Presentation

Title Slide

- **Title:** Image Watermarking System
- **Subtitle:** Digital Image Processing Project
- **Student Name:** Malika Akhtar
- **Course:** Digital Image Processing

Introduction

- **Digital Image Processing (DIP)** manipulates digital images using computational techniques.
- **Image Watermarking** ensures ownership and authenticity.
- This project demonstrates a **step-wise watermarking process** for multiple images.

Objectives

- Learn step-by-step **image processing workflow**
- Apply **watermark only at the final step**
- Provide **visual proof of each processing step**
- Develop a **professional academic project**

Tools & Technologies

- **Python** – Programming language
- **OpenCV (cv2)** – Image processing
- **NumPy** – Numerical operations
- **Matplotlib** – Image visualization
- **Google Colab** – Execution environment
- **OS & Shutil Libraries** – File management

Methodology (Step-wise)

Step 1: Upload & Original Image

- Upload multiple images and save original copies.

Step 2: Grayscale Conversion

- Convert RGB images to grayscale.

Step 3: Gaussian Blur Filtering

- Apply Gaussian blur to remove noise.

Step 4: Watermarking (Final Step)

- Add watermark: **Copyright © Aleeha** + **Last Processed Date & Time**

Sample Output (Screenshots)

- Include 4 images side by side for **each processing step**:
    1. Original
    2. Grayscale
    3. Filtered
    4. Watermarked

(Tip: Take screenshots from Colab notebook)

Key Features

- Step-by-step processing workflow
- Watermark applied only at final stage
- Organized folder structure
- Suitable for academic submission

Applications

- Protect digital image ownership
- Academic learning of DIP techniques
- Demonstration of digital watermarking
- Understanding filtering and visualization

Conclusion

- Successfully demonstrated a **step-wise image watermarking system**
- Watermark applied **only at the final step**
- Provides **visual proof** of all processing stages
- Digital Image Processing Project
