Nagar Yuwak Shikshan Sanstha's
Yeshwantrao Chavan College of Engineering
(An Autonomous Institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

Hingna Road, Wanadongri, Nagpur - 441 110

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Department of Computer Technology

Vision of the Department

Mission of the Department

Session 2025-2026

Vision: Dream of where you want.	**Mission:** Means to achieve Vision

Program Educational Objectives of the program (PEO):

(broad statements that describe the professional and career accomplishments)

PEO1	Preparation	P:Preparation	Pep-CL abbreviation pronounce as Pep-si-IL easy to recall
PEO2	Core Competence	E: Environment (Learning Environment)	
PEO3	Breadth	P:Professionalism	
PEO4	Professionalism	C:Core Competence	
PEO5	Learning Environment	L:Breadth (Learning in diverse areas)	

Program Outcomes (PO): (statements that describe what a student should be able to do and know by the end of a program)

Keywords of POs:

Engineering knowledge, Problem analysis, Design/development of solutions, Conduct Investigations of Complex Problems, Engineering Tool Usage, The Engineer and The World, Ethics, Individual and Collaborative Team work, Communication, Project Management and Finance, Life-Long Learning

PSO Keywords: Cutting edge technologies, Research

"I am an engineer, and I know how to apply engineering knowledge to investigate, analyse and design solutions to complex problems using tools for entire world following all ethics in a collaborative way with proper management skills throughout my life." *ohd* *m* *is ad Reach*

Integrity: I will adhere to the Laboratory Code of Conduct and ethics in it sentirety.

Siddhesh Pitale

Name and Signature of Student and Date

(Signature and Date in Handwritten)

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Session	2024-25(ODD)	CourseName	Computer vision Lab
Semester	5	Course Code	23CT1522
Roll No	73	Name of Student	Siddhesh Pitale

Practical Number	Practical 1
CourseOutcome	Apply image enhancement and smoothing techniques to improve image quality for further analysis.
Aim	Implement various gray level transformations for image enhancement.
ProblemDefinition	To enhance the quality and appearance of an image by applying different intensity transformations like negative, logarithmic, and power-law, which are useful in improving visual interpretation and highlighting details.
Theory (100 words)	Image enhancement is the process of improving the visual quality of an image for better analysis. Negative Transformation inverts the intensity values, useful for medical images. Logarithmic Transformation compresses high intensity values and enhances darker regions, helpful in images with wide dynamic range. Power-law (Gamma) Transformation adjusts the brightness of an image depending on the gamma value ($\gamma<1$ brightens, $\gamma>1$ darkens). These transformations are widely applied in image processing to highlight details, correct illumination, and improve visibility in digital images. MATLAB provides functions to implement these transformations efficiently.
Procedure and Execution (100 Words)	Algorithm: 1. Start 2. Read and display the input image 3. Perform negative transformation: 1-img 4. Perform logarithmic transformation: log(1+img) 5. Normalize log image using mat2gray 6. Perform power-law transformation: img.^gamma 7. Display all results 8. Stop

	Code:
	``
	clc;clear;
	closeall;
	
	img=imread("yellowlily.jpg");img = im2double(img);
	
	figure('Name','Original Image');imshow(img);
	title("OriginalImage");
	
	% Negative Transformation
	neg_img=1-img;
	figure;imshow(neg_img)
	``

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```
title("NegativeTransformation");

% Logarithmic
Transformationc = 1;
log_img=c*log(1+img);log_i
mg=mat2gray(log_img);figure
;
imshow(log_img);title("Logarit
hmic Image");

% Power-law (Gamma)
Transformationgamma = 0.5;
power_img=img.^gamma;figur
e;
imshow(power_img);titl
e("Power-law Image");
```
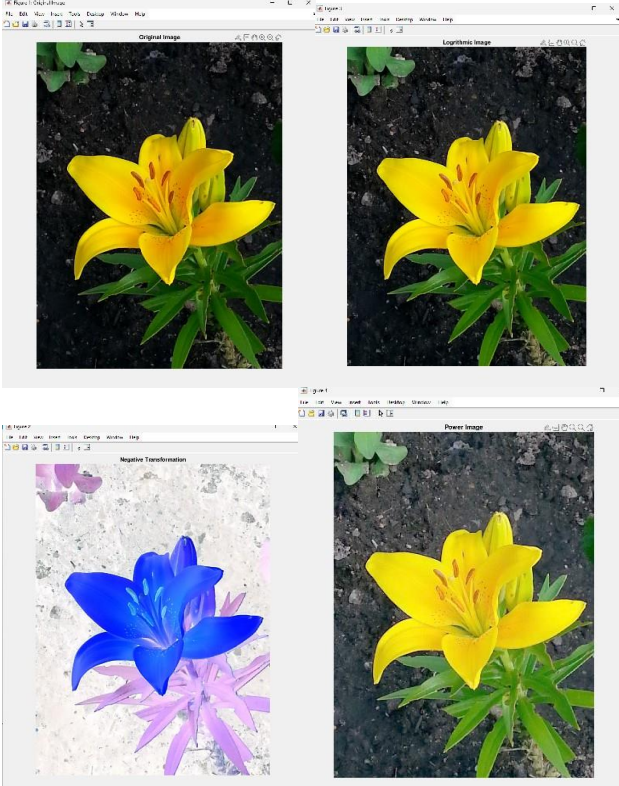
Output:

OutputAnalysis	1. TheNegativeImagehighlightsdetailsbyreversingintensities,usefulformedicalimaging. 2. The Logarithmic Image enhances low-intensity values and compresses higher intensities,making dark regions clearer. 3. The Power-law Image (γ=0.5) brightens the image, showing improved contrast in darkerareas. Eachtransformationservesdifferentenhancementpurposesbasedonapplicationneeds.
Link of studentGithubprofilewhere labassignment has	https://github.com/Siddheshpitale/Computer-Vision-/tree/main

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been uploaded	
Conclusion	Different image transformations help in enhancing digital images. Negative transformation inverts pixel values, logarithmic transformation improves details in dark regions, and power-law transformation adjusts brightness and contrast. These techniques are essential in image processing applications like medical imaging, satellite imaging, and photography enhancement.
Plag Report(Similarity index< 12%)	
Date	18-8-2025