OpenAPI

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Advanced Software Engineering (Lab)

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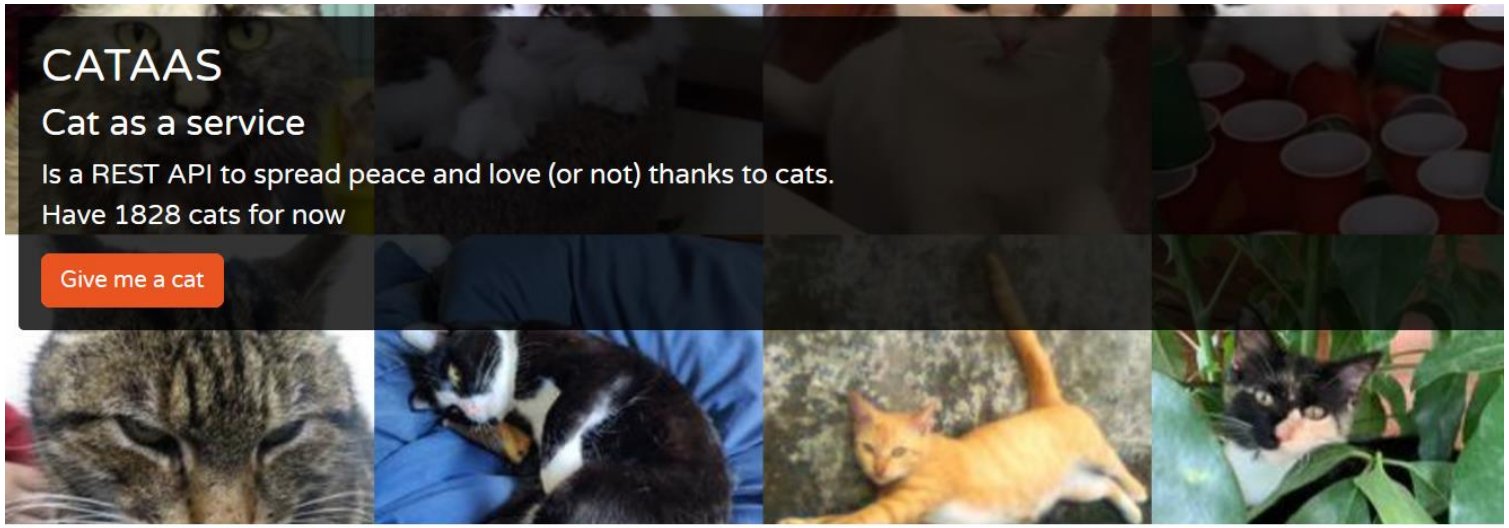
OpenAPI

Specification for a machine-readable interface oriented to RESTful API.

- Useful tools: Swagger Editor (online), Swagger API (app), Swagger Hub (needs registration)

- It uses either YAML or JSON.

Do you remember CATAAS?



Hey ! Do you like Cataas? Do you want to support the project ? Buy me a beer

Hey cat lovers, new major version of cataas :

- Now JSON will returns if request contain `application/json` header, API doc updated here
- Fix tags search and fix tags combined with "," separator (see documentation)

Basic

Url	Description	Example
/cat	Will return a random cat	Random cat
/cat/:tag	Will return a random cat with a :tag, You can combine multiple tags with :tag separator	Random orange cute cat
/cat/gif	Will return a random gif cat \o/	Random gif cat
/cat/says/:text	Will return a random cat saying :text	Random cat saying hello
/cat/:tag/says/:text	Will return a random cat with a :tag and saying :text	Random cute cat saying hello
/cat/says/:text?fontSize=:size&fontColor=:color	Will return a random cat saying :text with text's :fontSize and text's :fontColor	Custom random cat saying hello

https://cataas.com/

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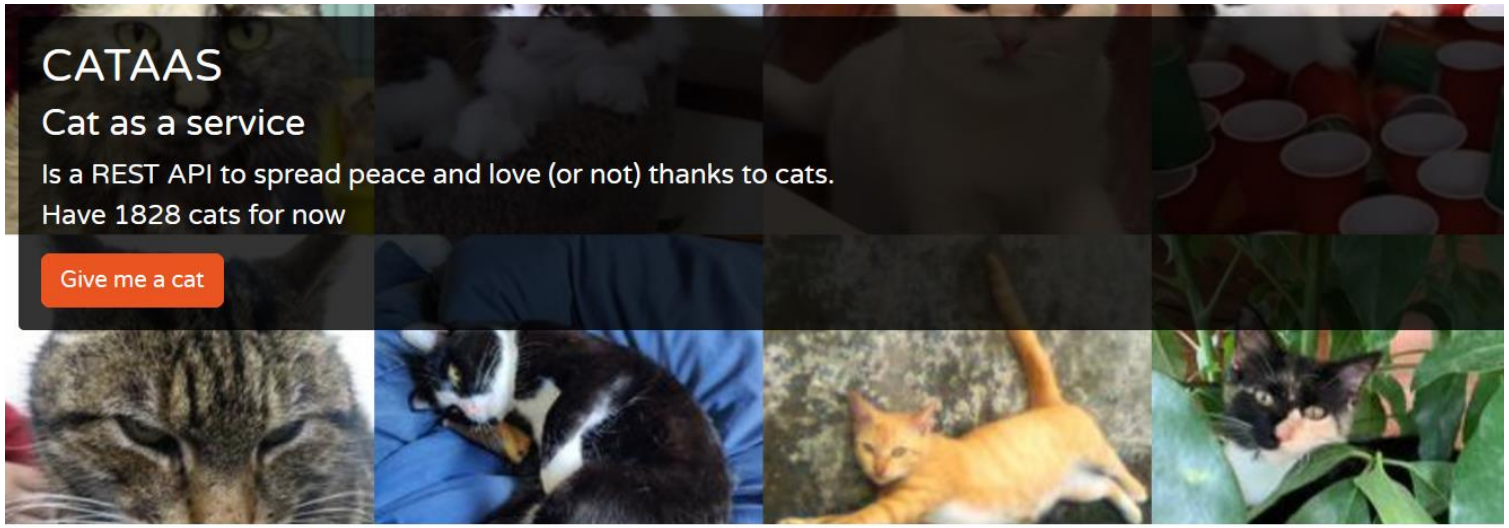

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CATAAS REST API

Cat as a service (CATAAS) 1.0.0 OAS3

/doc.json

Cat as a service (CATAAS) is a REST API to spread peace and love (or not) thanks to cats.

Servers
https://cataas.com

Authorize

Cats Cataas API

- GET /cat
- GET /cat/{id}
- GET /cat/{tag}
- GET /cat/says/{text}
- GET /cat/{id}/says/{text}
- GET /cat/{tag}/says/{text}

API Public API

- GET /api/cats

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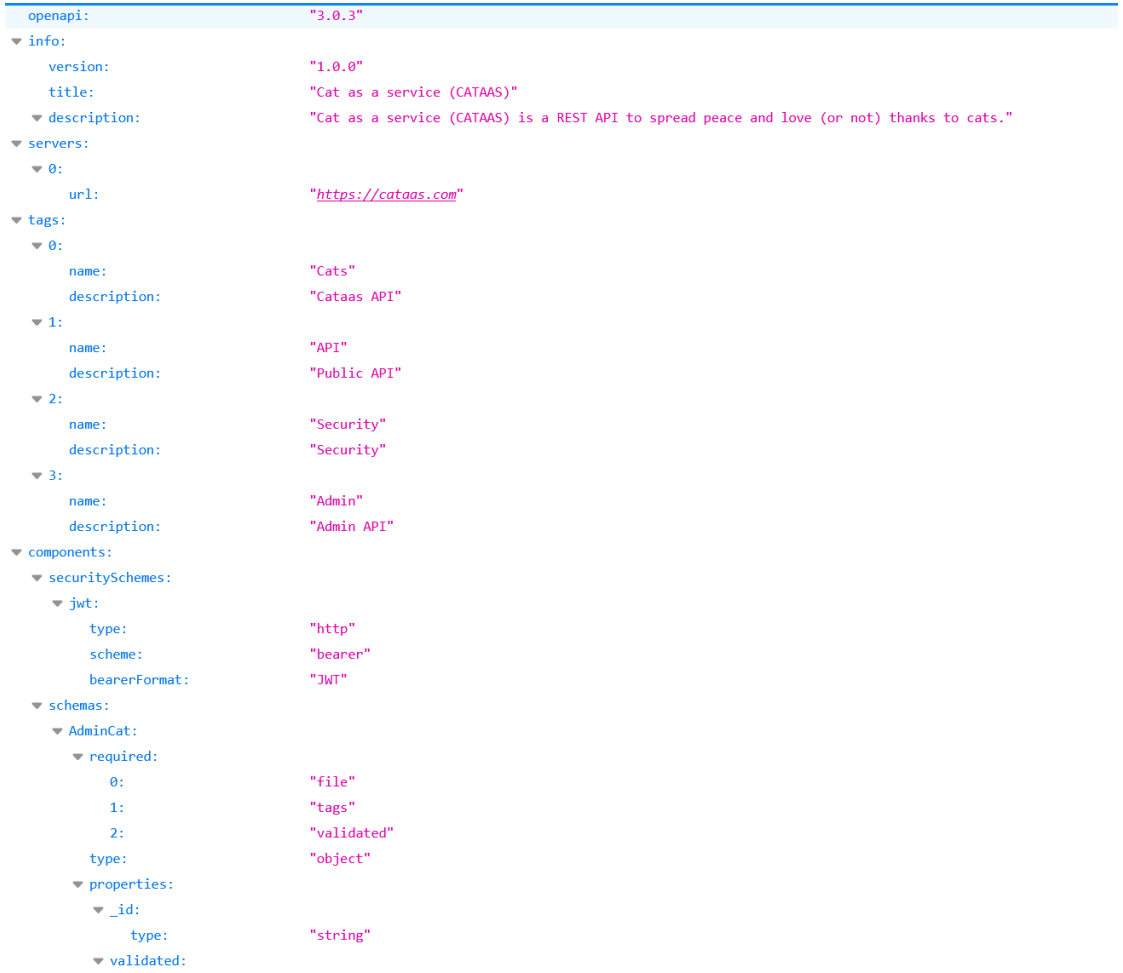


OpenAPI - Specification

Mandatory parts:

- Version and info
- At least one of:
  - Paths -> endpoints
  - Webhooks -> callbacks
  - Components -> reusable parts of the openapi file

Optional parts:

- Servers
- Security
- Tags
- External Docs

https://swagger.io/specification/

OpenAPI – Version and info

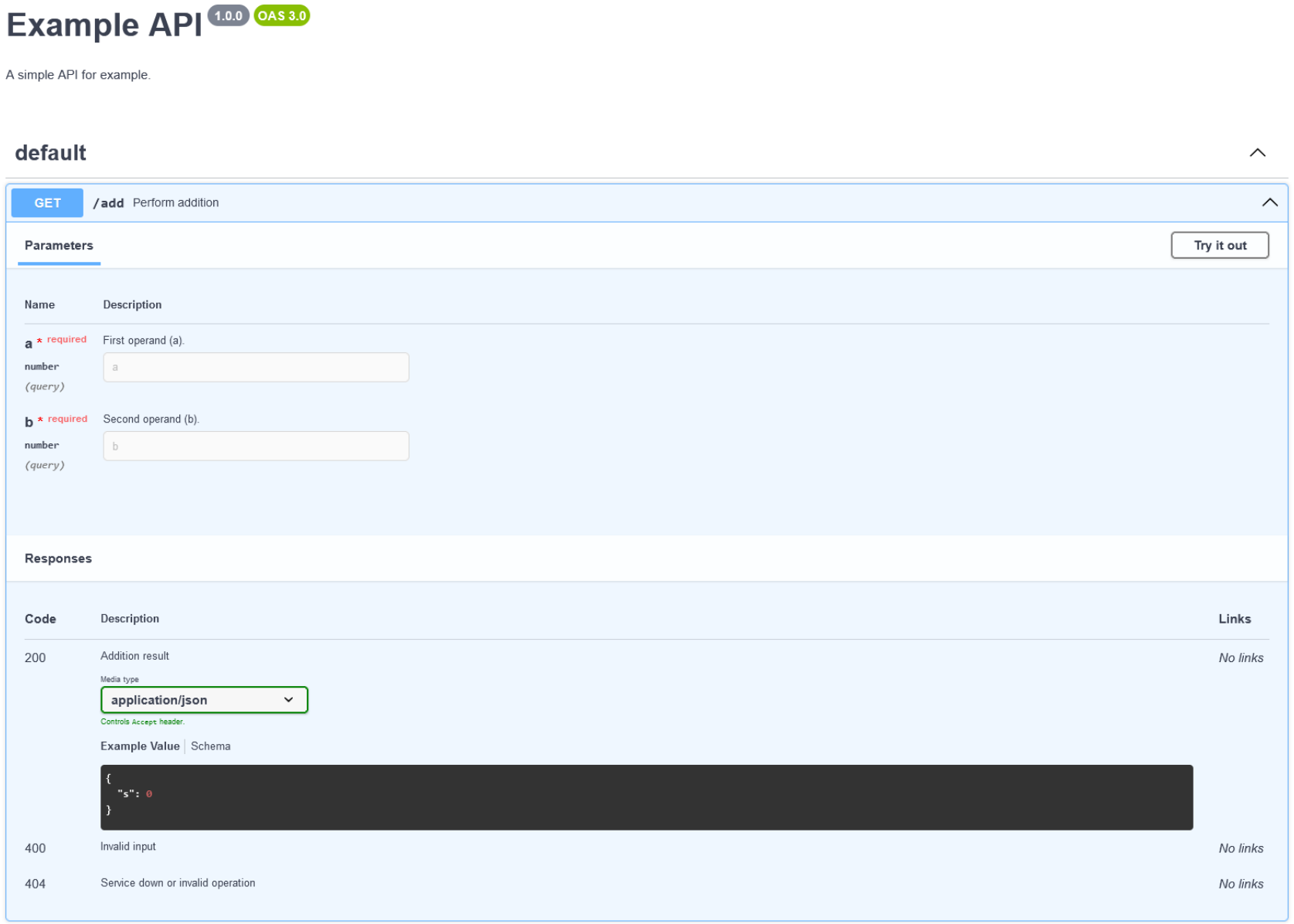
```yaml
openapi: 3.0.0  # The OpenAPI version you're using
info:
  title: Example API  # The name of your API
  description: A simple API for example.  # A brief description
  version: 1.0.0  # Version of the API
```

OpenAPI – paths

/add?a=1&b=1

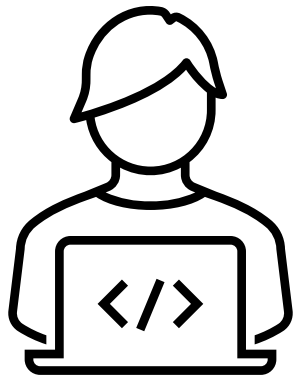
```yaml
paths:
  /add:
    get:
      summary: Perform addition
      parameters:
        - name: a
          in: query
          required: true
          description: First operand (a).
          schema:
            type: number
        - name: b
          in: query
          required: true
          description: Second operand (b).
          schema:
            type: number
      responses:
        '200':
          description: Addition result
          content:
            application/json:
              schema:
                type: object
                properties:
                  s:
                    type: number
        '400':
          description: Invalid input
        '404':
          description: Service down or invalid operation
```

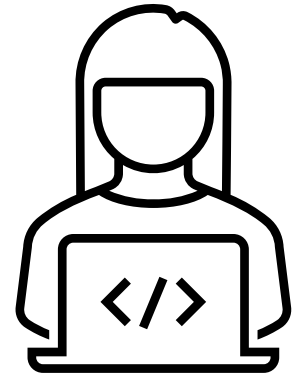
OpenAPI – Swagger Editor https://editor.swagger.io/



OpenAPI - Writing

Do I have to do it by hand?





OpenAPI - Writing

Not necessarily!

There are tools that from your code generate (part of) the OpenAPI spec and vice versa.

For example:

- OAS tools (npm based)
- Flask-RESTX (annotations of Flask code)

Now it’s your turn

1. Use the service you coded in Lab 1 (or download it from the Moodle).
2. Write the OpenAPI specification for the REST service.
3. Use Swagger Editor to see its web representation.

Service paths

- /add
- /sub
- /mul
- /div
- /mod
- /random
- /concat
- /upper
- /lower
- /reduce
- /crash
- /last

Lab take away

- ❑ Learn about OpenAPI
- ❑ Write the OpenAPI specification of a REST API

Project take away

- The documentation of the REST API of the project must be expressed in OpenAPI format.