Assignment - 03

Name: Md. Al-Amin Babu
ID: 2110676134
Session: 2020–21
Department of Computer Science & Engineering
University of Rajshahi

Bit Plane Slicing

Definition

Bit Plane Slicing is an image processing method that splits a grayscale image into 8 layers (bit planes) based on each pixel's binary value (0–255).

- **Bit plane 0** → Least Significant Bit (LSB), tiny details.
- **Bit plane 7** → Most Significant Bit (MSB), main image structure.

Why it's Useful

- Image compression (remove less important bits)
- Data hiding (store secrets in LSB)
- Image analysis (focus on certain details)
- Enhancement (rebuild with important planes only)

Code Link

Click here for the Bit Plane Slicing Code

Code Summary

1. Reads grayscale image
2. Extracts 8 bit planes using bitwise operations
3. Combines selected planes to form partial images
4. Rebuilds original image from all planes
5. Displays results using Matplotlib

Output

Output Image