**Topic - Digital Image representation, types of images.**

**Slide 1: Title Slide - Sahu**

* **Title:** Digital Image Representation and Types of Images
* **Subtitle:** Understanding the Basics
* **Presenter:** [Your Name]
* **Date:** [Presentation Date]

**Slide 2: Introduction - Sahu**

* **Introduction:**
  + Overview of digital images and their importance in today's technology.
  + Applications in various fields such as photography, medical imaging, remote sensing, etc.

**Slide 3: What is a Digital Image? - Sahu**

* **Definition:**
  + A digital image is a representation of a two-dimensional image using binary values (0s and 1s).
* **Key Points:**
  + Composed of pixels (picture elements).
  + Each pixel has a specific value representing color or intensity.

**Slide 4: Pixels and Resolution - Arun**

* **Pixels:**
  + The smallest unit of a digital image.
  + Each pixel represents a single color or shade.
* **Resolution:**
  + The number of pixels in an image.
  + Higher resolution means more pixels and more detail.
  + Example: 1920x1080 (Full HD) vs. 3840x2160 (4K).

**Slide 5: Color Models - Arun**

* **Color Models:**
  + Different methods to represent colors in digital images.
* **Examples:**
  + **RGB (Red, Green, Blue):**
    - Most common color model.
    - Uses three color channels.
  + **CMYK (Cyan, Magenta, Yellow, Black):**
    - Used in color printing.
  + **Grayscale:**
    - Shades of gray, from black to white.

**Slide 6: Bit Depth - Arun**

* **Bit Depth:**
  + The number of bits used to represent the color of a single pixel.
* **Examples:**
  + 1-bit (black and white), 8-bit (256 shades of gray), 24-bit (16.7 million colors).
* **Impact:**
  + Higher bit depth means more colors and better image quality.

**Slide 7: Types of Digital Images - Anish**

* **Types of Images:**
  + **Raster Images:**
    - Composed of pixels.
    - Examples: JPEG, PNG, BMP, GIF.
  + **Vector Images:**
    - Composed of paths defined by mathematical equations.
    - Examples: SVG, EPS, PDF.

**Slide 8: Raster Images - Anish**

* **Raster Images:**
  + Best for complex images with many colors, like photographs.
  + **Common Formats:**
    - **JPEG:** Lossy compression, widely used.
    - **PNG:** Lossless compression, supports transparency.
    - **GIF:** Limited to 256 colors, supports animation.
    - **BMP:** Uncompressed, large file size.

**Slide 9: Vector Images - Anish**

* **Vector Images:**
  + Best for images with clear edges and shapes, like logos and icons.
  + **Common Formats:**
    - **SVG:** Scalable Vector Graphics, web standard.
    - **EPS:** Encapsulated PostScript, used in professional printing.
    - **PDF:** Portable Document Format, widely used for documents.

**Slide 10: Comparison of Raster and Vector Images - Kshatriya**

* **Comparison:**
  + **Raster:**
    - Pros: Detailed and complex images.
    - Cons: Pixelation when scaled, large file size.
  + **Vector:**
    - Pros: Scalable without loss of quality, smaller file size.
    - Cons: Not suitable for complex images with many colors.

**Slide 11: Image Compression - Kshatriya**

* **Image Compression:**
  + Reducing the file size of an image.
  + **Types:**
    - **Lossy Compression:** Some data is lost (e.g., JPEG).
    - **Lossless Compression:** No data is lost (e.g., PNG).

**Slide 12: Conclusion - Kshatriya**

* **Summary:**
  + Digital images are composed of pixels.
  + Resolution and bit depth affect image quality.
  + Different types of images (raster and vector) serve different purposes.
  + Understanding these basics is crucial for working with digital images.

**Slide 13: References**

* **References:**
  + List of sources and further reading materials.