### Documentation Slideshow Project Overview

### Overview

This project is a Java Spring Boot application designed to showcase expertise in modern Java technologies and practices. The application provides a platform for users to manage a list of image URLs and play a slideshow with dynamic transitions. It supports the following key features:

* **Image Management**: Users can upload, remove, and search for images based on specific parameters such as keywords or duration.
* **Slideshow Creation**: Users can create and manage slideshows, associating images with specific display durations and ordering.
* **Proof of Play**: Every time an image is replaced in the slideshow, a proof-of-play event is triggered to track the transitions between images.
* **Scalable and Robust API**: The application includes a well-structured API that enables the integration of additional functionality such as the modification of slideshow orders or management of images.

### Quick Start

To explore the full functionality of the application, simply navigate to the root URL (http://localhost:8080/). The frontend interface will allow you to interact with all the features and see how everything works seamlessly. You can manage images, create slideshows, and track transitions directly from the user-friendly interface.

### Server Response Structure

Each response from the server will have a standard JSON structure. Here are the main fields in the response:

* **data**: This field contains the useful data returned in case of a successful operation or a detailed error description in case of failure.
* **status**: This field indicates the status of the operation. It can have one of two values:
  + **"success"** — The operation was successfully completed.
  + **"error"** — There was an error during the execution of the operation.
* **code**: This is the numeric status code that defines the result of the request. You can refer to the /statusCodes route to see all possible status codes.
* **message**: A message explaining the result of the operation. This message will indicate if the operation was successful or provide details about the error.

#### Example of a successful response:

{

    "data": [],

    "status": "success",

    "code": 201,

    "message": "Successfully processed operation"

}

Example of an error response:

{

    "data": [],

    "status": "error",

    "code": 6001,

    "message": "Image not found"

}

### 1. ****Get Status Codes****

This endpoint provides a list of all possible status codes and their meanings used throughout the API. This is helpful for understanding the meaning behind each response code returned by the API.

* **Service**: general
* **Method**: GET
* **URL**: /statusCodes

#### Request URL Example:

http://localhost:8080/statusCodes

#### Response:

* **Code**: 200 OK
* **Headers**:
  + Content-Type: application/json
  + Content-Length: 539
* **Body Example**:

{

    "200": "Ok",

    "201": "Successfully processed operation",

    "1000": "Failed validation",

    "1001": "Failed validation image type or content",

    "1002": "Failed validation duration of image",

    "2000": "Slideshow Not Found",

    "3000": "Validation Failed",

    "4000": "Already exists",

    "4001": "Invalid request body format",

    "4002": "Invalid request parameters format",

    "5000": "Internal Server Error",

    "5001": "Database Operation Failed",

    "5002": "Error loading file",

    "6001": "Image not found",

    "6002": "Error occurred while mapping data",

    "6003": "JSON serialization error occurred"

}

### 2. ****Add Image****

This endpoint allows users to add an image to the system, along with the display duration for a slideshow.

* **Service**: slideshow
* **Method**: POST
* **URL**: http://localhost:8080/api/v1/addImage

#### Headers:

* Content-Type: application/json; charset=utf-8

#### Request Body Example:

{

    "url": "https://fastly.picsum.photos/id/643/200/300.jpg?hmac=rS-MHa0BIMHdAgm-FZ7QM36aRKEAzzhSRNRv5n4uqGc",

    "duration": 30

}

#### Parameters:

* **url**: The URL of the image to be added (must be a valid image URL).
* **duration**: The duration (in seconds) that the image will be displayed in the slideshow.

#### Response:

* **Code**: 201 Created
* **Body**:

{

    "data": [

        {

            "imageId": 26

        }

    ],

    "status": "success",

    "code": 201,

    "message": "Successfully processed operation"

}

### 3. ****Remove Image****

This endpoint removes an image from the system by its ID.

* **Service**: slideshow
* **Method**: DELETE
* **URL**: http://localhost:8080/api/v1/deleteImage/{imageId}

#### Request URL Example:

http://localhost:8080/api/v1/deleteImage/6

#### Parameters:

* **imageId**: The ID of the image to be deleted.

#### Response:

* **Code**: 201 Created
* **Body**:

{

    "data": [],

    "status": "success",

    "code": 201,

    "message": "Successfully processed operation"

}

### 4. ****Add Slideshow****

This endpoint allows users to create a new slideshow with a list of images and their respective display durations.

* **Service**: slideshow
* **Method**: POST
* **URL**: http://localhost:8080/api/v1/addSlideshow

#### Headers:

* Content-Type: application/json; charset=utf-8

#### Request Body Example:

{

    "name": "test2",

    "images": [

        {

            "image\_id": 10,

            "duration": 10

        },

        {

            "image\_id": 5,

            "duration": -1

        }

    ]

}

Parameters:

* **name**: The name of the slideshow (optional).
* **images**: An array of image objects, where each object contains:
  + **image\_id**: The ID of the image.
  + **duration**: The display duration for the image in the slideshow.

#### Response:

* **Code**: 201 Created
* **Body**:

{

    "data": [

        {

            "slideshowId": 10

        }

    ],

    "status": "success",

    "code": 201,

    "message": "Successfully processed operation"

}

### 5. ****Delete Slideshow****

This endpoint allows users to remove a slideshow by its ID.

* **Service**: slideshow
* **Method**: DELETE
* **URL**: http://localhost:8080/api/v1/deleteSlideshow/{slideshowId}

#### Request URL Example:

http://localhost:8080/api/v1/deleteSlideshow/6

#### Parameters:

* **slideshowId**: The ID of the slideshow to be deleted.

#### Response:

* **Code**: 201 Created
* **Body**:

{

    "data": [],

    "status": "success",

    "code": 201,

    "message": "Successfully processed operation"

}

### 6. ****Search Image****

This endpoint allows users to search for images based on specific keywords or duration.

* **Service**: slideshow
* **Method**: GET
* **URL**: http://localhost:8080/api/v1/images/search?keyword=&duration=14

#### Parameters:

* **keyword**: A search keyword to find images based on URL or other associated data.
* **duration**: The duration in seconds for filtering images.

#### Response:

* **Code**: 200 OK
* **Body**:

{

    "data": [

        {

            "image": {

                "id": 67,

                "url": "https://fastly.picsum.photos/id/970/200/300.jpg?hmac=8mPwdPFtAKcn0NQrEIClW3IlOWsKgskAikm\_8YQj-qM",

                "duration": 14,

                "type": "image/jpeg",

                "addedTime": "2024-12-30T00:00:13.358222"

            },

            "slideshow": [

                {

                    "id": 21,

                    "slideshowId": 12,

                    "imageId": 67,

                    "duration": 10

                },

                {

                    "id": 22,

                    "slideshowId": 13,

                    "imageId": 67,

                    "duration": 10

                },

                {

                    "id": 23,

                    "slideshowId": 14,

                    "imageId": 67,

                    "duration": 10

                },

                {

                    "id": 26,

                    "slideshowId": 15,

                    "imageId": 67,

                    "duration": 13

                },

                {

                    "id": 28,

                    "slideshowId": 16,

                    "imageId": 67,

                    "duration": 14

                }

            ]

        }

    ],

    "status": "success",

    "code": 200,

    "message": "Ok"

}

### 7. ****Get Slideshow Order****

This endpoint is used to retrieve the images in a slideshow ordered by the time they were added. The response will include each image with its associated duration, which determines how long each image will be displayed in the slideshow. After all images have been displayed, the endpoint will return a final message indicating the end of the slideshow.

**Service**: slideshow

* **Method**: GET
* **URL**: /api/{vers}/slideShow/{slideshowId}/slideshowOrder

#### Parameters:

* **vers**: The version of the API (e.g., v1).
* **slideshowId**: The ID of the slideshow whose images are being retrieved.

#### Request URL Example:

http://localhost:8080/api/v1/slideShow/5/slideshowOrder

#### Response:

* **Code**: 200 OK
* **Headers**:
  + Content-Type: text/event-stream;charset=UTF-8
  + Transfer-Encoding: chunked
* **Body Example**:

data:{"data":[{"duration":10,"imageData":{"id":5,"url":"https://fastly.picsum.photos/id/892/200/300.jpg?hmac=9MUtm-RM2UIFVmP8I80S9TuWKk93ZEPqQLpOf-y1BwE","duration":6,"type":"image/jpeg","addedTime":"2024-12-15T01:20:09.528432"},"imageId":5,"slideshowId":8}],"status":"success","code":200,"message":"Ok"}

data:{"data":[{"duration":30,"imageData":{"id":10,"url":"https://fastly.picsum.photos/id/1080/200/300.jpg?hmac=3jCG4X8ni9cpiEppj6KVvqhpJ\_owIFtDQOABJmhG1I0","duration":30,"type":"image/jpeg","addedTime":"2024-12-17T01:36:11.399025"},"imageId":10,"slideshowId":8}],"status":"success","code":200,"message":"Ok"}

data:{"data":[{"duration":7,"imageData":{"id":11,"url":"https://fastly.picsum.photos/id/297/200/300.jpg?hmac=SF0Y51mRP7i6CoLBIuliqQwDIUJNyf63\_r3xhamVSLE","duration":30,"type":"image/jpeg","addedTime":"2024-12-18T23:06:12.148957"},"imageId":11,"slideshowId":8}],"status":"success","code":200,"message":"Ok"}

data:{"data":[{"message":"End slideshow"}],"status":"success","code":201,"message":"Successfully processed operation"}

### 8. ****Proof of Play****

This endpoint allows the system to record an event whenever an image is replaced by the next one in a slideshow. This helps track image transitions and monitor playback status.

* **Service**: slideshow
* **Method**: POST
* **URL**: /api/{vers}/slideShow/{slideshowId}/proof-of-play/{imageId}

#### Parameters:

* **vers**: The version of the API (e.g., v1).
* **slideshowId**: The ID of the slideshow.
* **imageId**: The ID of the image whose transition is being recorded.

#### Request URL Example:

http://localhost:8080/api/v1/slideShow/5/proof-of-play/10

#### Response:

* **Code**: 201 Created
* **Headers**:
  + Content-Type: application/json
  + Content-Length: 86
* **Body Example**:

{

    "data": [],

    "status": "success",

    "code": 201,

    "message": "Successfully processed operation"

}

### Error Descriptions

#### Error 1: Attempt to Add an Already Existing Image

* **Situation**: A request is sent to add an image that has already been added.
* **Error**: The changes cannot be applied, and the system returns an error.

**Request Example**:

{

    "url": "https://fastly.picsum.photos/id/643/200/300.jpg?hmac=rS-MHa0BIMHdAgm-FZ7QM36aRKEAzzhSRNRv5n4uqGc",

    "duration": 30

}

**Response**:

{

    "data": [],

    "status": "error",

    "code": 4000,

    "message": "Already exists"

}

#### Error 2: Attempt to Add an Image with Invalid Data

* **Situation**: The request contains invalid data.
* **Error**: The changes cannot be applied, and the system indicates invalid body data.

**Request Example**:

{

    "url": "https://fastly.picsum.photos/id/643/200/300.jpg?hmac=rS-MHa0BIMHdAgm-FZ7QM36aRKEAzzhSRNRv5n4uqGc",

    "some\_test":

}

**Response**:

{

    "data": [],

    "status": "error",

    "code": 4001,

    "message": "Invalid request body format"

}

#### Error 3: Attempt to Delete a Non-Existent Image

* **Situation**: A request is sent to delete an image that does not exist.
* **Error**: The changes cannot be applied, and the system indicates the image was not found.

**Request Example**:

http://localhost:8080/api/v1/deleteImage/6

**Response**:

{

    "data": [],

    "status": "error",

    "code": 6001,

    "message": "Image not found"

}