

MULTIMEDIA CONCEPTS

Stages in Multimedia Application Development

✓ Delivering

The final stage of the multimedia application development is to pack the project and deliver the completed project to the end user.

This stage has several steps such as

- Deployment,
- Maintenance,
- Shipment,
- Marketing the product.

MULTIMEDIA CONCEPTS

Multimedia Authoring

- Multimedia authoring is the process of creating an interactive multimedia application that can be delivered using a variety of mediums such as web pages, CD-ROMs, DVD, mobile apps etc.
- Multimedia authoring integrate different types of media contents like text, audio, image, animations and video as a single stream of information with the help of various Multimedia authoring tools.

MULTIMEDIA CONCEPTS

Multimedia Authoring

The author brings all of the different multimedia components together into one program and provides structure, navigation, and interactivity for the user.

MULTIMEDIA CONCEPTS

Multimedia Authoring

The authoring process develop products, including:

- ✓ Educational Applications
- ✓ Computer-based training Application
- ✓ Reference systems
- ✓ Simulations Application
- ✓ Virtual Environments
- ✓ Entertainment programs and games
- ✓ Interactive information kiosks

MULTIMEDIA CONCEPTS

Multimedia Authoring

Authoring Tool

- Multimedia authoring tools give an integrated environment for joining together the different elements of a multimedia production.
- It provides a framework for organizing and editing the components of a multimedia project.

MULTIMEDIA CONCEPTS

Multimedia Authoring

Authoring Tool

Two basic features:

- The ability to create and edit a multimedia product
- Presentation scheme for delivering product

MULTIMEDIA CONCEPTS

Multimedia Authoring

Perspective in Multimedia Authoring Tool

- Tool (any software package that could author multimedia product)
- Product (the results of all multimedia components)
- Developer (designers, programmers, and multimedia authors)
- End user (customer or viewer)

MULTIMEDIA CONCEPTS

Multimedia Authoring

Features of Authoring Tool

- ✓ Editing and organizing features
- ✓ Programming features
- ✓ Interactivity features
- ✓ Timing and playback features
- ✓ Internet features
- ✓ Hypertext

MULTIMEDIA CONCEPTS

Multimedia Authoring

Features of Authoring Tool

✓ Editing

Most authoring environment and packages provides capabilities to create, edit and convert different kinds of media.

Example: Macromedia flash tool comes with an inbuilt sound editor

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Multimedia Authoring

Features of Authoring Tool

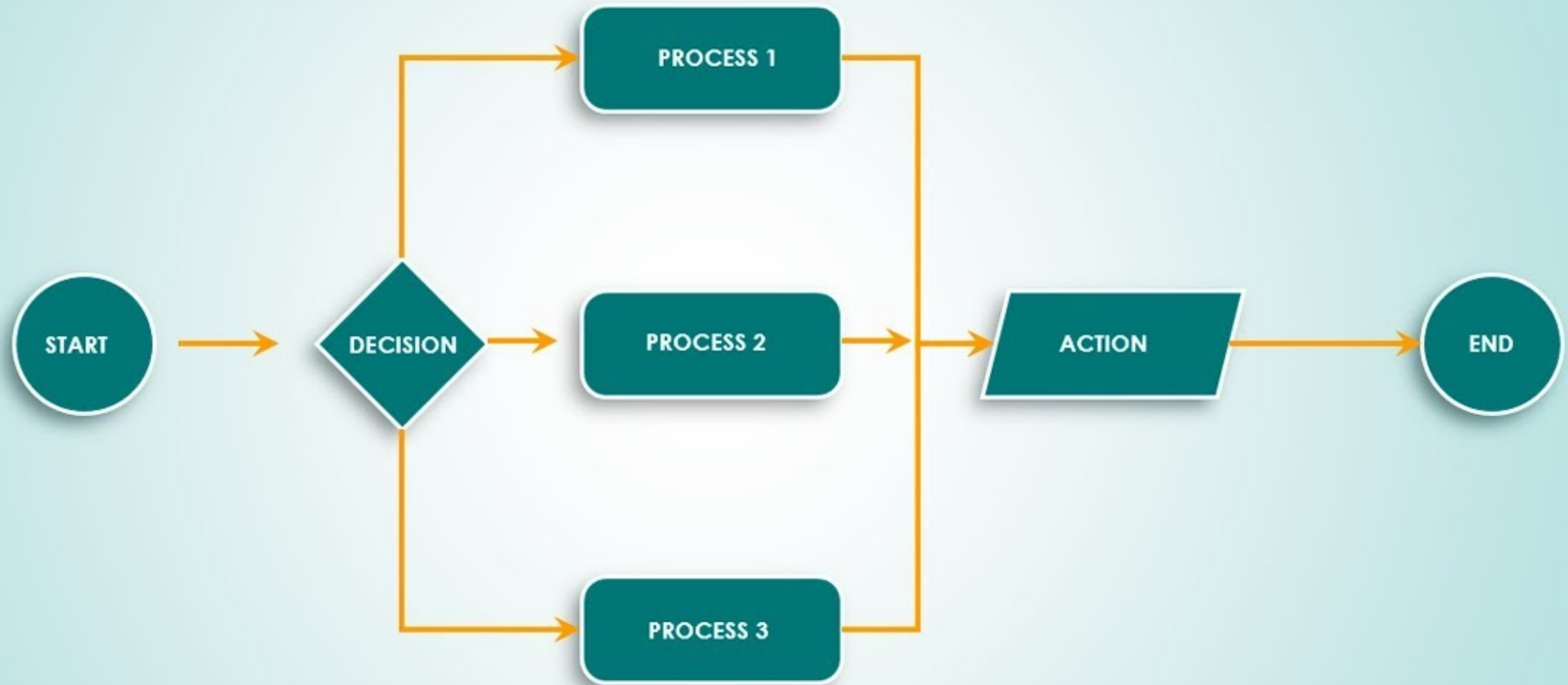
✓ Organizing features

Organization of multimedia product is achieved with navigation diagrams and flowcharting.

Some authoring tools provide a visual flowcharting facility to showcase your project's structure

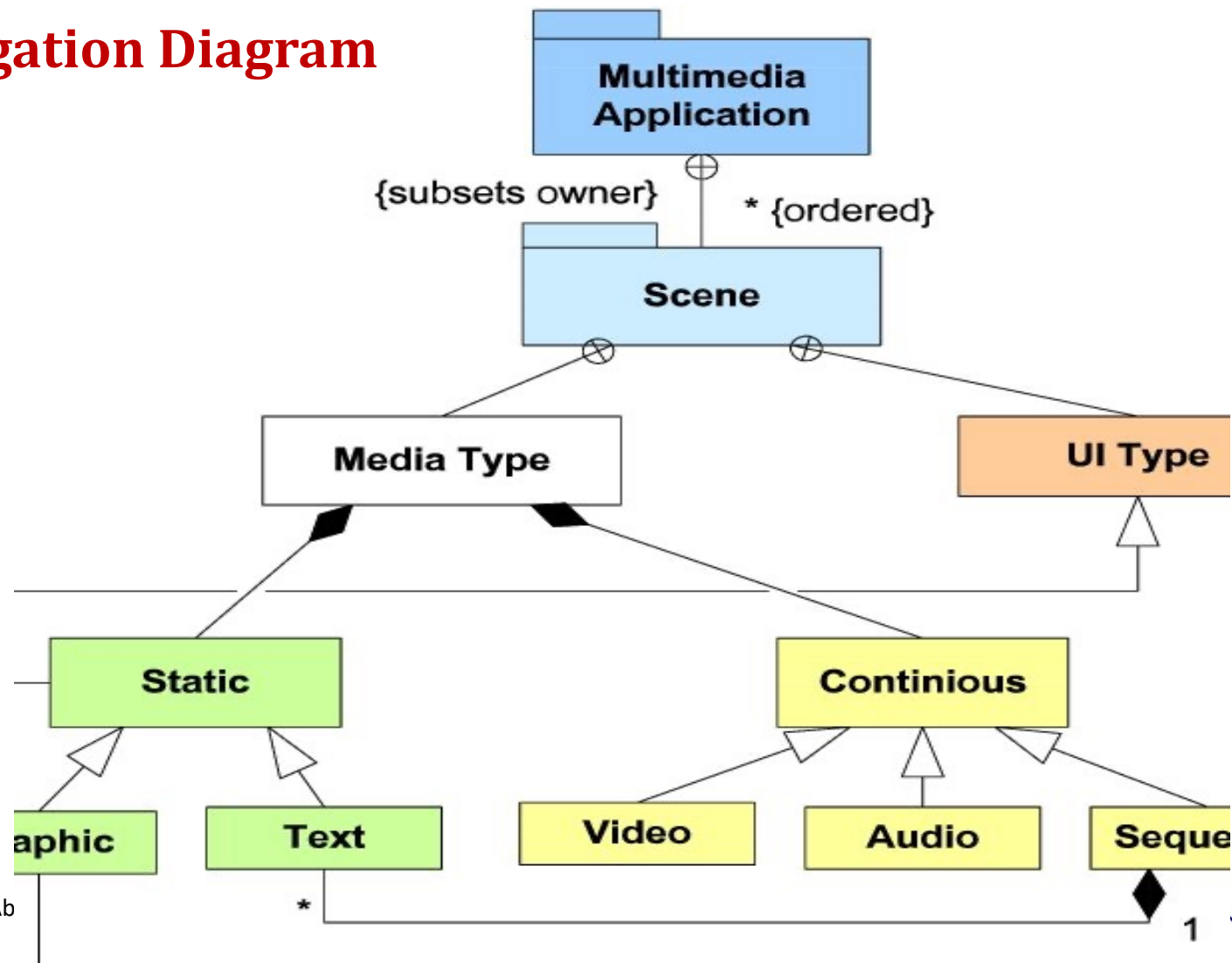
MULTIMEDIA CONCEPTS

FLOWCHART/PROCESS FLOW DIAGRAM



MULTIMEDIA CONCEPTS

Navigation Diagram



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Multimedia Authoring

Features of Authoring Tool

- ✓ Programming features

Visual programming

This provides Visual programming with icons or objects which allow various media to be selected during authoring process by clicking appropriate icons.

Scripting programming

It also provides Programming with a scripting language- which offers the ability to write scripts for software to build features that are not supported by the software itself.



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Multimedia Authoring

Features of Authoring Tool

✓ Interactivity features

Interactivity enables the end users to control the content and flow of information of the application.

Authoring tools may provide one or more levels of interactivity such as using forms, text boxes, pop ups

MULTIMEDIA CONCEPTS

Multimedia Authoring

Features of Authoring Tool

- ✓ Timing and playback features

when you are developing multimedia project, you will continuously assemble elements and test to see how the assembly looks and performs.

MULTIMEDIA CONCEPTS

Multimedia Authoring

Features of Authoring Tool

✓ Internet features

Due to the fact that the web has become a significant delivery medium for multimedia, authoring systems typically provide a means to convert their output so that it can be delivered within the context of HTML or DHTML.

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Multimedia Authoring

Features of Authoring Tool

✓ Hypertext features

Most authoring tools have hypertext capabilities used to link graphics, some animation and other text.

They help to create Hypermedia

MULTIMEDIA CONCEPTS

Multimedia Authoring

Classification / Types of Authoring Tool

- ✓ Card-Based tools
- ✓ Time-Based tools
- ✓ Icon-Based, event driven Authoring tools
- ✓ Web page tools

MULTIMEDIA CONCEPTS

Multimedia Authoring

Classification / Types of Authoring Tool

✓ Card-Based tools

In these authoring systems, elements are organized as pages of a book or a stack of cards.

The authoring system provides means to link these pages or cards into an organized sequence.

You can jump to any page in a structured navigation pattern. This system allow you to play audio, video and animation

MULTIMEDIA CONCEPTS

Multimedia Authoring

Classification / Types of Authoring Tool

✓ Card-Based tools

Example of Card-Page based system are:

HyperCard (Macintosh):

SuperCard (Macintosh):

ToolBook (Windows)

Visual BASIC (Windows)

Power Point (Windows)

HyperNext Studio

MULTIMEDIA CONCEPTS

Multimedia Authoring

Classification / Types of Authoring Tool

✓ HyperCard (Macintosh):

HyperCard is a software Application and development kit for Apple Macintosh computers.

It is among the first successful hypermedia systems predating the World Wide Web.

HyperCard combines a flat-file database with a graphical, flexible, user-modifiable interface.

MULTIMEDIA CONCEPTS

Multimedia Authoring

Classification / Types of Authoring Tool

✓ HyperCard (Macintosh):

HyperCard is based on the concept of a "stack" of virtual "cards" where each Card holds data.

Each card contains a set of interactive objects, including text fields, check boxes, buttons.

Users browse the stack by navigating from card to card, using built-in navigation features

HyperCard contains an object oriented scripting language called HyperTalk

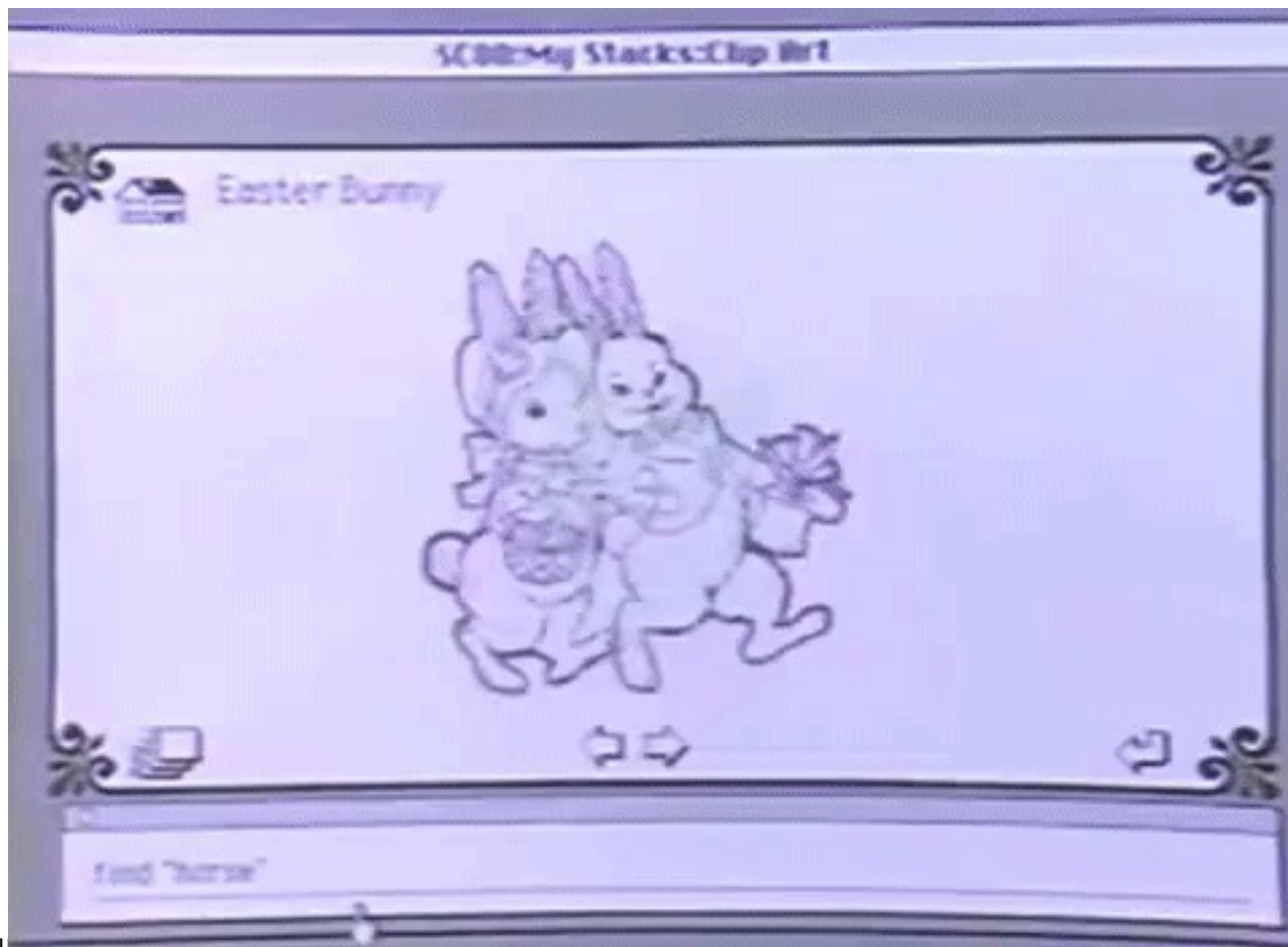
Final release was 1998

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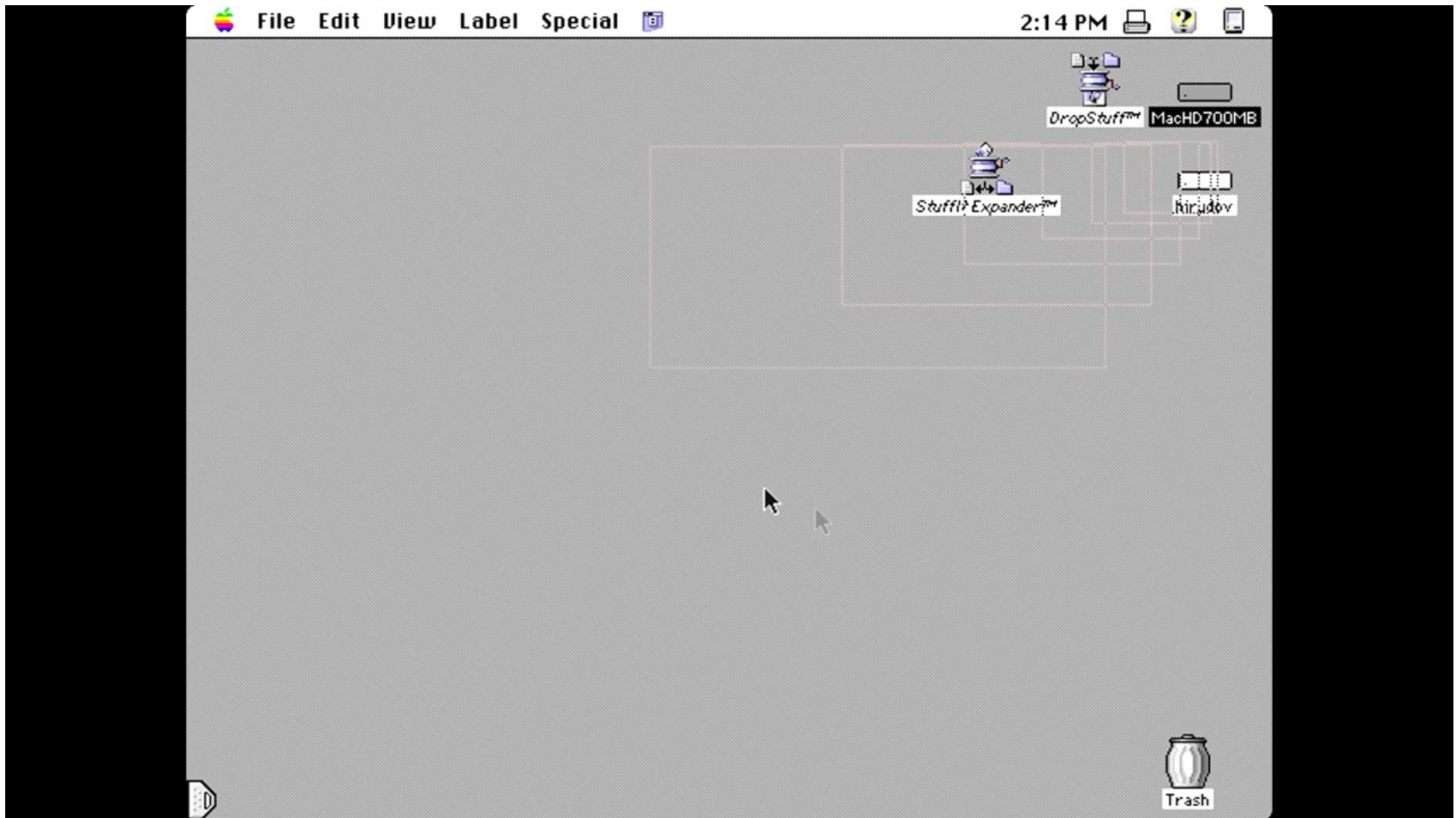
Stack of cards



MULTIMEDIA CONCEPTS



MULTIMEDIA CONCEPTS



MULTIMEDIA CONCEPTS

Multimedia Authoring

Classification / Types of Authoring Tool

✓ SuperCard (Macintosh):

SuperCard is a high-level development environment that runs on Macintosh computers

The programming language used by SuperCard is called SuperTalk, and is largely based on HyperTalk

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Multimedia Authoring

Classification / Types of Authoring Tool

✓ ToolBook (Windows)

ToolBook is a Microsoft Windows based e-learning content authoring application.

ToolBook uses a book metaphor — a project file is thought of as a book containing pages of content.

MULTIMEDIA CONCEPTS

Multimedia Authoring

Classification / Types of Authoring Tool

✓ ToolBook (Windows)

ToolBook books typically consist of a series of pages through which the user will navigate by clicking on buttons, hyperlinked text and other active objects on the page.

ToolBook allows for the creation of applications and training materials for Windows and/or the web

MULTIMEDIA CONCEPTS

Multimedia Authoring

Classification / Types of Authoring Tool

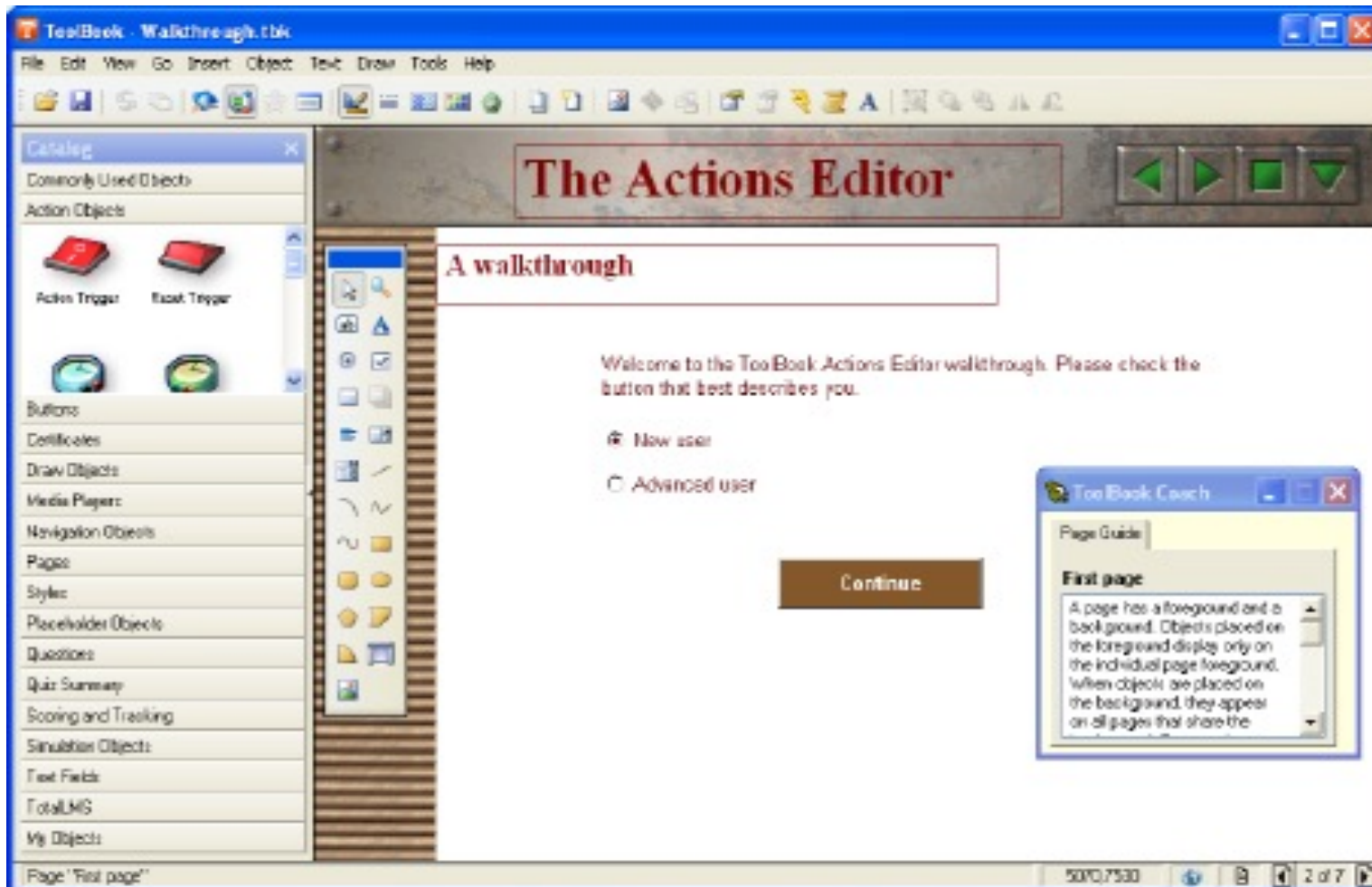
✓ ToolBook (Windows)

ToolBook contains two different programming environments:

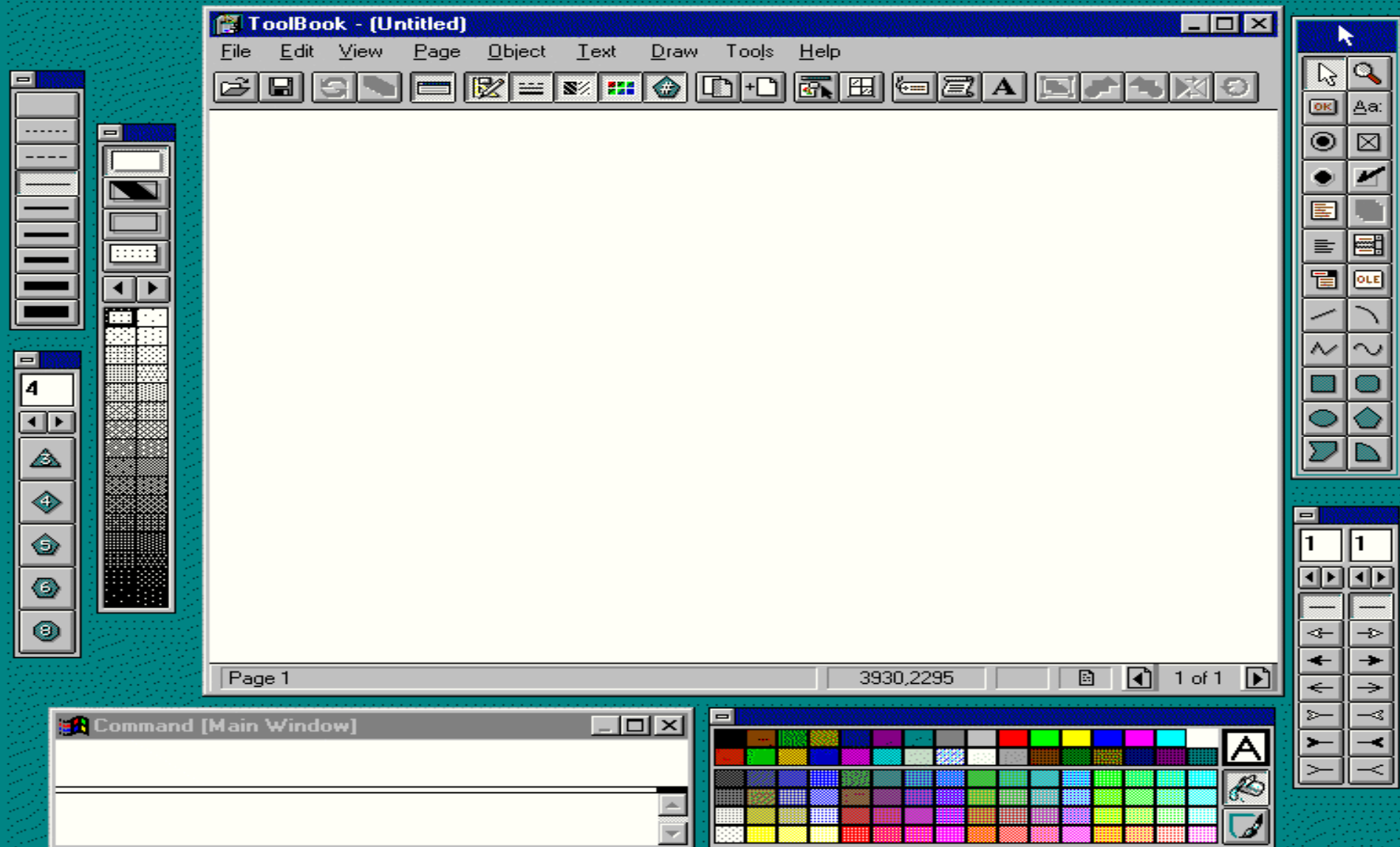
OpenScript: ToolBook contains an embedded programming language called OpenScript, similar to HyperTalk. OpenScript is object oriented and event-driven,

Actions Editor: The Actions Editor is another programming environment where the syntax is virtually identical to OpenScript. However, the Actions Editor is not as powerful a language as OpenScript.

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Multimedia Authoring

Classification / Types of Authoring Tool

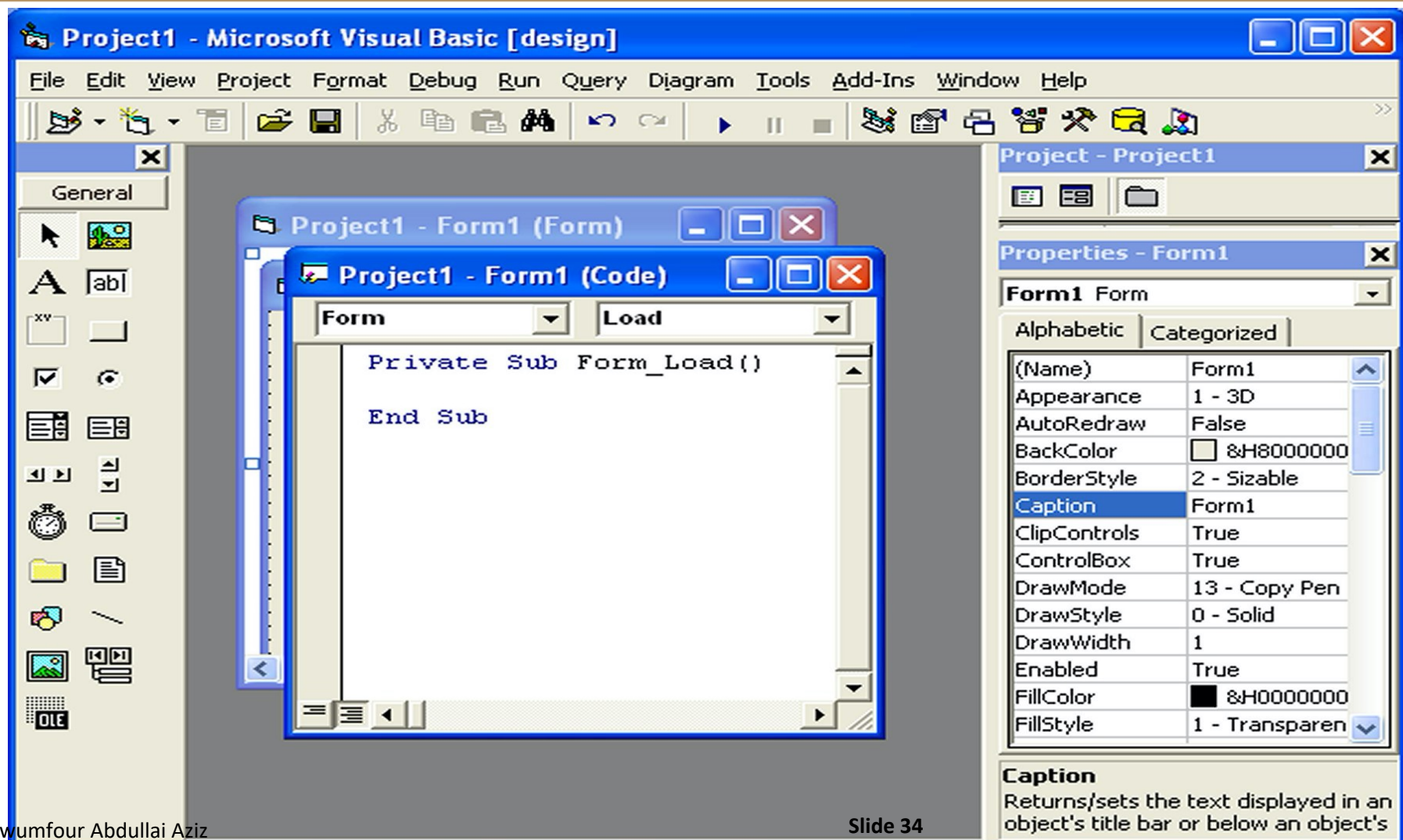
✓ Visual BASIC (Windows)

Visual Basic (VB) is an event-driven programming language and environment from Microsoft that provides a graphical user interface (GUI) which allows programmers to modify code by simply dragging and dropping objects and defining their behaviour and appearance.

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MULTIMEDIA CONCEPTS



MULTIMEDIA CONCEPTS

Multimedia Authoring

Classification / Types of Authoring Tool

✓ Time-Based tools

Time based authoring tools allow the designer to arrange various elements and events of the multimedia project along a well defined time line.

As the time advances from starting point of the project, the events begin to occur, one after another.

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Multimedia Authoring

Classification / Types of Authoring Tool

✓ Time-Based tools

These tools are best to use for those projects where information flow can be directed from beginning to end much like the movies.

Good for creating animations

Example of Time based tools are:

- Macromedia's Director
- Macromedia Flash

Time based Authoring Tool (Macromedia Director



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Multimedia Authoring

Classification / Types of Authoring Tool

✓ Icon-Based tools

Icon-based tools give a visual programming approach to organizing and presenting multimedia.

It allows you to build a structure or flowchart of events, tasks and decisions by dragging appropriate icons from a library.

Each icon does a specific task such as play sound, display image, play video, which represent an event

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Multimedia Authoring

Classification / Types of Authoring Tool

✓ Icon-Based tools

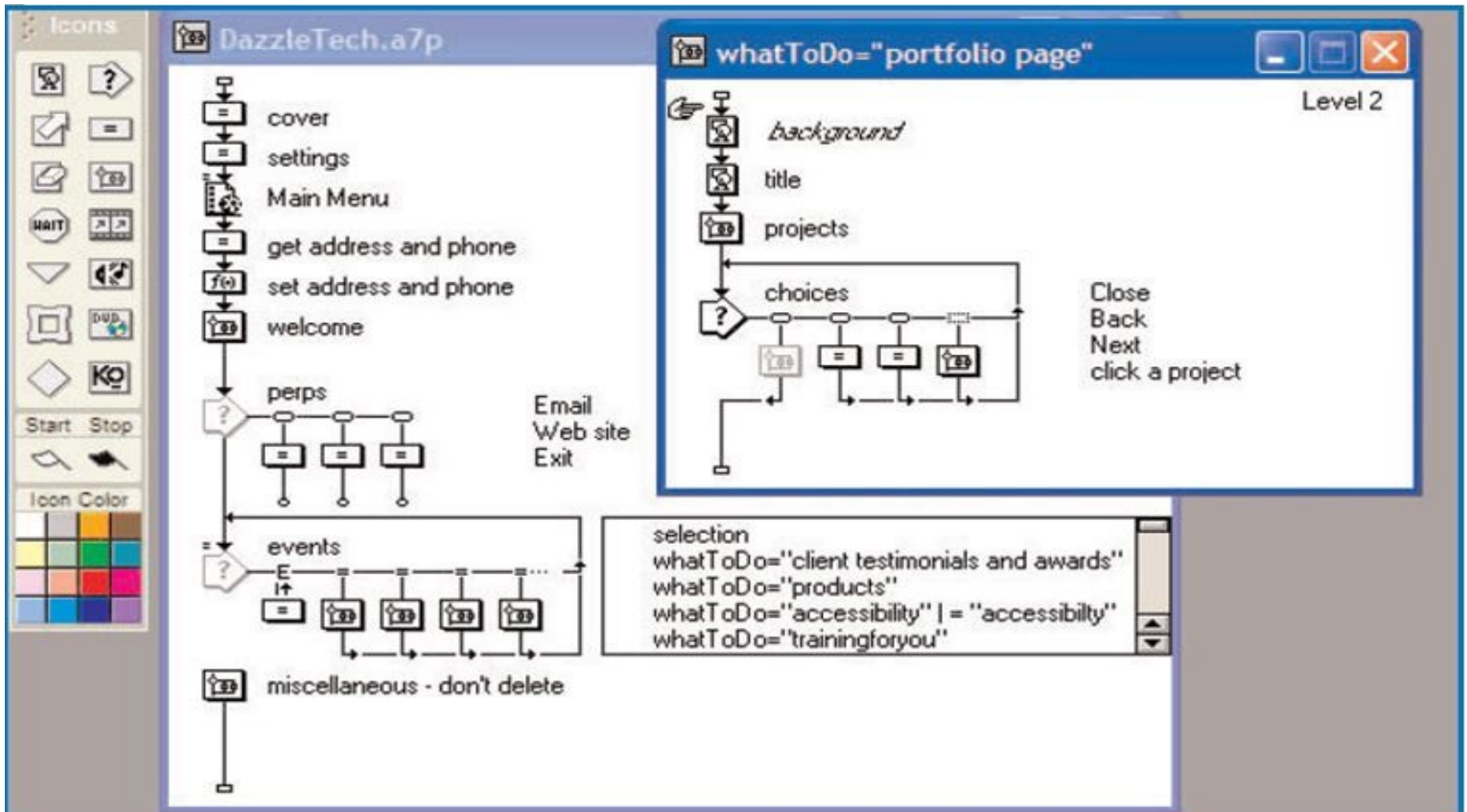
Icon-based, event-driven systems are suited to a wide range of applications and offer a high level of support when developing packages with complex navigation structures.

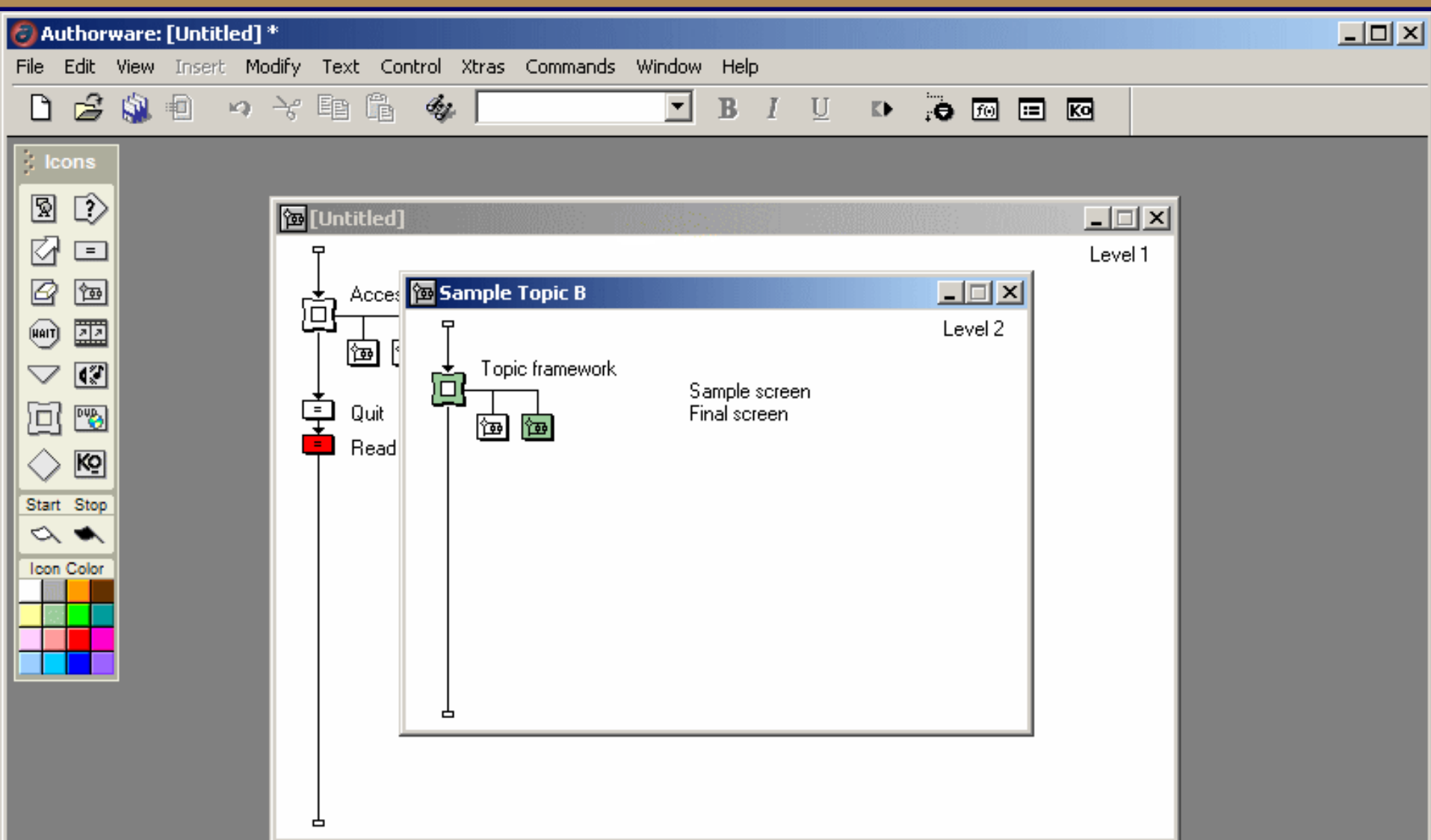
Macromedia Authorware Professional (Mac/Windows)

Icon Author (Windows)

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Icon Based Tool





Icon Based Tool

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Multimedia Authoring

Classification / Types of Authoring Tool

✓ Object-Oriented tools

Object oriented authoring tools support environment based on object.

Each object has the following two characteristics:

- State/Attribute: describe properties of object (size, color)
- Behaviour/Operation: functions of object (play, stop, resize)

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Multimedia Authoring

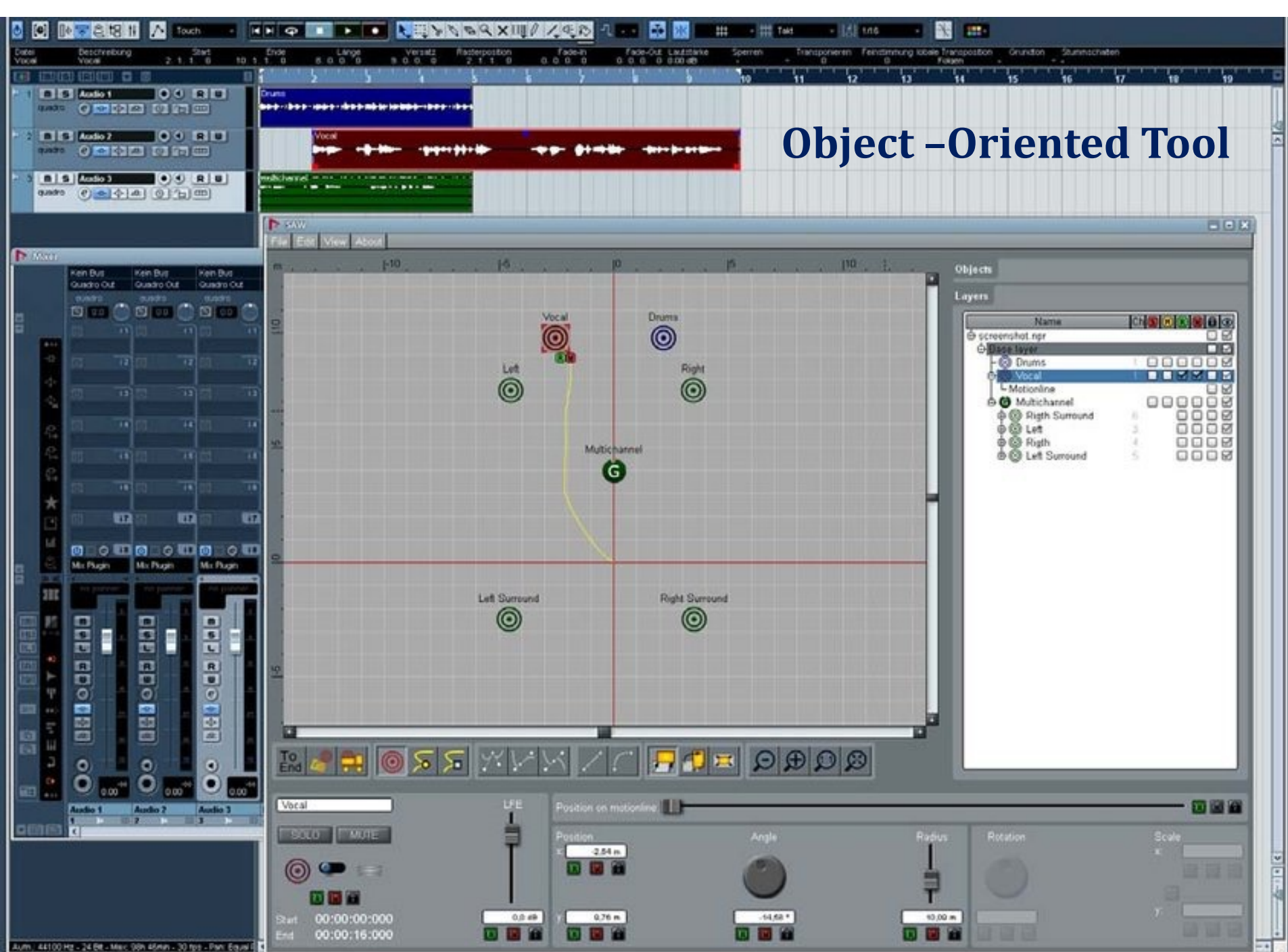
Classification / Types of Authoring Tool

✓ Object-Oriented tools

Example of Object-Oriented tools

- mTropolis (Mac/Windows)
- Apple Media Tool (Mac/Windows)
- Media Forge (Windows)

Object-Oriented Tool



MULTIMEDIA CONCEPTS

Multimedia Authoring with Programming Language

- Multimedia product still can be developed using programming language.
- However, programming multimedia can be extensive and labour-intensive.
- Authoring tools can save a lot of time and money.

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Multimedia Authoring

Text Editor

- A text editor is a type of program used for editing plain text files
- Text editors are often provided with operating systems or software development packages, and can be used to change configuration files and programming language source code

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Multimedia Authoring

Text Editor

Common features include;

- Cut, copy and paste
- Text formatting
- Undo and redo
- Data transformation

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Multimedia Authoring

Text Editor

Examples:

- Windows Notepad
- Emacs
- BBEdit
- Sublime text
- Notepad++

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Image Editor

A graphics program that provides a variety of special features for editing bitmap images.

Common features:

- Selection
- Layers
- Image size alteration
- Crop
- Enhancing images
- Change colour depth

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Multimedia Authoring

Image Editor

Examples of Image Editor

- Adobe Photoshop
- GIMP (freeware)
- Adobe fireworks
- Microsoft Office Picture
- Fotografix (freeware)

MULTIMEDIA CONCEPTS

Multimedia Authoring

Image Editor

Examples of Image Editor

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MULTIMEDIA CONCEPTS

Multimedia Authoring

Image Editor

Adobe Photoshop

- Photoshop is the standard tool for graphics, image processing, and image manipulation.
- Layers of images, graphics, and text can be separately manipulated for maximum flexibility, and its set of filters permits creation of sophisticated lighting effects.

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Image Editor

Adobe illustrator

- Illustrator is a powerful publishing tool for creating and editing vector graphics, which can easily be exported to use on the Web.

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Multimedia Authoring

Image Editor

Adobe fireworks

- Fireworks is software for making graphics specifically for the Web. It includes a bitmap editor, a vector graphics editor, and a JavaScript generator for buttons and rollovers.

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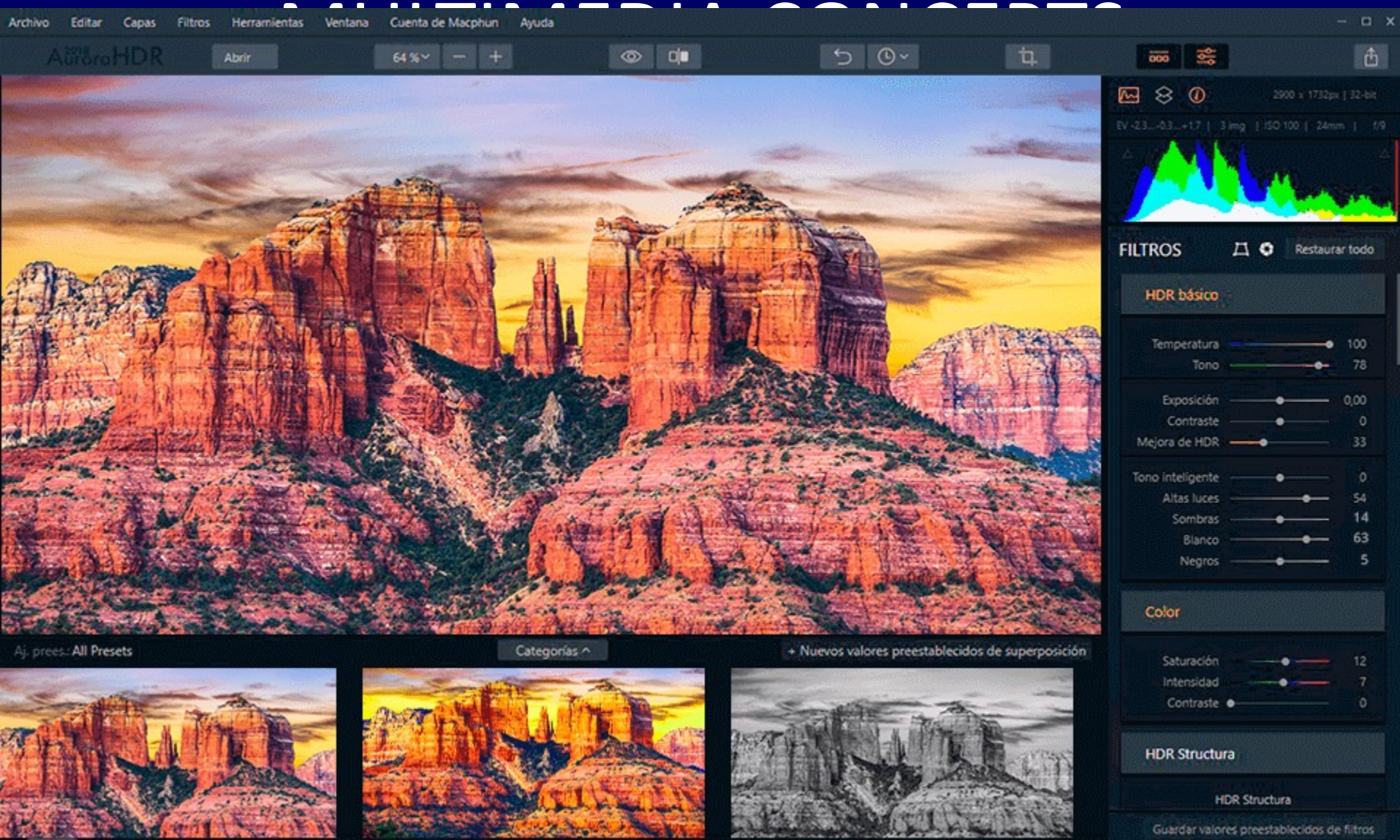
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Image Editor

Adobe Freehand

- Freehand is a text and web graphics editing tool that supports many bitmap formats, such as GIF, PNG, and JPEG. These are pixel-based formats, in that each pixel is specified.
- It also supports vector-based formats, in which endpoints of lines are specified instead of the pixels themselves, such as SWF (Adobe Flash). It can also read Photoshop format

Image Editor



MULTIMEDIA CONCEPTS

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Drawing Editor

Drawing program is a computer program that allows users to compose and edit vector graphics images interactively on the computer screen.

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Multimedia Authoring

Drawing Editor

Drawing programs are better for

- Graphic design
- Page layout
- Logos
- Sharp-edged artistic illustrations (e.g. cartoons, clip art, complex geometric patterns)
- Technical illustrations, etc.

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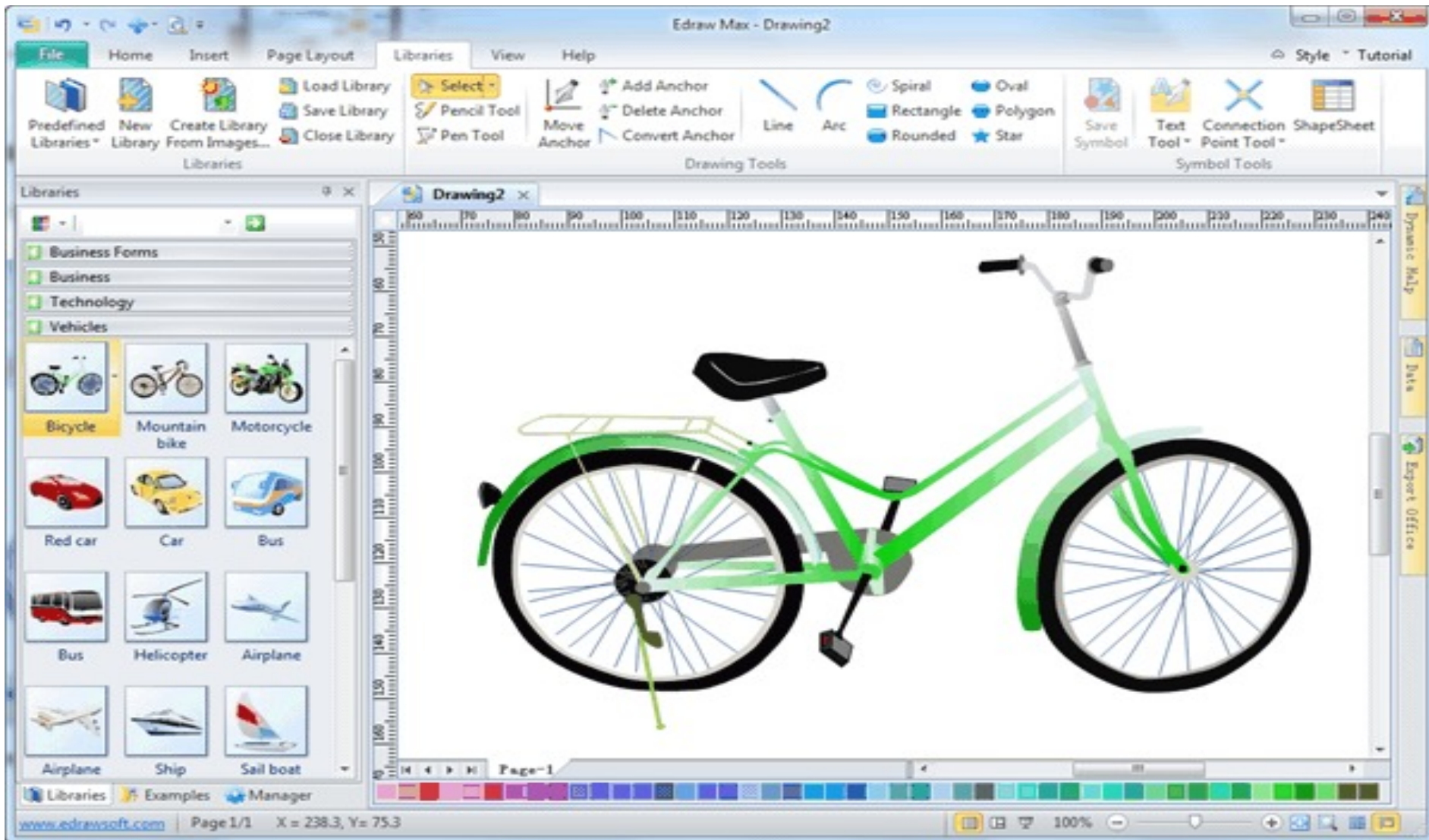
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Drawing Editor

Drawing Program Examples

- Xfig
- Inkscape (freeware)
- Adobe Illustrator
- CorelDRAW

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Computer Animation

- Computer animation can be created with an animation software.
- Some impressive animation can be achieved even with basic programs; however, the rendering can take a lot of time on an ordinary home computer.

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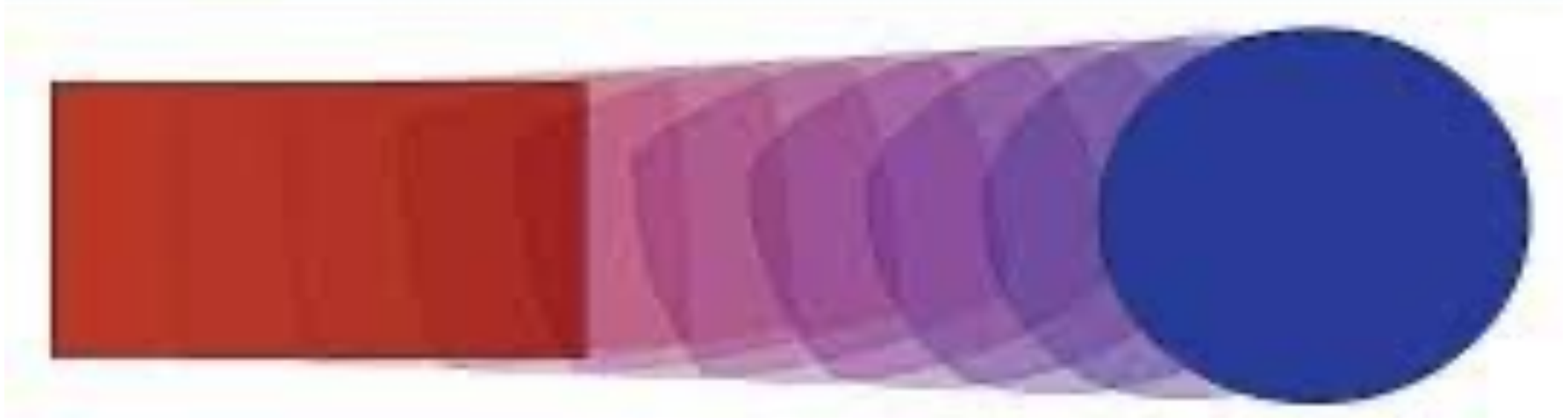
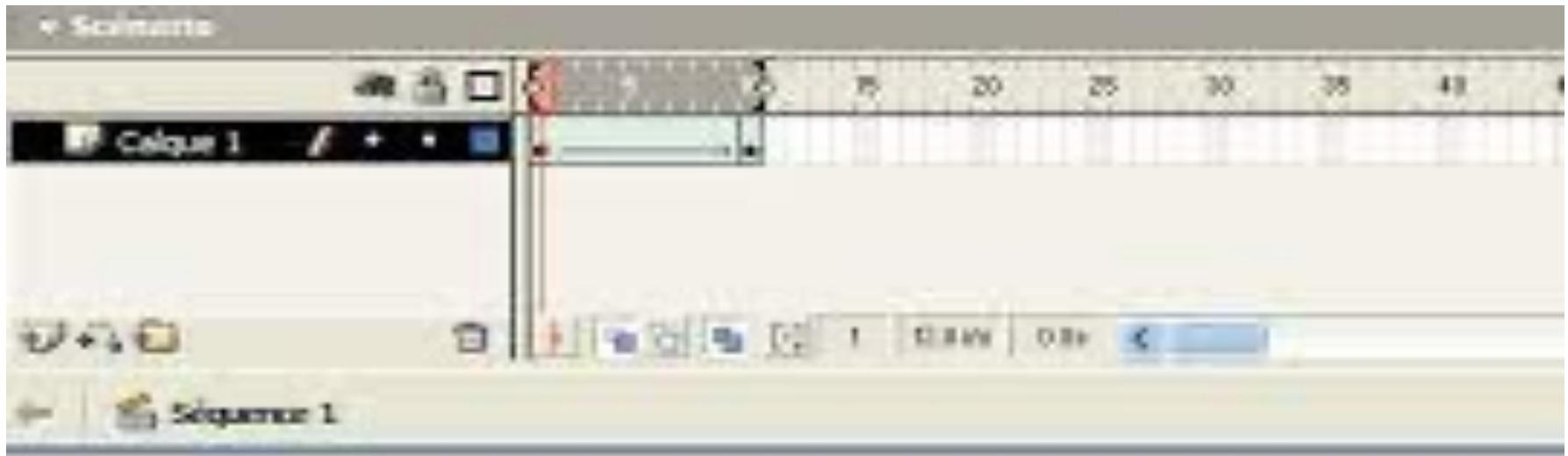
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Computer Animation Techniques

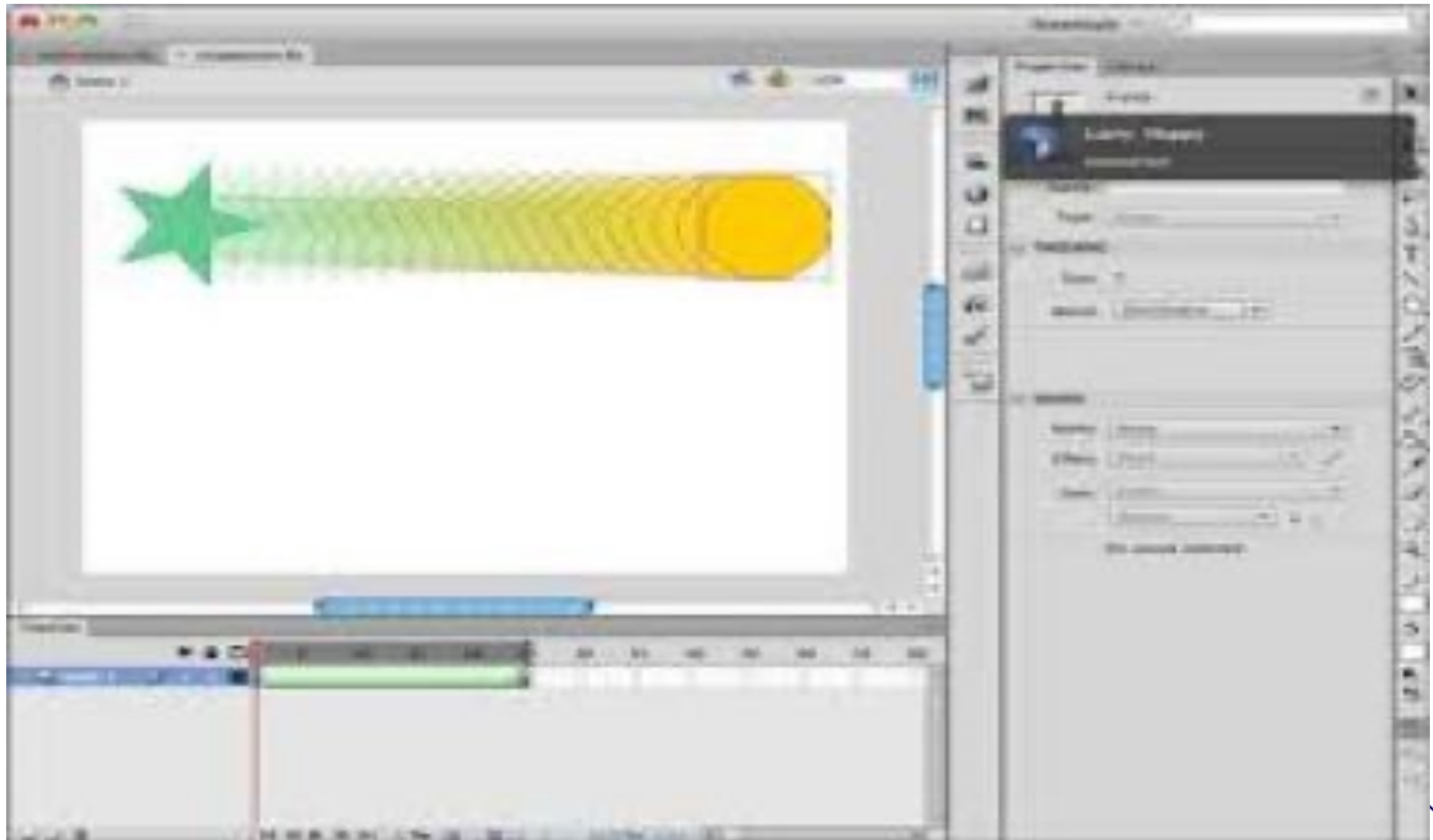
Tweening

- Inbetweening or tweening is the process of generating intermediate frames between two images to give the appearance that the first image evolves smoothly into the second image.

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Multimedia Authoring

Computer Animation Techniques

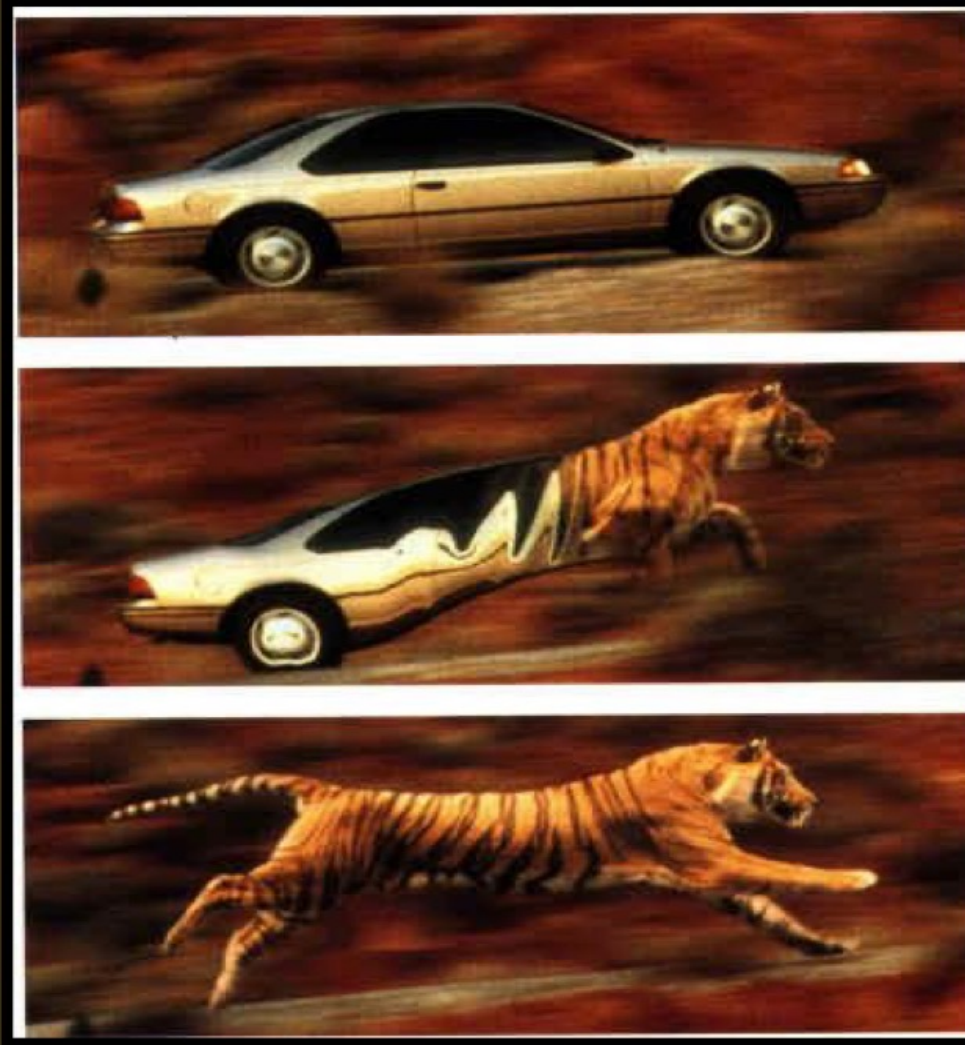
Morphing

Morphing is a special effect in motion pictures and animations that changes (or morphs) one image into another through a seamless transition.

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MULTIMEDIA CONCEPTS



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Multimedia Authoring

Computer Animation Techniques

Onion Skinning

- Onion skinning a technique used in creating animated cartoons and editing movies to see several frames at once.
- This way, the animator can make decisions on how to create or change an image based on the previous image in the sequence

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MULTIMEDIA CONCEPTS



MULTIMEDIA CONCEPTS

Multimedia Authoring

Computer Animation Software

- Adobe Flash
- Adobe Image Ready
- XARA 3D
- Ulead GIF Animator

MULTIMEDIA CONCEPTS

Multimedia Authoring

Waveform Editor / Audio Editor

- Waveform programs is a computer application for audio editing,
- it provides framework for manipulating digital audio.

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Multimedia Authoring

Waveform Editor

Allow the user to do the following:

- Record audio and store as digital audio
- Mix multiple sound sources/tracks
- Apply simple or advanced effects or filters
- Conversion between different audio file formats, or between different sound quality levels

MULTIMEDIA CONCEPTS

Multimedia Authoring

Waveform Editor

Examples of Waveform Editor:

- Adobe Audition
- Sound Forge
- Pro Tools
- Creative Wavestudio
- Wavelab

MULTIMEDIA CONCEPTS

Multimedia Authoring

Waveform Editor

Adobe Audition

- Adobe Audition (formerly Cool Edit) is a powerful, popular digital audio toolkit with capabilities (for PC users, at least) that emulate a professional audio studio, including multitrack productions and sound file editing, along with digital signal processing effects.

MULTIMEDIA CONCEPTS

Multimedia Authoring

Waveform Editor

Sound Forge

- Like Audition, Sound Forge is a sophisticated PC-based program for editing WAV files.
- Sound can be captured through the sound card, and then mixed and edited.
- It also permits adding complex special effects.

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Multimedia Authoring

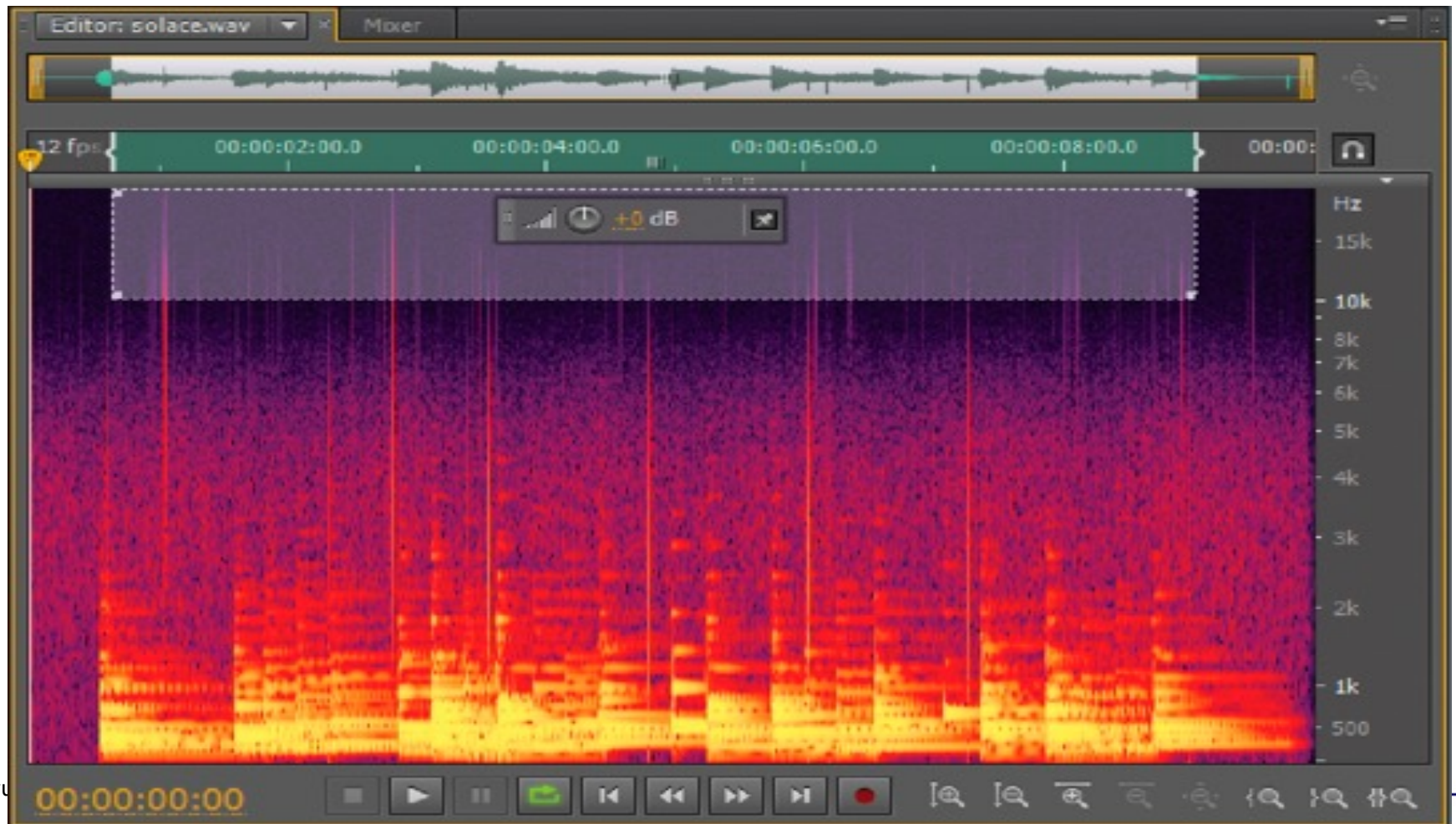
Waveform Editor

Pro Tools

- Pro Tools is a high-end integrated audio production and editing environment that runs on Macintosh computers as well as Windows.
- Pro Tools offers easy MIDI creation and manipulation as well as powerful audio mixing, recording, and editing software.
- Full effects depend on purchasing a dongle.

MULTIMEDIA CONCEPTS

Adobe Audition Editor



MULTIMEDIA CONCEPTS

Multimedia Authoring

Video Editing Program

Video editing program is application software which handles the editing of video sequences on a computer.

Common features:

- Splitting
- Add background sound
- Transition
- Crop
- Add title
- Add special effect

MULTIMEDIA CONCEPTS

Multimedia Authoring

Video Editing Program

Examples of Video Editing Program

- Adobe Premiere
- CyberLink PowerDirector
- Adobe After Effects
- Final Cut Pro
- Pinnacle Studio
- Windows Movie Maker

MULTIMEDIA CONCEPTS

Multimedia Authoring

Video Editing Program

Adobe Premiere

- Premiere is a simple, intuitive video editing tool for nonlinear editing—putting video clips into any order. Video and audio are arranged in tracks, like a musical score.
- It provides a large number of video and audio tracks, superimpositions, and virtual clips.
- A large library of built-in transitions, filters, and motions for clips allows easy creation of effective multimedia productions

MULTIMEDIA CONCEPTS

Multimedia Authoring

Video Editing Program

PopwerDirector

- PowerDirector produced by CyberLink Corp. is by far the most popular nonlinear video editing software.
- It provides a rich selection of audio and video features and special effects and is easy to use.

MULTIMEDIA CONCEPTS

Multimedia Authoring

Video Editing Program

PopwerDirector

- It supports all modern video formats including AVCHD 2.0, 4K Ultra HD, and 3D video. It supports 64-bit video processing, graphics card acceleration, and multiple CPUs. Its processing and preview are much faster than Premiere.
- However, it is not as “programmable” as Premiere.

MULTIMEDIA CONCEPTS

Multimedia Authoring

Video Editing Program

Adobe After Effect

- After Effects is a powerful video editing tool that enables users to add and change existing movies with effects such as lighting, shadows, and motion blurring.
- It also allows layers, as in Photoshop, to permit manipulating objects independently.

MULTIMEDIA CONCEPTS

Multimedia Authoring

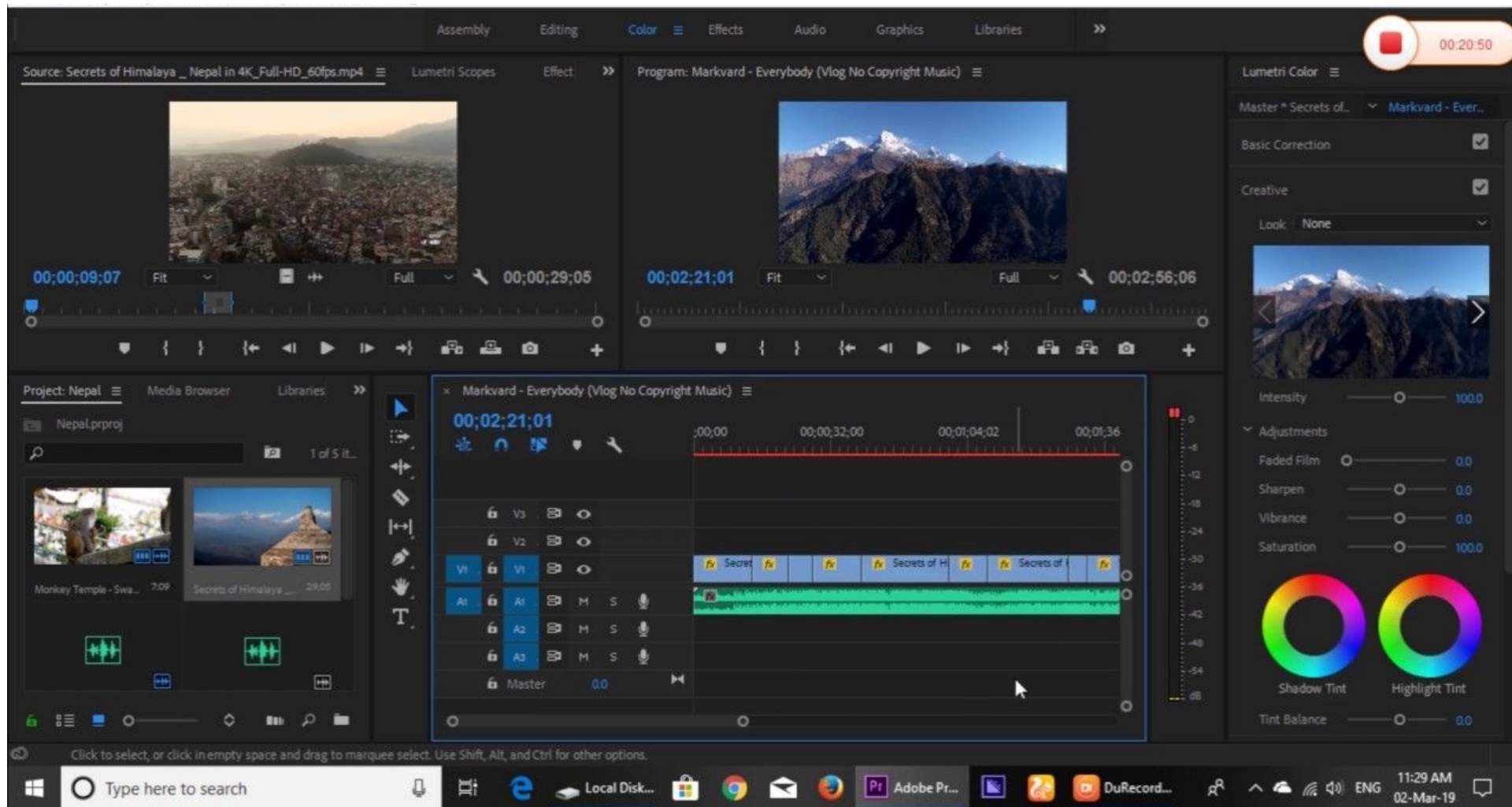
Video Editing Program

Final Cut Pro

- Final Cut Pro is a video editing tool offered by Apple for the Macintosh platform.
- It allows the input of video and audio from numerous sources, and provides a complete environment, from editing and color correction to the final output of a video file.

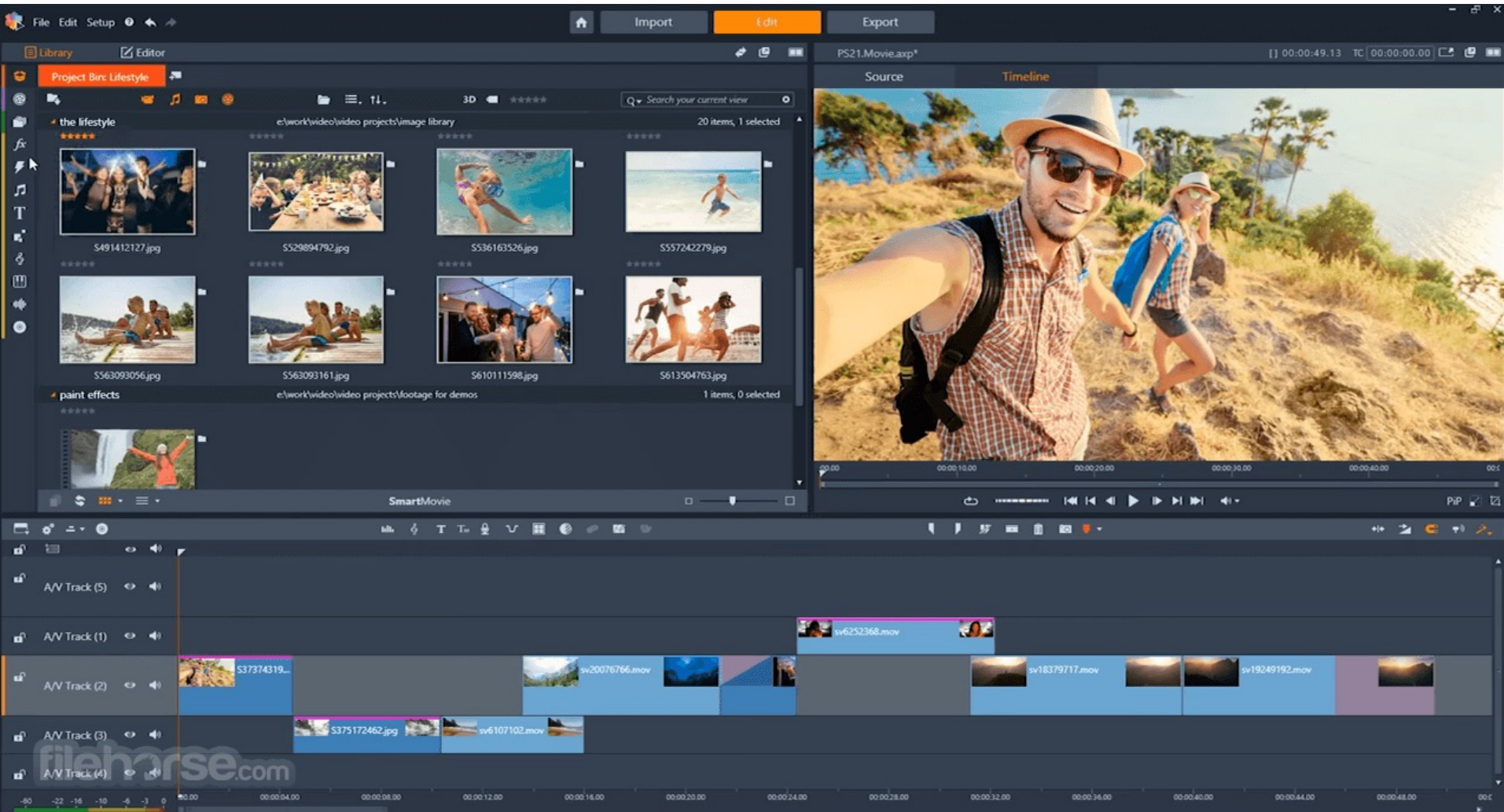
MULTIMEDIA CONCEPTS

Adobe Premiere



MULTIMEDIA CONCEPTS

Pinnacle Studio



MULTIMEDIA CONCEPTS

Image Representation and Size Estimation

- Digital image are images stored in binary form, which composed of picture elements called pixels
- Digital image can be classified into two;
 - ✓ Raster Graphic
 - ✓ Vector Graphic

MULTIMEDIA CONCEPTS

Image Representation and Size Estimation

- ✓ Raster Graphic (Grid of Pixels: bitmap)

These have rough edges when scaled up or expanded

Best suited for photographs

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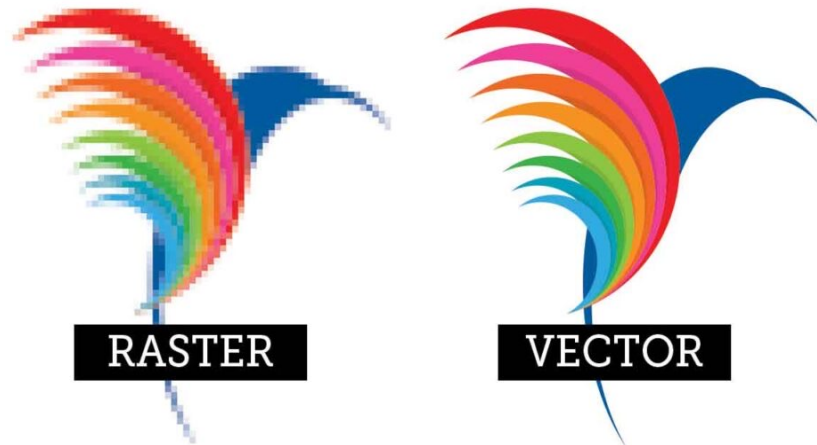
Image Representation and Size Estimation

✓ Vector Graphic (Geometric formulas)

Pixels are sharp when expanded

Best suited for logos, text and other elements that must remain sharp after enlarged

MULTIMEDIA CONCEPTS



Pixels vs. Vector



CLOSE-UP: VECTOR



CLOSE-UP: PIXEL

MULTIMEDIA CONCEPTS

Raster	Vector
<ul style="list-style-type: none">• Pixel-based• Best for photographs• More accessible and shareable• Large file sizes	<ul style="list-style-type: none">• Mathematical curves and lines• Best for logos, type, and geometric designs• Less accessible and shareable• Smaller file sizes

MULTIMEDIA CONCEPTS

Reducing file size

- Image compression is a process applied to a graphics file to minimize its size in bytes without degrading image quality below an acceptable threshold.
- By reducing the file size, more images can be stored in a given amount of disk or memory space.
- It is concerned with minimizing the number of bits required to represent an image.
- It also allows decompressing the compressed file back into its original form.

MULTIMEDIA CONCEPTS

Type of Image Compression

Image compression has two prime categories

- lossless compression technique
- lossy image compression.

These vary based on the image file resizing process.

While the lossless compression ensures the image quality remains intact, the lossy compression removes some parts to get a smaller size.

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Type of Image Compression

Lossy Compression

- Lossy compression is a type of data compression that discards some data during the compression process.
- The discarded data is considered unnecessary and redundant. Lossy compression works by removing any excessive or redundant data from most multimedia files.
- The compressed file does not rebuild or restore into its original form (irreversible compression)
- File size is significantly reduced but data quality is compromised



MULTIMEDIA CONCEPTS

Type of Image Compression

Lossy Compression

- Lossy compression results in more data storage.
- Lossless compression is used in images, audio and video.
- Algorithms used in lossy compression include; Transform coding, Discrete Cosine Transform, fractal compression , Discrete Wavelength Transform



MULTIMEDIA CONCEPTS

Type of Image Compression

Lossless Compression

- Lossless Compression is a type of compression that does not eliminate the data which is not noticeable.
- A compressed file can be restored or rebuild into the original file.
- It does not compromise the quality of the the data.
- It results into less data holding capacity
- Lossless compression is also referred to as reversible compression



MULTIMEDIA CONCEPTS

Type of Image Compression

Lossless Compression

- Though it is an excellent method to resize your image files, the outcome may still not be too small. That is because lossless compression does not eliminate any part of the image.
- Lossless compression is used in text, images, sound
- Algorithms used are Run length Encoding, Lempel-Ziv-Welch, Huffman coding , Arithmetic coding



MULTIMEDIA CONCEPTS

Image Size Estimation

- A pixel or picture element is the smallest element of information in an image.
- Pixels are arranged in a 2-dimensional mesh, represented using squares.
- Each pixel is the smallest sample of an original image
- The higher the number of pixels the more-accurate representations the original image.

MULTIMEDIA CONCEPTS

Image Size Estimation

Image file Rasterization

- Rasterization converts an image data into a grid of pixels.
- Each pixel in a rasterized image has a number of bits to designate its colors

MULTIMEDIA CONCEPTS

Image Size Estimation

Three important parameters for computing image size

- Bit/Color-depth
- Resolution
- Number of Colors of the image

Bit-depth: Number of bits per pixel

Resolution: Pixel count/(Horizontal vs vertical Pixels)

Number of colours: is given by 2^x where x is the bit-depth

MULTIMEDIA CONCEPTS

Image Size Estimation

Computing color-depth

Compute the color-depth for an image that has 2 colours

$$2^x = 2 \Rightarrow x = 1$$

Hence the image has a color-depth of 1

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Image Size Estimation

Image size = Image resolution * color depth

Consider a 4x4 image with color-depth of 1, what is the image size?

Image size = $4 * 4 * 1 = 16$ bits

MULTIMEDIA CONCEPTS

Image Data Types

1-bit Image

- In 1-bit images, each pixel is stored as a single bit (0 or 1).
- A bit has only two states either on or off, white or black, true or false.
- Therefore, such an image is also referred to as a binary image, since only two states are available.
- 1-bit image is also known as 1-bit monochrome images because it contains one color that is black for off state and white for on state.

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1 bit



2 bits



3 bits



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Image Data Types

1-bit Image

Consider a 1-bit image with resolution 600x800, the image size is

480000 bits = 60000byte=58.5KB

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Image Data Types

8-bit Gray Image

- Each pixel of 8-bit Gray level image is represented by a single byte (8 bits).
- Each pixel of such image can hold $2^8=256$ values between 0 and 255, which represent 256 different shades of gray
- Therefore each pixel has a brightness value on a scale from black (0 for no brightness or intensity) to white (255 for full brightness or intensity).
- Each pixel stores intensity information, with black being the lowest intensity and white being the strongest

MULTIMEDIA CONCEPTS

8 bits



16 bits



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Image Data Types

24-bit color images

- In 24-bit color image, each pixel is represented by 24 bit (3-bytes), which represent RGB (Red, Green and Blue).
- Each pixel represent a total of 16777216 color variations.
- The true color of each pixel contains 256 shades of RGB.

MULTIMEDIA CONCEPTS

Image File format

- Image formats are standardized forms of structuring and storing digital images.
- An image format may store data in one of the following format;
 - ✓ Uncompressed format
 - ✓ Compressed format (lossy or lossless)
 - ✓ Vector format

MULTIMEDIA CONCEPTS

Image File format

GIF: Graphic Interchange Format:

- GIF is a popular file format for web graphics and supported by most internet browsers.
- GIF supports 256 colors and can be animated
- If the image has less than 256 colors, GIF can easily render the image without any loss of quality.
- GIF files can be saved with a maximum of 256 colors, which makes it is a poor format for photographic images.

MULTIMEDIA CONCEPTS

Image File format

Advantages:

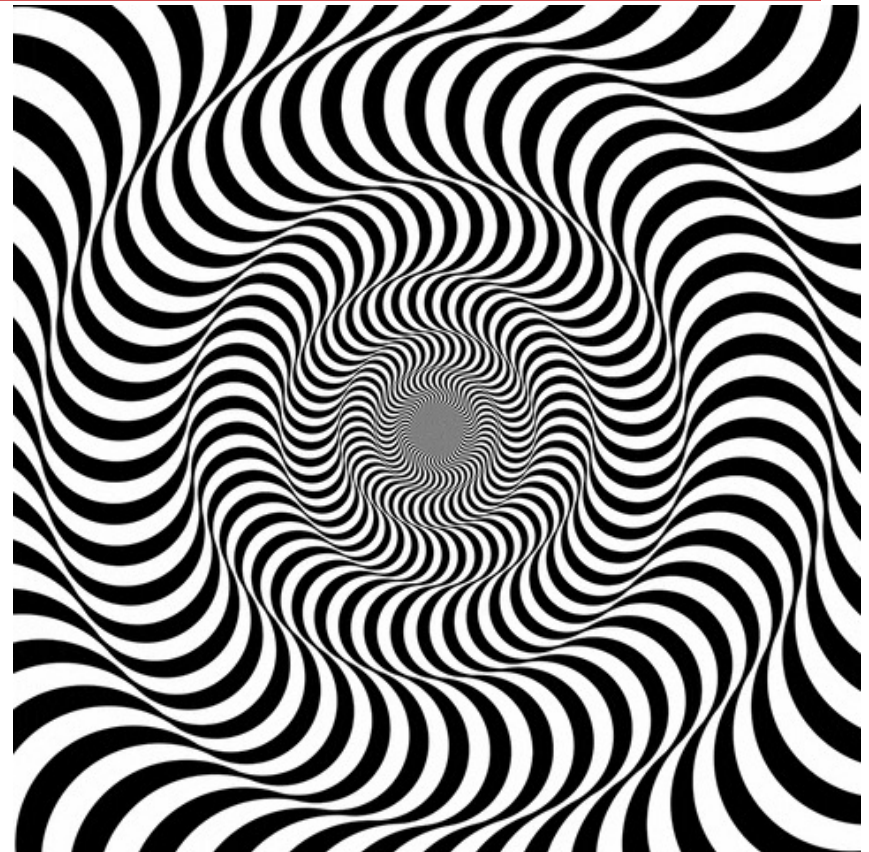
- The small file size makes GIF files ideal for use on the web
- Files can contain animation

Disadvantages:

- The limited colors make GIFs a poor choice for photos

MULTIMEDIA CONCEPTS

GIF Images



MULTIMEDIA CONCEPTS



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Image File format

JPEG: Joint Photographic Expert Group :

- This is a lossy compression format which reduces the image size with loss in image quality.
- Nearly all digital cameras save images in JPEG format.
- It is a very common format and are good for digital cameras, nonprofessional prints, E-Mail, Powerpoint etc., making it ideal for web use.
- The file extension is .jpg or .jpeg

MULTIMEDIA CONCEPTS

Image File format

Advantages:

- The small file size means more images can be stored on a single memory card
- Quicker file transfer times, due to the smaller file size

Disadvantages:

- Loss of quality due to image compression
- Less opportunity for image manipulation in photo-editing software

MULTIMEDIA CONCEPTS



MULTIMEDIA CONCEPTS

Image File format

PNG: Portable Network Graphics

- PNG files are compressed lossless image format, which served as a better and open-source alternative to GIF.
- PNG supports 24-bit true-color images.
- It is designed to work well with online viewing applications like browsers.
- File extension for PNG is .png

MULTIMEDIA CONCEPTS

Image File format

Advantages:

- Lossless compression makes for good image quality, which isn't compromised when editing
- The ability to maintain transparency, which is important for graphics such as overlays and logos

Disadvantages:

- Quality is not good enough for printing at any size

MULTIMEDIA CONCEPTS



MULTIMEDIA CONCEPTS

Image File format

TIFF: Tag Image File Format

- A standard format for representing raster graphics
- TIFF could be uncompressed or compressed using lossless compression
- It has has high-quality image but size of image is large.
- Best suited for professional printing and publication
- File extension are .tiff, .tif

MULTIMEDIA CONCEPTS



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Image File format

MBP: Bit Map Image

- BMP Image file is developed by Microsoft for windows.
- BMP files are typically uncompressed
- It is compatible with most web browsers
- Several compression methods such as lossy and lossless algorithms are supported
- Best suited for high quality scans
- File extension is .bmp

MULTIMEDIA CONCEPTS

Image File format

Advantages:

- Can be used for printing, as the images are high quality

Disadvantages:

- The large file size means a lot of storage is required

MULTIMEDIA CONCEPTS

Image File format

EPS: Encapsulated PostScript file

- Encapsulated PostScript file is a common vector file type.
- EPS files can be opened in applications such as Adobe Illustrator or CorelDRAW.
- File extension is .eps

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