**Practical No.5**

**Aim**: Write a program in python to translate an image.

**Softwares Used**: Jupyter Notebook, Opencv

**Environment**: python 3.11.2

**Theory**:

Python is a high-level programming language that is designed to be easy to read and write. Python comes with a large standard library that includes modules for various tasks, such as working with regular expressions, networking, and file I/O. This means that you don't have to write code from scratch for every task, as there's likely a pre-existing module you can use. python is dynamically typed, which means that variables don't need to be declared before they are used, and their types can change at runtime.

OpenCV (Open Source Computer Vision) is an open-source computer vision and machine learning software library. It provides a set of tools and algorithms for image and video processing, machine learning, and computer vision tasks. OpenCV is written in C++, but it also has interfaces for Python, Java, and MATLAB.

**Program Code**:

import cv2

import numpy as np

FILE\_NAME = 'dolphin.jpg'

# Create translation matrix.

# If the shift is (x, y) then matrix would be

# M = [1 0 x]

# [0 1 y]

# Let's shift by (100, 50).

M = np.float32([[1, 0, 100], [0, 1, 50]])

Try

# Read image from disk.

img = cv2.imread(FILE\_NAME)

(rows, cols) = img.shape[:2]

# warpAffine does appropriate shifting given the

# translation matrix.

res = cv2.warpAffine(img, M, (cols, rows))

# Write image back to disk.

cv2.imwrite('p5\_result.jpg', res)

**Output**: 

4.7.0

True

**Conclusion**: : In this practical , we successfully study and implement about to translate an image using python.