

INTRODUCTION TO COMPUTERS AND VISUAL BASIC

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WHAT IS A COMPUTER?

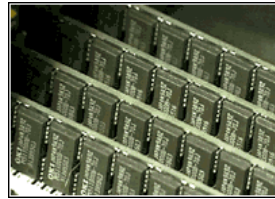
- A programmable machine. The two principal characteristics of a computer are:
 - It responds to a specific set of instructions in a well-defined manner.
 - It can execute a prerecorded list of instructions (a program).
- from <http://www.webopedia.com/TERM/C/computer.htm>



– Fixing H.A.L.'s memory

THE COMPUTER

- Central processing unit (CPU)
 - Where most of the calculations take place
 - Most important part of computer
- Random access memory (RAM)
 - Main memory
 - When computer turned off, memory erased
 - Can write and read to RAM



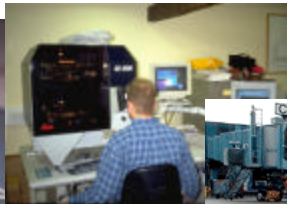
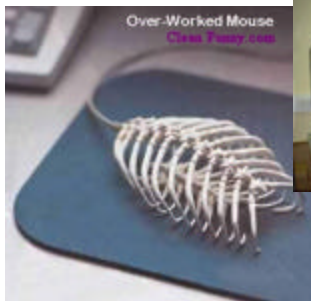
THE COMPUTER

- Hard disk drive
 - Place where instructions and data stored when not in memory or when computer turned off
- Device card
 - Send commands to different devices like the monitor, speakers, network, etc.



THE COMPUTER

- Communicate with computer via input and output devices
 - Variety of input devices: mouse, digitizing tablet, keyboard, bar scanner, etc.



THE COMPUTER

- Communicate via language
 - Machine language – lowest level

Number	Binary Representation
0	00000000
1	00000001
2	00000010
3	00000011
4	00000100
5	00000101
6	00000110
7	00000111
8	00001000
9	00001001
10	00001010
11	00001011
12	00001100
13	00001101
14	00001110
15	00001111

Character	ASCII
(space)	0100000
S	0100100
A	1000001
B	1000010
R	1100001
b	1100010

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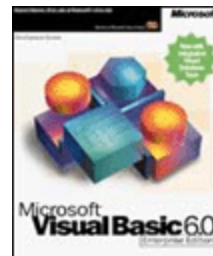
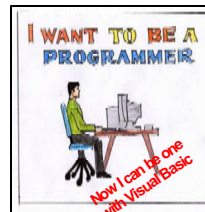
THE COMPUTER

- High level languages:
Visual Basic, Fortran, etc.
 - Compiler translates program into machine language
 - Programmer writes program for computer to execute



VISUAL BASIC (VB)

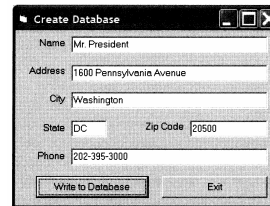
- User-friendly program – language most accessible to beginning programmers
- Requires Microsoft Windows operating system
- GUI – graphical user interface
 - Desktop filled with icons instead of cursor prompt
 - Describes purpose of program



GUI

- Affects how program feels
- Old approach (DOS)
 - Requests entered one at a time, in order
 - No ability to alter information
- With GUI
 - User enters information in any order
 - Can edit information
 - User in control

Enter Name (Enter EOD to terminate): Mr. President
Enter Address: 1600 Pennsylvania Avenue
Enter City: Washington
Enter State: DC
Enter Zipcode: 20500
Enter Phone Number: 202-395-3000



DEVELOPING VB APPLICATION

- Two features different than conventional programming
 - Programmer draws the user interface
 - Command buttons, text boxes, and other objects placed in window will automatically recognize user actions like mouse movement or button click



VB – EVENT DRIVEN METHODOLOGY

- User decides order in which things happen – not programmer
- Program responds to events, like mouse click

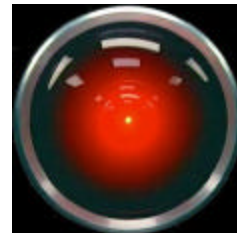


- Everything executable is either an event procedure or used by event procedure

VB uses term project instead of program

- Combination of programming instructions and user interface

STEPS TO DESIGN VB APPLICATION



- Design appearance of window the user sees
- Determine events that controls on window should recognize
- Write event procedures for those events

