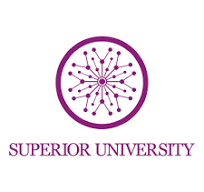
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**Section:** 4-A **Roll No:** BSAIM-F23-021

**Task:** 05

**Project Report:** OpenCV

This document explains the functionality of the given OpenCV code, which involves reading, displaying, saving, and processing images using the OpenCV library in Python.

**1. Importing Required Libraries**

* OpenCV (cv2) is used for image processing operations such as reading, displaying, and modifying images.
* The os module is used for interacting with the operating system, such as changing directories and listing files.
* NumPy (numpy) provides support for handling numerical computations related to image processing.
* Matplotlib (matplotlib.pyplot) is a visualization library that can be used to display images.
* The Python Imaging Library (PIL) is used for opening, manipulating, and saving images in various formats.

**2. Reading and Displaying an Image**

* The code reads an image file (BMW.jpg) using OpenCV's cv2.imread() function.
* It loads the image in color mode and displays it using cv2.imshow().
* The program waits for a brief period (1000 milliseconds) before closing the image window using cv2.destroyAllWindows().

**3. Reading an Image from a Specific Path**

* The program reads an image from a specified file path and assigns it to a window.
* The cv2.imshow() function displays the image in a named window.
* After a brief delay, the window is closed to ensure smooth execution.

**4. Saving an Image to a Directory**

* The program changes the working directory to a specified folder using os.chdir().
* It reads an image file and saves it in the directory using cv2.imwrite().
* The directory contents are printed before and after saving to confirm that the file has been successfully written.

**5. Blending Two Images**

* The program reads two image files (BMW.jpg and AMG.jpg).
* Since images might have different dimensions, cv2.resize() is used to match the size of the second image to the first one.
* The cv2.addWeighted() function is used to blend the images with specified weight values.
* The final blended image is displayed in a window, and the program waits briefly before closing the display.

**Conclusion**

This code demonstrates fundamental image-processing techniques using OpenCV, such as reading, displaying, saving, and blending images. These techniques are widely used in computer vision applications, including object detection, image enhancement, and real-time processing.