Kalam Library Documentation

1. Introduction

Kalam is a simple, easy-to-use C++ library designed for handling basic image operations such as loading, saving, and viewing images. It aims to streamline the process of working with images by providing straightforward interfaces, allowing users to perform common tasks with minimal code. This documentation provides an overview of Kalam's features and demonstrates how to use them effectively.

2. Features

- - Load images in common formats like PNG and JPEG/JPG.
- - Save images to disk in different formats.
- - Display images directly using the default system viewer without saving.
- - Cross-platform compatibility with Windows, macOS, and Linux.
- - Easy integration with other libraries for further image processing.

3. Getting Started

To get started with Kalam, clone the kalam repository in any folder in your PC and install the required dependencies.

4. Building and Installing Kalam

Linux/macOS Installation Instructions:

1. **Clone the Repository and Navigate:**

git clone https://github.com/yourusername/kalam.git

cd kalam

2. **Build and Install:**

mkdir build && cd build

cmake .. -DCMAKE_BUILD_TYPE=Release

cmake --build .

sudo cmake --install .

Windows Installation Instructions:

1. **Clone the Repository and Navigate:**

git clone https://github.com/yourusername/kalam.git

cd kalam

2. **Build and Install Using CMake GUI or Command Line:**

mkdir build && cd build

cmake .. -G "MinGW Makefiles" -DCMAKE_BUILD_TYPE=Release

cmake --build . --config Release

cmake --install . --config Release

5. Usage

5.1 Loading an Image

```
#include "kalam.h"
kalam::Image img;
if (img.load("path/to/image.png")) {
    // Image loaded successfully
}
```

5.2 Saving an Image

```
img.save("path/to/save/image.png");
```

5.3 Showing an Image

```
img.show(); // Displays the current image without saving
```

6. Technical Details

- **Image Class:** Handles image data, providing load, save, and show functionalities.
- **Load and Save Modules:** Implement loading and saving functions using the stb_image library.
- **Show Function:** Displays images using the default system image viewer without requiring a save.

7. License

Kalam is an open-source project available under the MIT license. You are free to use, modify, and distribute the library as per the terms of the license.

Potential Projects with Kalam

Kalam is designed to make image handling in C++ straightforward and accessible. Whether you are a beginner exploring image manipulation or an advanced developer looking to integrate image functionality into your projects, Kalam provides a solid foundation.
Kalam is designed to be modular, so it can be easily extended with other libraries and technologies to achieve more complex tasks.

Image Editor

• **Description:** A simple editor for loading, editing, and saving images. Features could include resizing, cropping, and applying basic filters.

• **Why Use Kalam:** Leverage Kalam’s ability to handle image data seamlessly, making basic editing tasks easier.

Image Compression Tool

• **Description:** A tool that reduces the file size of images with adjustable compression levels you can try out different compression algorithms.

• **Why Use Kalam:** Showcase Kalam's efficiency in loading and saving images, paired with additional compression techniques of your own.

Batch Image Processor

• **Description:** Process multiple images at once by applying operations like resizing or format conversion.

• **Why Use Kalam:** Highlight Kalam’s performance in handling bulk image operations efficiently.

Photo Viewer Application

• **Description:** A basic viewer that allows users to browse and display images from a directory.

• **Why Use Kalam:** Use Kalam’s loading capabilities to create a responsive and smooth viewing experience.

Image Recognition Tool

• **Description:** An application that loads images and applies recognition algorithms for tasks like object detection or OCR.

• **Why Use Kalam:** Kalam simplifies image loading, allowing you to focus on implementing advanced recognition models.

Screenshots Organizer

• **Description:** Automatically sort and organize images based on metadata like date or resolution.

• **Why Use Kalam:** Easily load images and manipulate file structures, showcasing Kalam's utility in automation tasks.

Thumbnail Generator

• **Description:** Quickly create thumbnails of images for web galleries or video previews.

• **Why Use Kalam:** Demonstrates Kalam's ease of resizing and saving images to meet specific format requirements.

Watermarking Tool

• **Description:** Add text or logo watermarks to images to protect copyrights or enhance branding.

• **Why Use Kalam:** Use Kalam's core image handling to integrate simple graphics rendering for watermarking.

Format Converter

• **Description:** Convert images between formats such as PNG, JPEG, BMP, and more.

• **Why Use Kalam:** Highlight the simplicity of format conversion with Kalam's intuitive load and save functions.

Artistic Filter Application

• **Description:** Apply artistic effects like grayscale, blur, or sepia to images.

• **Why Use Kalam:** Kalam’s efficient data handling makes it easy to apply creative filters directly to image data.

Contributing Your Projects

If you build something exciting with Kalam, consider sharing it with the community! We welcome feedback, ideas, and contributions that can help improve Kalam and inspire others.