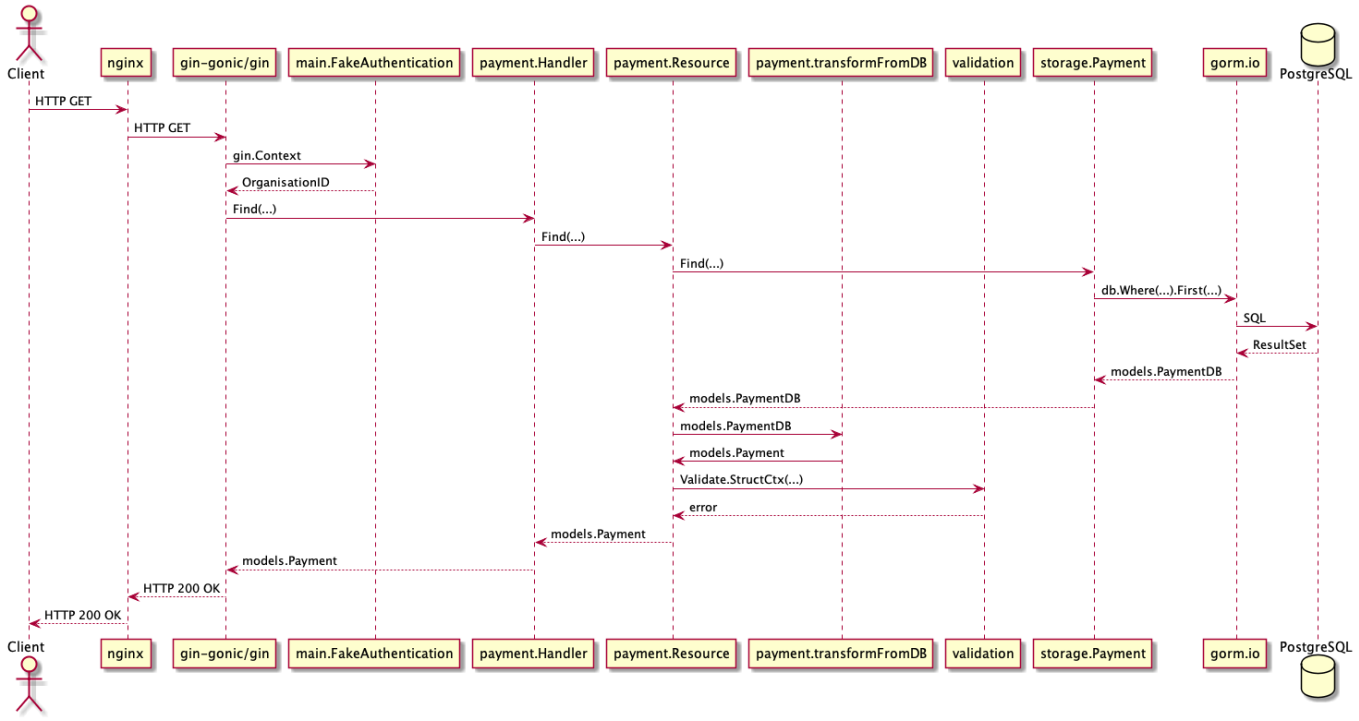
List payments

A HTTP GET request for listing all payments. This operation will return a full list of all payments for the clients specific organisation. Example URL: `http://localhost/api/v1/payments`



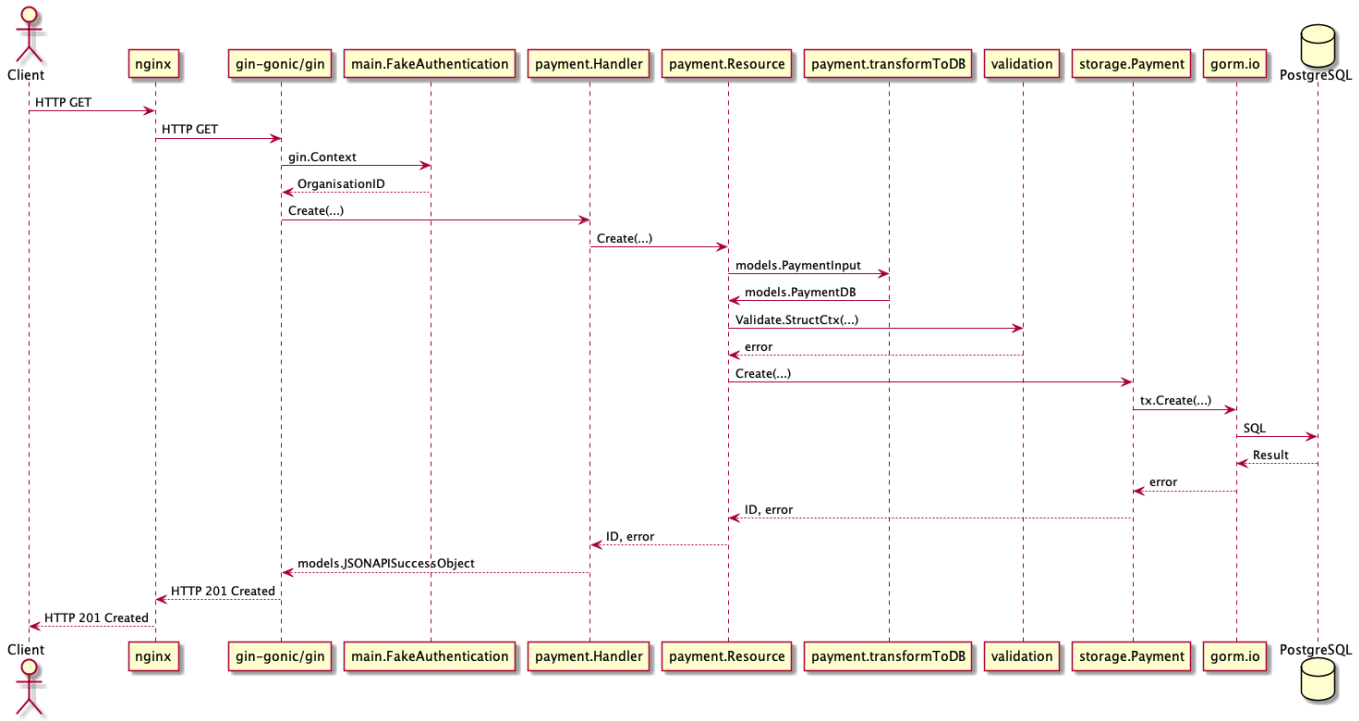
Find payment

A HTTP GET request for a specific payment. This operation will return one payment for supplied ID. Example URL: `http://localhost/api/v1/payments/216d4da9-e59a-4cc6-8df3-3da6e7580b77`



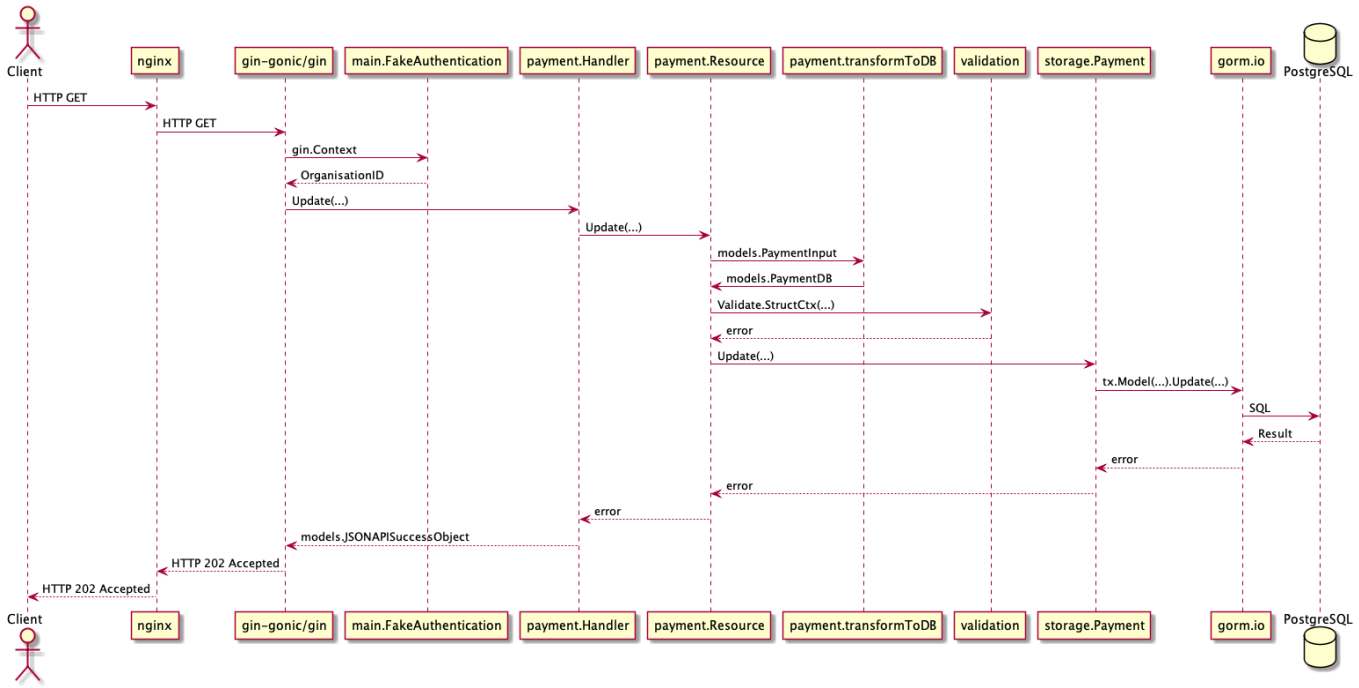
Create payment

A HTTP POST request to create a new payment. This operation will return the ID of the created payment. Example URL: `http://localhost/api/v1/payments`



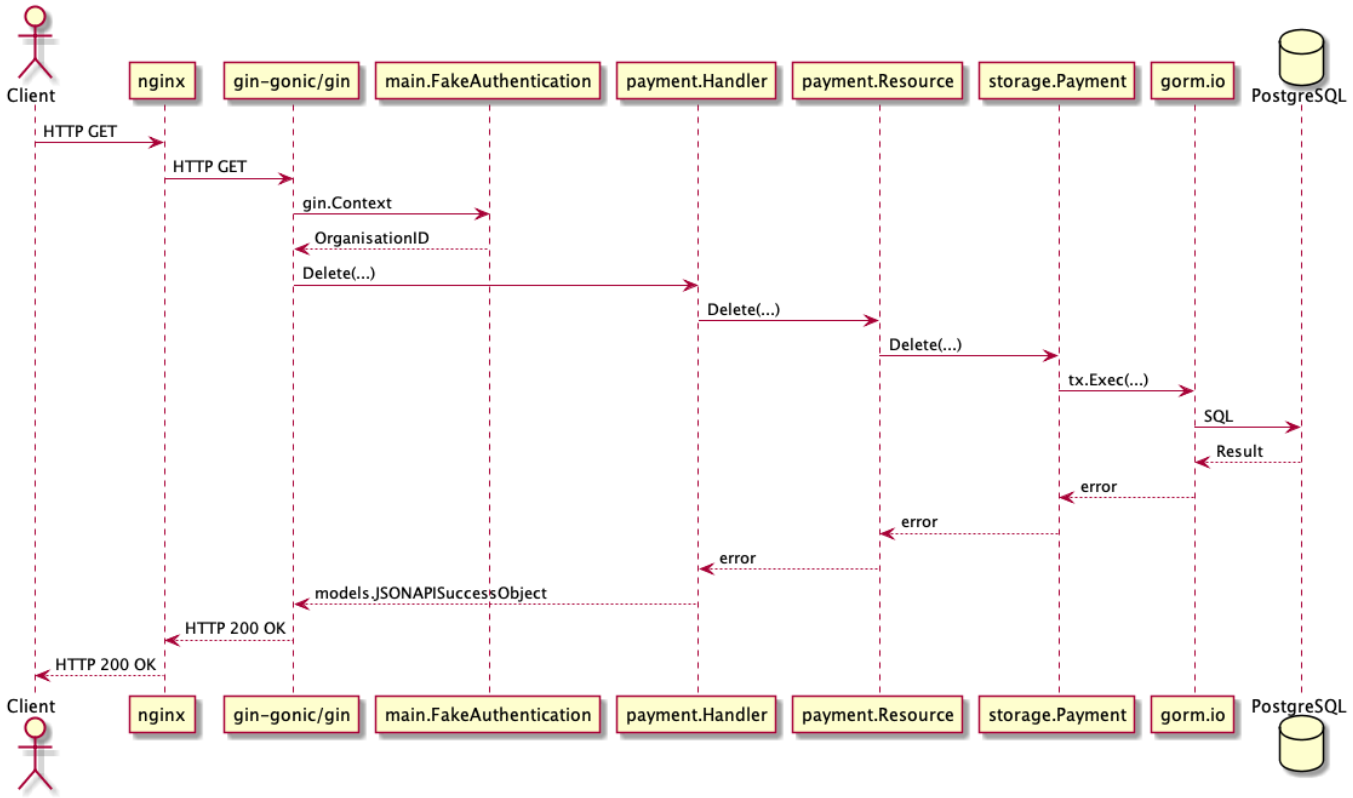
Update payment

A HTTP PUT request to update a payment. This operation will return the ID of the updated payment. Example URL: `http://localhost/api/v1/payments/216d4da9-e59a-4cc6-8df3-3da6e7580b77`



Delete payment

A HTTP DELETE request to delete a payment. This operation will return the ID of the deleted payment. Example URL: `http://localhost/api/v1/payments/216d4da9-e59a-4cc6-8df3-3da6e7580b77`



Deployment

Docker images

The following docker images is used for the different components

Component	Docker image
nginx	nginx:1.14.2
swagger-ui	swaggerapi/swagger-ui:v3.21.0
backend	scratch
payment-api	postgres:10.7

Diagram