

CIS 109, Chapter 4, Specialized Application Software

Outline of Instructor's Slides

Outcomes. At the end of this chapter the student will be able to...

- Describe the following software:
 - graphics software
 - audio & video editing software
 - Multimedia software
- Describe how a computer stores bitmap graphics and vector graphics
- Explain Web authoring, Web site design, and Web authoring programs
- Discuss virtual reality and VRML
- Discuss knowledge-based (expert) systems
- Discuss robotics, including perception systems, industrial robots, and mobile robots

Specialized Applications

- Graphics Programs
- Audio and Video Software
- Multimedia Programs
- Web Authoring Programs
- Emerging Applications
 - Virtual Reality
 - Knowledge-based Systems
 - Robotics

Desktop Publishing

- Programs that allow you to create publications
 - Mix text and graphics
 - Professional quality
- Popular programs
 - Adobe PageMaker
 - Microsoft Publisher
 - QuarkXPress

Image Editors

- Programs for creating and editing bitmap images
 - What are bitmap images?
 - How do they store graphics?
 - Bitmap images aka raster images
- Popular programs
 - Microsoft Paint
 - Adobe Photoshop
 - Corel PhotoPaint
 - Paint Shop Pro

Graphics:
What is a bitmap graphic?

- Consists of a grid of dots
 - Color of each dot is stored as a binary number
- The Digital World
- Graphics in Black & White: a table

```
0000000000
0111111110
0001001000
0001001000
0000000000
```



Or the sequence of bits:

```
0000000000011111110000100100000010010000000000000
```

- What if the background was white, the table top was red, & the table legs were blue?
- Hexadecimal codes: www.december.com/html/spec/color.html

Illustration Programs

- To create & edit vector images
 - How do vector graphics work?
- Popular programs
 - Adobe Illustrator
 - CorelDraw
 - Macromedia FreeHand
 - Micrografx Designer

How do vector graphics compare with bitmap graphics?

- Vector graphics
 - resize better
 - usually require much less storage
 - easier to edit an object
 - but... not usually as realistic (why?)

Image Galleries

- Libraries of electronic images
- Used for a variety of applications
- Two basic types
 - Stock photographs
 - Clip art

Graphic Suites

- Bundled graphic programs
- Cost effective
- Popular suites

- CorelDraw Graphics Suite
- Adobe's Creative Suites
- Macromedia's Studio

Audio and Video

- Video editing software
 - Enhances digital video footage
 - Apple's iMovie & Windows Movie Maker
- Audio editing software
 - Creates and edits audio clips
 - Can create your own MP3s
 - Ableton's Live and Sony's ACID

Multimedia

- The integration of a variety of media into one presentation
 - Video
 - Music
 - Voice
 - Graphics
 - Text
- Should include user interactivity

Links & Buttons

- Buttons are links through a presentation
 - Used to navigate the "About Asthma" multimedia presentation
- Links can be to...
 - Video
 - Sound Graphics
 - Text Files

Developing Multimedia Presentations

- Plan and Analyze
- Design
- Create
- Test
- Support

Digital Video Editing

- Capture Video
- Edit a Movie
- Create a DVD

Multimedia Authoring Programs

- Bring together video, audio, graphics, and text elements

- Popular programs
 - Macromedia Director
 - Authorware
 - Toolbook

Web Authoring

- Why important?
- Not just commercially
 - Ex: blogs
- Web Site Design
- Web Authoring Programs

Web Site Design

- Interactive multimedia form of communication
 - Create a graphical map of overall content
 - Add multimedia elements like animation
 - Macromedia's Flash
 - Morphing

Web Authoring Programs

- Web page editors or HTML editors
 - Provide support for Web site design
 - Creates HTML coding
- Popular programs
 - Macromedia Dreamweaver
 - NetObjects Fusion
 - Microsoft FrontPage

Emerging Applications

- Artificial intelligence (AI)
 - Attempts to simulate human senses, thought processes, and actions
 - Designed to help people and organizations become more productive
- Three areas of AI
 - Virtual reality
 - Knowledge-based (expert) systems
 - Robotics

Virtual Reality

- Artificial or simulated reality
 - Generated in 3-D by a computer
 - Commonly known as VR, artificial reality, or virtual environments
- Virtual reality modeling language (VRML)
 - Used to create real-time animated 3-D scenes
 - Cosmos Worlds from Cosmos Software

Knowledge-Based (Expert) Systems

- Artificial intelligence that uses a database (called a knowledge base) for assistance
- <http://ext1.aiinc.ca/demos/javawhale.html>

Robotics

- Field of study concerned with using robots
- Robot
 - Computer-controlled machine
 - Mimics motor activities of living things
 - Three types of robots
 - Perception systems
 - Industrial robots
 - Mobile robots

Related Careers in IT: Desktop Publisher

- Use computers to format and create publication-ready material
 - Books
 - Magazines
 - Newsletters
 - Newspapers
- Generally requires completion of a program or degree, good communication skills, and artistic ability
- Good entry level salaries

A Look to the Future: Robots Can Look, Act, and Think Like Us

- Research is being done to give robots a sense of values so they can make decisions independently
- The Saya robot is under development in Tokyo

Review Questions

- Describe graphics, including desktop publishers, image editors, illustration programs, image galleries, and graphics suites.
- Discuss audio and video editing software.
- What is multimedia? How are multimedia presentations developed?
- Describe Web authoring, including Web site design and Web authoring programs.
- Discuss three areas of artificial intelligence.

Looking Ahead...

- Read/Study Chapter 5 ASAP.