**Colour Recognition: A Computer Vision Approach for Efficient Classification**

This project endeavours to develop an efficient colour detection system utilizing computer vision techniques and Tkinter GUI in Python. The primary objective is to detect dominant colours present in an image, providing a valuable tool for various applications such as image processing, graphic design, and fashion analysis.

This project addresses the challenge of extracting dominant colours from images using Python programming, leveraging libraries like OpenCV and Tkinter. The system provides a user-friendly interface for selecting an image file and analysing its colour composition. Key libraries and technologies used include OpenCV for image processing tasks, Tkinter for creating the GUI interface, and NumPy for numerical computing and data processing.

The project follows a systematic flow to achieve the desired colour detection functionality. Users initiate the process by selecting an image file through a file dialog box created using Tkinter. The system then employs the K-means clustering algorithm to identify dominant colours, with OpenCV facilitating image manipulation, conversion, and clustering. Detected colours are displayed to the user in a visually appealing manner within the Tkinter window, enhancing user experience and usability. The GUI provides an intuitive interface for users to select images and view the detected colours.

Overall, the project aims to yield a functional colour detection system capable of accurately identifying dominant colours within an image. By leveraging computer vision techniques and user-friendly interface design, it offers a versatile and practical solution for colour analysis tasks in various domains, including graphic design, image editing, and fashion industry applications.