Information Systems
ISM 3011

Spring 2004
Unit 4A

Assignment for Next Class

- Read chapters 5 + 6
- Self-Assessment test chapters 5 + 6
- Check that you know the key terms listed on p. 218 / p. 266
- Prepare review questions:
  - Chapter 5: 1, 4, 5, 8, 11
  - Chapter 6: 1, 3, 6, 13, 14, 17

Flextronics /QuoteWin

- What is the problem with QuoteWin from a supplier's perspective?

An Overview of Software

- **Computer program** - sequences of instructions for the computer
- **Documentation** - describes program functions
- **Systems software** - coordinates the activities of hardware & programs
- **Applications software** - helps users solve particular problems

The Importance of Software in Business

FIGURE 4-1

The Importance of Software in Business

Since the 1950s, businesses have greatly increased their expenditures on software as compared with hardware.

The Role of the Operating System

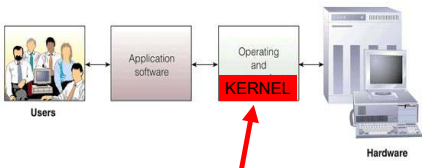


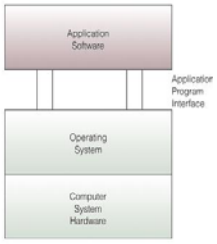
FIGURE 4-2

The role of the operating system and other systems software is as an interface or buffer between application software and hardware.

KERNEL

Hardware Independence

FIGURE 4-3
Application Program Interface Links Application Software to the Operating System



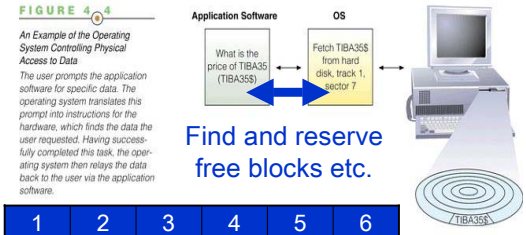
Examples:

•Accessing Printers (Windows-API) or

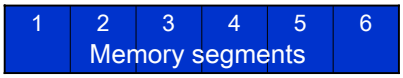
•Scanners and Digital Cameras (TWAIN)

Memory Management

FIGURE 4-4
An Example of the Operating System Controlling Physical Access to Data
The user prompts the application software for specific data. The operating system translates this prompt into instructions for the hardware, which finds the data the user requested. Having successfully completed this task, the operating system then relays the data back to the user via the application software.



Find and reserve free blocks etc.



Processing Tasks

- **Multitasking -** more than one program (task) can run at a time using a single processor
- **Multi-User OS -** multiple users can simultaneously use the resources of a single processor
- **Scalability -** easy adaptation to more users or tasks

System Speed and RAM

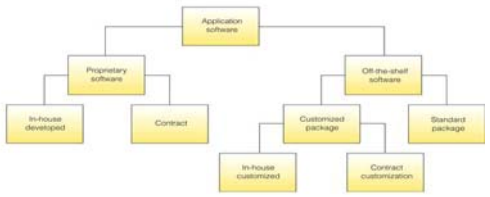
- Why does a bigger primary storage capacity (more RAM) increase your PCs speed?
- Does more memory always lead to a higher system performance?

Off-the-Shelf Software

- The book says on page 147 that one should check whether the software manufacturer is financially solvent and reliable. Why?

Sources of Software

FIGURE 4-6
Sources of Software: Proprietary and Off-the-Shelf
Some off-the-shelf software may be modified to allow some customization.



Proprietary vs. Off-the-Shelf Software

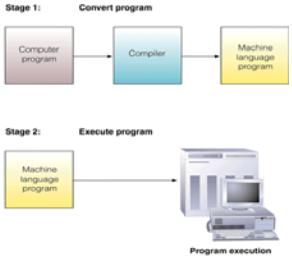
Proprietary Software		Off-the-Shelf Software	
Advantages	**Disadvantages**	**Advantages**	**Disadvantages**
You can get exactly what you need in terms of features, reports, and so on.	It can take a long time and significant resources to develop required features.	The initial cost is lower since the software firm is able to spread the development costs over a large number of customers.	An organization might have to pay for features that are not required and never used.
Being involved in the development offers a further level of control over the results.	In-house system development staff may become hard pressed to provide the required level of ongoing support and maintenance because of pressure to get on to other new projects.	There is a lower risk that the software will fail to meet the basic business needs—you can analyze existing features and the performance of the package.	The software may lack important features, thus requiring future modification or customization. This can be very expensive because users must adopt future releases of the software as well.
There is more flexibility in making modifications that may be required to counteract a new initiative by one of your competitors or to meet new supplier and/or customer requirements. A merger with another firm or an acquisition also will necessitate software changes to meet new business needs.	There is more risk concerning the features and performance of the software that has yet to be developed.	Package is likely to be of high quality since many customer firms have tested the software and helped identify many of its bugs.	Software may not match current work processes and data standards.

What is Integrated Software?

- Data Integration: "One fact at one place"
- Functionality Integration: one function can interact with others (copy and paste inside one program)
- Application Integration: Two or more software applications can interact.
- Process Integration: Two or more business processes are connected.

Compiler

FIGURE 4-16
How a Compiler Works
A compiler translates a complete program into a complete set of binary instructions (Stage 1). Once this is done, the CPU can execute the converted program in its entirety (Stage 2).



Object-Oriented Programming Languages

- **Objects** - data and actions that can be performed on the data
- **Encapsulation** - group items into an object
- **Polymorphism** - one procedure can work with multiple objects
- **Inheritance** - an object in a particular class gets attributes of that class

Object-Oriented Programming Languages

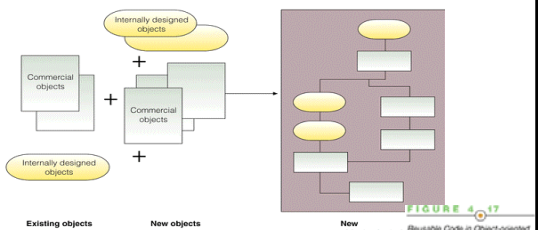


FIGURE 4-17
Reusable Code in Object-oriented Programming
By combining existing program objects with new ones, programmers can easily and efficiently develop new object-oriented programs to accomplish organizational goals. Note that these objects can be either commercially available or designed internally.

Thank you!

The slides will be available on the internet at
http://ruby.fgcu.edu/courses/mhepp/
(-> CRN10033)

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