

# *How does it do that?*

## Introducing Computer Software

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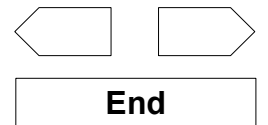
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\*\* The title of this presentation comes from the common response when someone first sees the inside of a computer.

## Outline

- *Binary Code*
- *Boot Processes*
- *Operating Systems*
- *Drivers*
- *Applications*
- *Web Browsers*
- *Data Files*



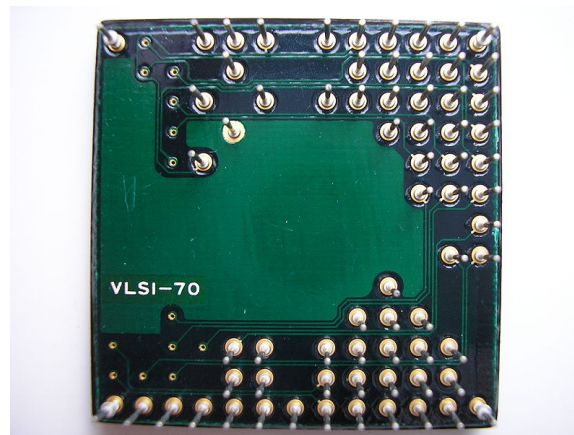
# Binary Code

Computers are digital devices, the circuits are designed to respond to electrical signals in two forms: positive or negative.

A	01000001	a	01100001
B	01000010	b	01100010
C	01000011	c	01100011
D	01000100	d	01100100
E	01000101	e	01100101
F	01000110	f	01100110
G	01000111	g	01100111
H	01001000	h	01101000
I	01001001	i	01101001
J	01001010	j	01101010
K	01001011	k	01101011
L	01001100	l	01101100
M	01001101	m	01101101
N	01001110	n	01101110
O	01001111	o	01101111
P	01010000	p	01110000
Q	01010001	q	01110001
R	01010010	r	01110010
S	01010011	s	01110011
T	01010100	t	01110100
U	01010101	u	01110101
V	01010110	v	01110110
W	01010111	w	01110111
X	01011000	x	01111000
Y	01011001	y	01111001
Z	01011010	z	01111010

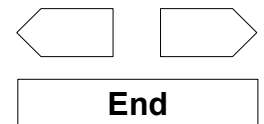
Each character is represented by an 8-bit code

The bits can be a series of positive and negative electric pulses... off and on... positive or negative magnetic poles.



Computer chips only "know" off and on

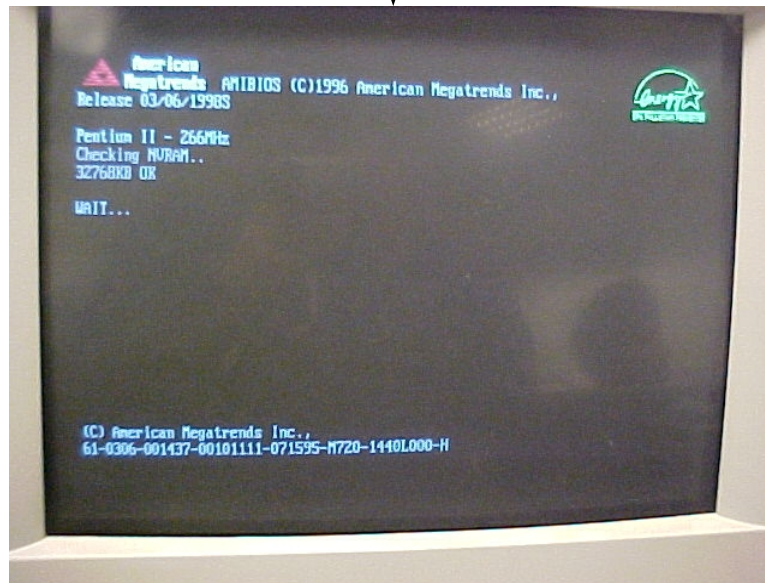
Cisco's Binary Game



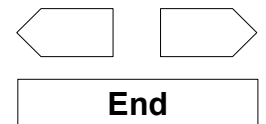
# Boot Processes

When the computer starts up, there is software stored on the motherboard that starts the computer, checks memory, and runs the input and output devices until control is handed over to the operating system.

Software on this chip... results in this display



**BIOS--  
Basic Input Output System**

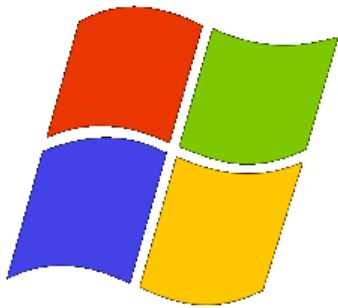


# Operating System

The operating system is software that translates input the human can create and output the human can sense into electric signal is manipulated in the circuits of the hardware.

Once the hardware is powered up and functioning as controlled by BIOS... control passes to operating system

Windows Vista™



Functions of OS:  
> manage memory  
> control peripherals  
> allow multi-tasking



End

# Drivers

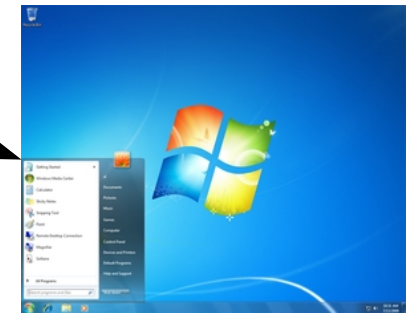
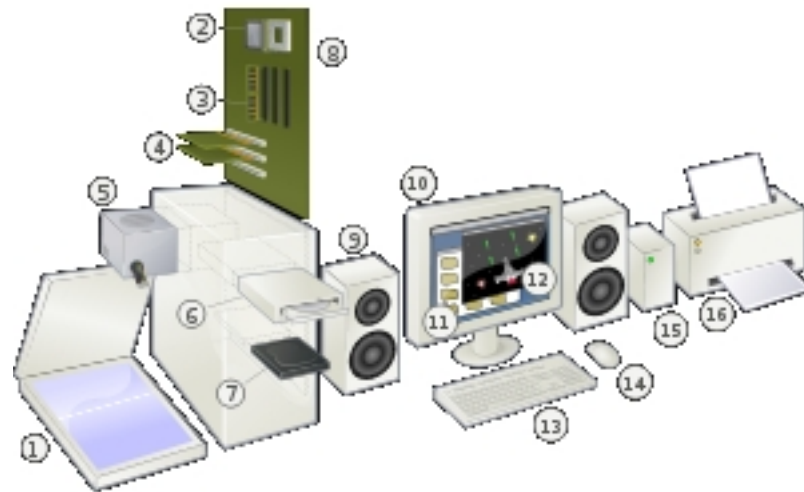
If the operating system is to communicate with a peripheral, there must be software in the operating system that “understands” the signals coming from (and going to) the peripheral. This is accomplished with drivers that usually require a one-time installation.



Driver...

specific for peripheral model

& operating system

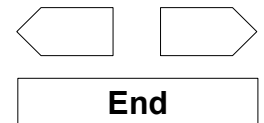
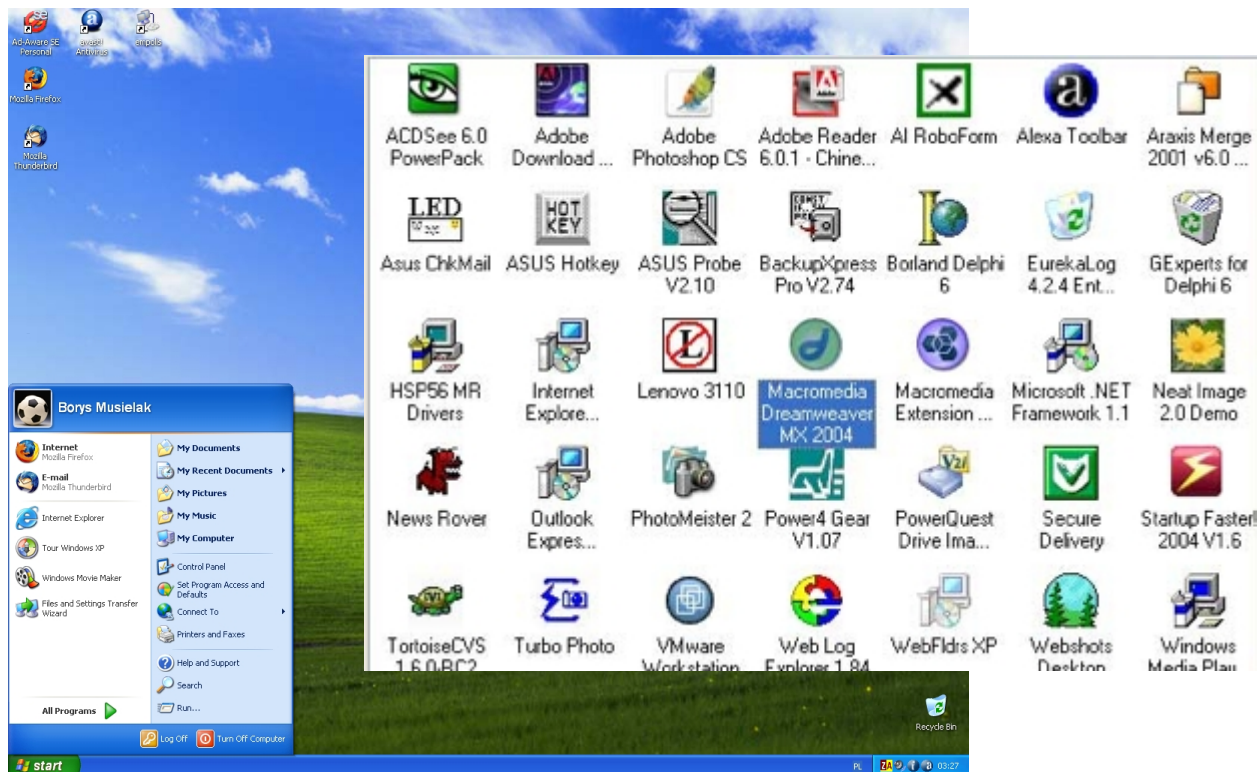


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# Applications

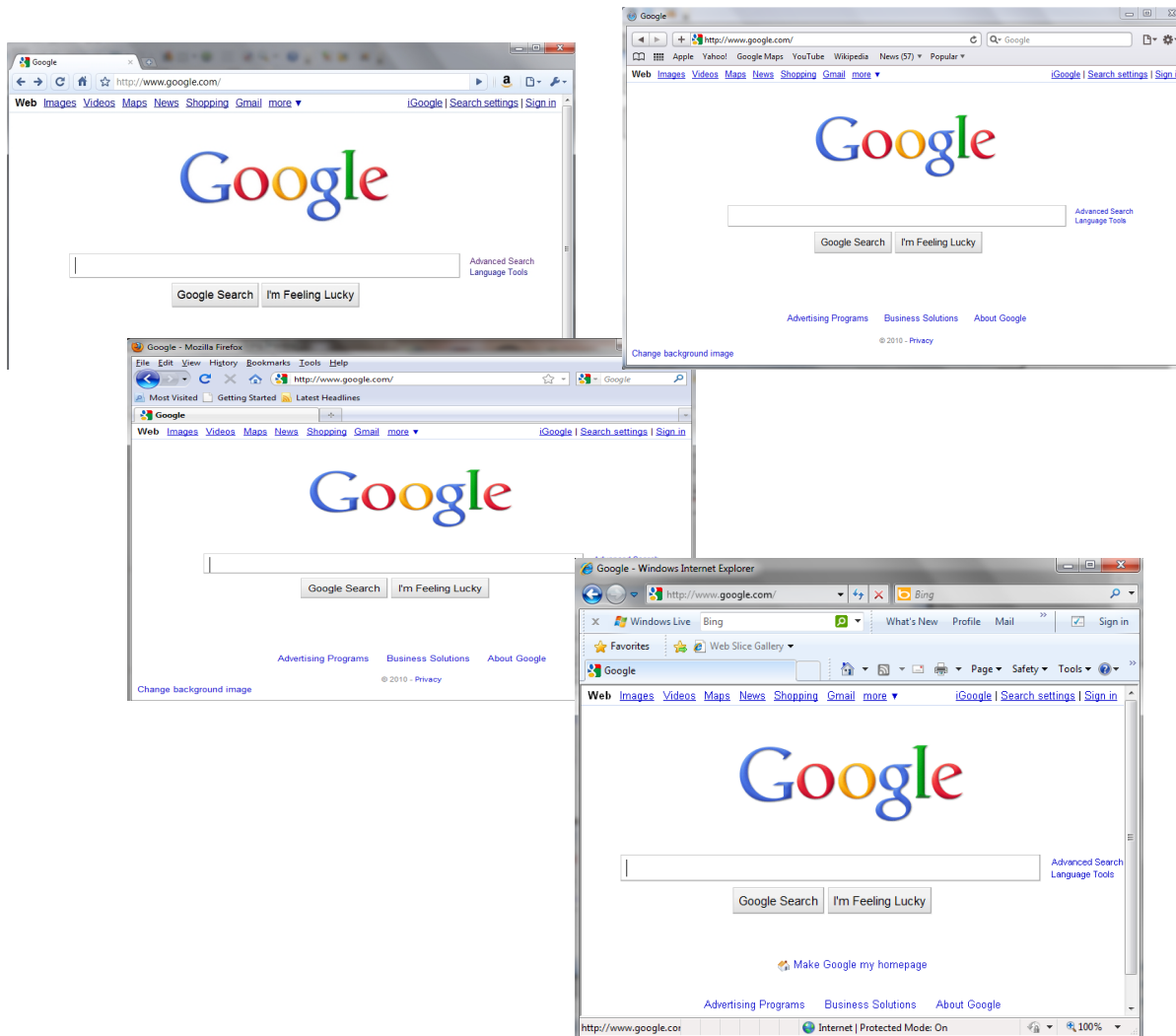
Application is the name given to those programs that provide some functionality to a computer system: These are used to create documents; create, edit and manage photos; play music; play games; write other programs... most anything a user does on a computer is done by interacting with an application.

The vernacular for an application is program...  
Find them in the programs section of the start menu...



# Web Browsers

The World Wide Web became the most commercially exploited part of the Internet. A special application called a web browser is used to display web pages. As more complex files were added to web pages, extensions and add-on's became necessary to extend the functionality of the files on the Web.



Chrome ~ Safari  
Firefox ~ Explorer

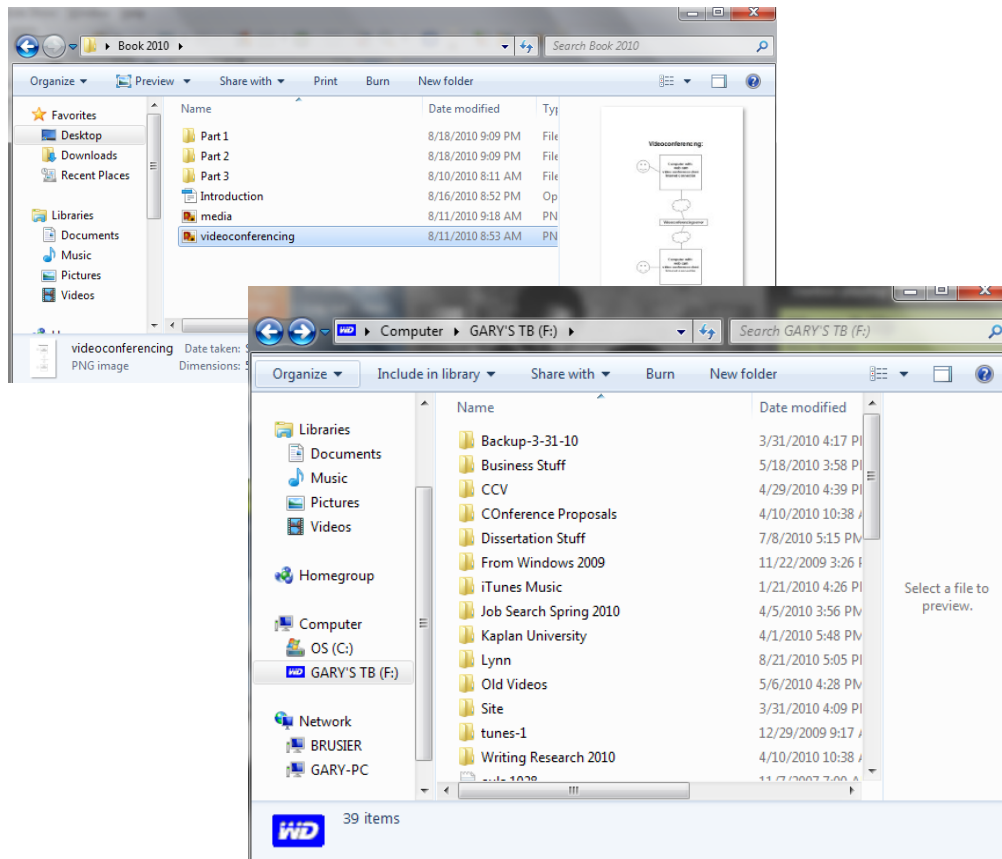
- Address bar
- Back – Forward – Refresh
- Search



End

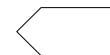
# Data Files

The files you create (or that someone else creates for you-- think documents, photos, audio, video-- are the most important files on your system as they are the least replaceable. Take steps to back up your important files.



Your data...Do you know...

- What it is named?
- Where it is saved?



End