

**MIZAN-TEPI UNIVERSITY**

**TEPI CAMPUS**

**SCHOOL OF COMPUTING AND INFORMATICS**

**DEPARTMENT OF INFORMATION SYSTEMS**

**ASSIGNMENT OF INTRODUCTION TO MULTIMEDIA INFORMATION SYSTEMS**

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1. **Explain the difference between BITMAP and VECTOR graphics, providing detailed examples?**

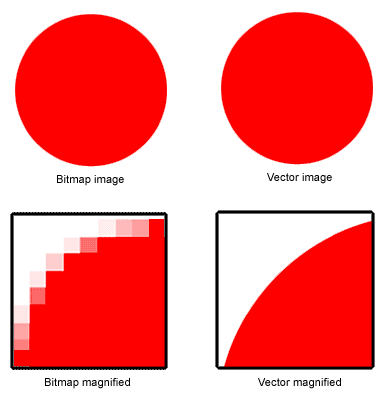
Bitmap graphics, also known as raster graphics, are made up of a grid of small dots called pixels. Each pixel can be a different color, and together they create the overall image. Bitmap graphics are commonly used for photographs and complex images because they can capture a wide range of colors and shades of gray.

One of the advantages of bitmap graphics is that they can create very detailed images with smooth transitions between colors. However, they are not easily scalable without losing quality. When a bitmap image is enlarged, the individual pixels become visible, resulting in a blurry or pixelated image. Bitmap graphics are also typically larger in file size than vector graphics.

Vector graphics, on the other hand, are made up of mathematical equations that define the shapes, lines, and colors of the image. Because vector graphics are not made up of pixels, they can be scaled up or down without losing quality. Vector graphics are commonly used for logos, illustrations, and simple diagrams.

One of the advantages of vector graphics is that they are easily scalable and can be resized without losing quality. They are also typically smaller in file size than bitmap graphics. However, vector graphics cannot capture the same level of detail and color complexity as bitmap graphics.

Here is an example



In summary, the main difference between bitmap and vector graphics is the way they are created and stored. Bitmap graphics are made up of pixels and are best for complex images with a wide range of colors, while vector graphics are made up of mathematical equations and are best for simple images that require scalability.

1. **Describe what Computer-generated Imagery (CGI) is and how movies are made using CGI?**

Computer-generated imagery (CGI) refers to the use of computer graphics and 3D modeling software to create visual effects, animations, and images for various forms of media such as films, video games, television shows, and advertising.

CGI involves creating a virtual environment and objects that can be manipulated and animated on a computer. This includes the creation of 3D models, textures, lighting, and special effects. The end result is a highly realistic and detailed visual representation that can be used to enhance and complement live-action footage, or to create entirely computer-generated scenes.

CGI is a powerful tool that has revolutionized the entertainment industry, allowing for the creation of fantastical worlds and larger-than-life characters that would have been impossible to achieve using traditional filmmaking techniques. It has also been used in fields such as architecture, engineering, and medical visualization, to create simulations and visualizations for educational and research purposes.

**Movies that use CGI typically follow a process that involves several stages:**

1 Concept and Storyboarding: The first step in creating a CGI movie is to develop the concept and storyline. The script is usually accompanied by storyboards, which are visual representations of the scenes in the movie.

2 Pre-Visualization: The next step involves creating a rough, low-resolution version of the movie using basic 3D models and animation. This is known as pre-visualization or "previz," and it allows the director and producers to get a sense of how the movie will look and feel before full production begins.

3 Modeling: The next stage involves creating detailed 3D models of the characters, props, and environments that will be used in the movie. These models are created using specialized software such as Autodesk Maya, ZBrush, or Blender.

4 Texturing: Once the models have been created, they are given texture and color using specialized software. This involves creating detailed textures that give the models a realistic appearance.

5 Rigging: After the models have been textured, they are given a "rig," which is a system of digital bones and controls that allow animators to manipulate and move the models in a lifelike way.

6 Animation: Once the models have been rigged, animators use specialized software to create the movements and actions of the characters and objects in the scene.

7 Lighting and Rendering: After the animation is complete, lighting and camera angles are added to the scene. The scene is then rendered, which is the process of turning the 3D models and animations into a final 2D image.

8 Post-Production: The final stage involves editing the rendered scenes together to create the final movie. This includes adding sound effects, music, and dialogue, as well as color grading and visual effects.

Overall, the process of making a CGI movie is a complex and time-consuming one, but it allows filmmakers to create fantastical worlds and larger-than-life characters that would be impossible to achieve using traditional filmmaking techniques.

1. **What is Web 3.0 and describe the ground breaking events for its manifestation?**

Web 3.0, also known as the "decentralized web," is the next evolution of the internet that aims to create a more open, secure, and decentralized web. The main idea behind Web 3.0 is to shift the power and control from centralized entities like tech giants and governments to individual users.

One of the groundbreaking events that led to the manifestation of Web 3.0 is the creation of block chain technology. Block chain is a decentralized and distributed digital ledger that records transactions on a secure and transparent network. Block chain technology allows for the creation of decentralized applications (dApps) that can operate without the need for intermediaries.

Another significant event that has contributed to the development of Web 3.0 is the rise of artificial intelligence (AI) and machine learning (ML). With AI and ML, machines can analyze large amounts of data and provide insights that were previously impossible. This has led to the creation of intelligent and autonomous systems that can operate without human intervention.

Other technologies like the Internet of Things (IoT), decentralized storage, and peer-to-peer networks have also played a crucial role in the development of Web 3.0. These technologies have made it possible to create decentralized and self-governed systems that can operate without the need for central authorities.

Overall, Web 3.0 represents a paradigm shift in the way we think about and use the internet. With its focus on decentralization, security, and user control, Web 3.0 has the potential to transform various industries and empower individuals to take control of their digital lives.