



Personal Computing Made Simple

This course is intended for anyone who wants to gain a basic understanding of personal computers or who just wants to refresh or enhance what they've already learned. *Personal Computing Made Simple* is available in several formats including on a multimedia CD, in a downloadable file or through one of our instructor led classes. This file contains the graphical images as well as the text that describes what the student should learn from each slide. The remaining pages include a full description and outline of this course as well as the slides and text that comprise the course.

Before getting started the student should think about specific things that they would like to use a computer to accomplish. For example, manage your personal finances, write letters, create greeting cards, or communicating with friends and family over the Internet. Identifying what you want to accomplish will help you to focus in on how the course will help you.

Now enjoy as you learn more about personal computers!



Personal Computing Made Simple

This course will cover the basic concepts that are necessary to efficiently use personal computers. You will receive a complete overview of computer software, hardware and networking. We will cover the components of a personal computer including memory, storage, processors and peripheral devices. You will learn how software drives computing systems, how to install and connect computer peripheral equipment, and the basics of data communications including how the Internet works. This course includes hands-on exercises and quizzes to help enforce the material that is taught. You will learn how to use Microsoft WINDOWS and actually create a word processing document!

Syllabus:

- Basic Concepts: Memory, Storage & Processing
- Software
- Hardware
- Telecommunications
- How It All Works
- How To Buy a Personal Computing System

Intended Audience: This course is designed anyone who wants to gain a basic understanding of how personal computers work. This may include students, those persons who are preparing for a new job or promotion, anyone who wants to use computers at home or interact with their children who use computers. Classes are grouped to accommodate all ages, from 3 to 103.

About the Instructors: All instructors are trained, experienced in teaching novice and intermediate students about personal computing systems. Instructor skill sets include using all forms of applications software including word processing, spreadsheet, graphics, financial management and other packages. Instructors are also familiar with troubleshooting software and hardware, current products and services available, and much more.

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Introduction to Personal Computing - Outline

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 - b) Pre-Class Preparation Questions
- 2) Basic Concepts
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 - b) A Personal Computing System is enabled by
 - c) Workspace, Storage, Processing
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 - b) Systems & Applications Software
 - c) How Software Functions
 - d) Software drives hardware
- 4) Hardware
 - a) Processor
 - b) Memory
 - c) Storage
 - d) Digital Measures
 - e) Electricity
 - f) Internal PC Components
 - g) External PC Components
- 5) Telecommunications
 - a) Software
 - b) Modem
 - c) Telecom Line
 - d) Transmitting Data
- 6) Using a Personal Computer
 - a) The Software
 - b) How Software Drives Hardware
 - c) WINDOWS and other Operating Systems
- 7) Hands On Exercise
 - a) Turning on the personal computer
 - b) How to Use the Mouse
 - i) The Cursor
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 - d) Saving Your Data
- 8) How to Buy a Personal Computing System
 - a) Define Your Requirements
 - b) Match Software to Requirements
 - c) Match Hardware to Software
 - d) Buying Your System
- 9) Putting Your Knowledge to Work (**work program only**)
- 10) Summary
- 11) Review & Quiz



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Complexities of
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Personal Computing Made Simple

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Welcome to DiscoverIT's *Personal Computing Made Simple* course. This course is intended for anyone who wants to learn about, or gain a better understanding, of how to use personal computers proficiently.



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Course Outline

- ☐ **What is a Personal Computing System**
- ☐ **The Components**
 - ☐ **Software**
 - ☐ **Hardware**
 - ☐ **Telecom Line**
- ☐ **How to Use a PC**
- ☐ **How to Choose a PC (optional)**
- ☐ **The Next Step**
- ☐ **Review**

This course provide an overview of the concepts that underlie personal computing systems, a review of what makes up a personal computing system, an introduction of using a personal computer, and a guideline of how to purchase a PC.



Pre-Class Questions

- ☐ What would you like use a computer to do?
- ☐ Do you know how to use a PC?
- ☐ What software do you know?
- ☐ Do you have a computer at home?
- ☐ Do you have a computer at work?
- ☐ Do you plan to buy a PC?
 - ☐within the next 3 months?
 - ☐within the next 6 months?
 - ☐within the next year?

Before getting started it is helpful to understand how you will use a PC. (what you want to use a PC to do.) Think of specific tasks that you will use a computer to perform. For example, will you write letters, track your finances, send messages to friends or prepare greeting cards? Defining how you will use your computer provides you with a frame of reference for taking this course.



Personal Computing Systems



Are comprised of:

- **Software**
- **Hardware**
- **Telecom Line**

Personal computers are never used alone. Software is needed to make the computers work; and a telecommunications line is necessary to communicate over the Internet, with private networks or to send faxes. A personal computer, or PC, is just one piece of hardware. To make the PC offer real value you need software, often a printer and a telecom line to communicate with others.



A Personal Computing System



Is made to work by:

- **Trained User**



- **Support**



- **Maintenance**



A personal computing system is still not enough to get results. Although many people don't take this into consideration until after they've purchased their personal computing system, you need to know how to use the computer, help when you have problems and the ability to fix your system when it needs repair. By taking this course and other training courses you will become proficient faster than by trying to learn on your own. Many software or service companies offer assistance through support hotlines. Finally, computer manufacturers, stores and service companies offer repair and maintenance on PCs.



PERSONAL COMPUTING

3 basic concepts:

- **Workspace**
- **Storage**
- **Processing**

There are three basic concepts that define the way personal computing systems work – workspace, storage and processing. A firm grasp of these concepts provides a foundation for understanding why computers work the way that they do.



The Personal Computing System

Processor

Storage



Workspace is temporary, storage is permanent.

Let's think of a personal computing system like someone working in an office. As they work on different projects they will place folders and paper on their desk. The larger the desk, the more projects they can work on at one time. At the end of the day they have to put the folders and papers away in a filing cabinet or in drawers in the desk. If they leave papers on their desk they might be lost or destroyed. The cleaning staff could throw away papers or someone could spill a drink on the papers. So for safekeeping, the person working in the office puts the papers in the filing cabinet or desk.

A computing system is like a person working in an office. The processor is like the person working. The faster and smarter they are, the more work that will get accomplished. Memory is like the desk; the more memory or larger the desk the more projects you can work on at one time. The hard drive or CD is like the filing cabinet; information is stored on these media for safekeeping much like papers are stored in the filing cabinet. This explains the major difference between memory and storage; *memory is temporary and storage is permanent.*

[Other examples : a cook (processor) in a kitchen with counterspace and tables (memory), and a refrigerator and cabinets (storage); or a football team on a field with the quarterback (processor) working the field and sidelines (memory) and lockers (storage) inside the stadium]



Personal Computing Systems



Are comprised of:

- **Software**
- **Hardware**
- **Telecom line**

Remember, a personal computing system is made up of software, hardware and a telecommunications line.



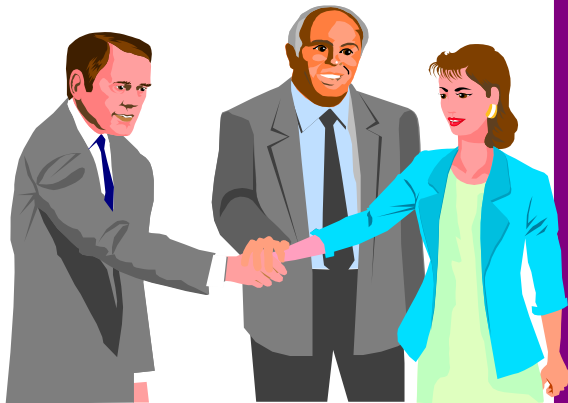
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Let's look at a personal computing system:



You

Software

Hardware

Telecom

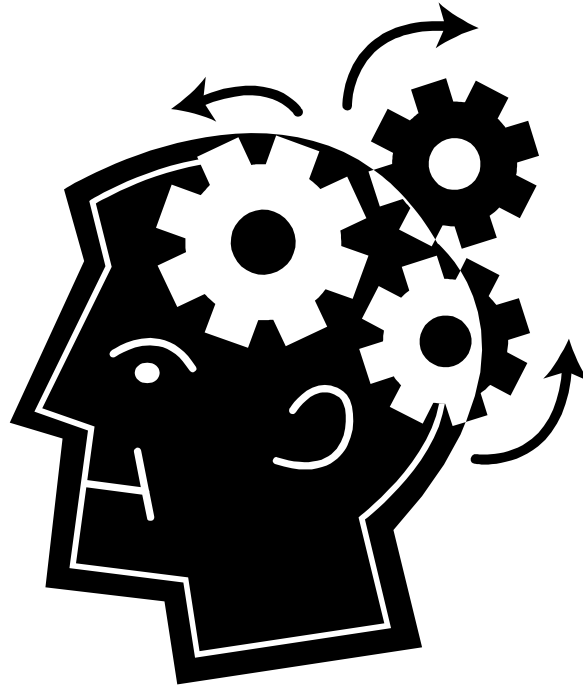
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Let's start by understanding the role of software.



Software is the brain of computing



Software is the **brain** of a personal computing system. It is software that tells the body of the computer what to do. Software tells the hardware when to print, when to display items on the screen, how to interpret what you type into the computer, how to interpret your mouse clicks, when to play sounds on the speakers, when to dial the modem, how to receive information being sent by through modem, you get the idea. Software is the intelligence behind a personal computing system.



Two Types of Software

Systems:

Systems software allows the computer to manipulate the peripherals

Applications:

Applications software allows you to manipulate the computer

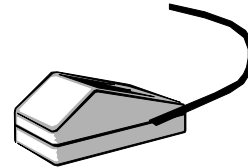
There are two types of software: systems software and applications software. Systems software is at the core of telling the hardware what to do. It is systems software that tells the modem when to turn on and the printer how and when to print. Applications software, on the other hand, is what you use to tell the computer what to do. It is the applications software that usually communicates with the systems software.



You give instructions to software by using hardware



Microphone

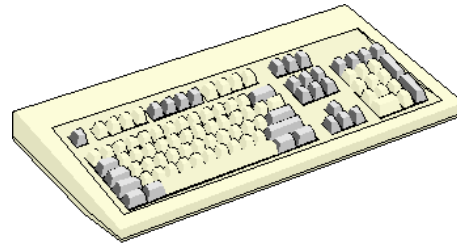


Mouse



Joystick

Input Devices



Keyboard

Software is what tells a PC what to do. It is the intelligence behind a personal computing system. You may use a keyboard, mouse and other types of input devices to give instructions to computer software.



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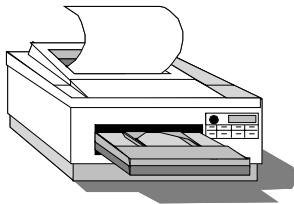
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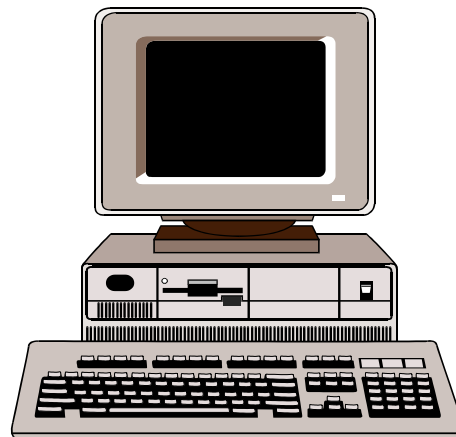
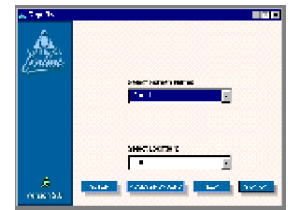
Software tells the hardware what to do



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Internet



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It is the software, however, that tells the computer hardware what to do. Software tells the printer what to print on a piece of paper and how it should look. When you tell the computer to print, it is the software that sends the instructions to the printer so that the document can be printed.

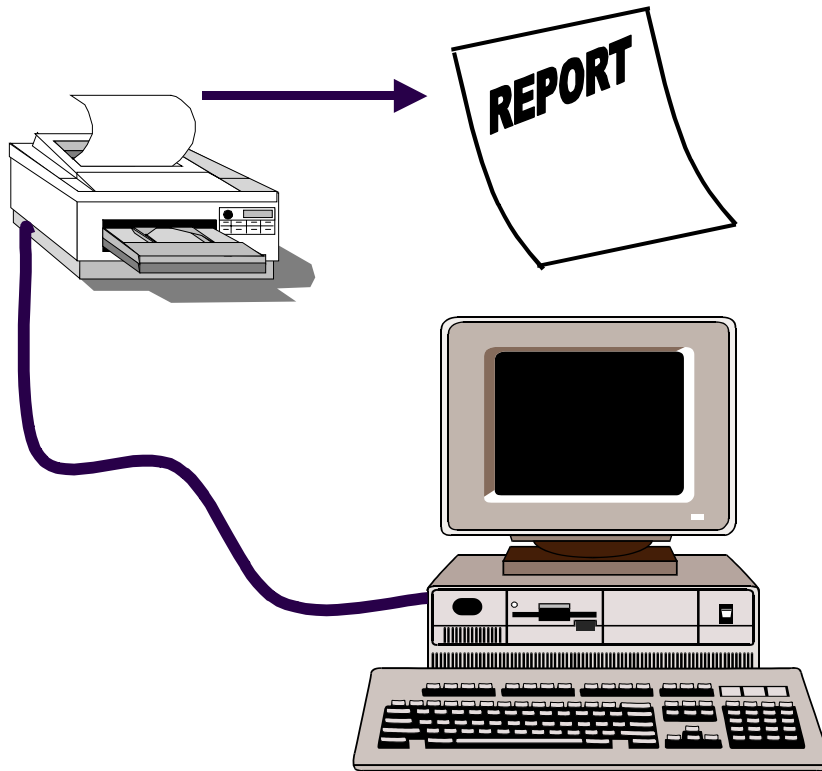


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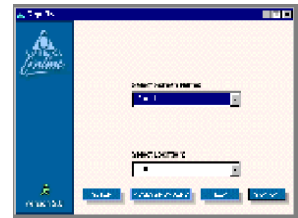
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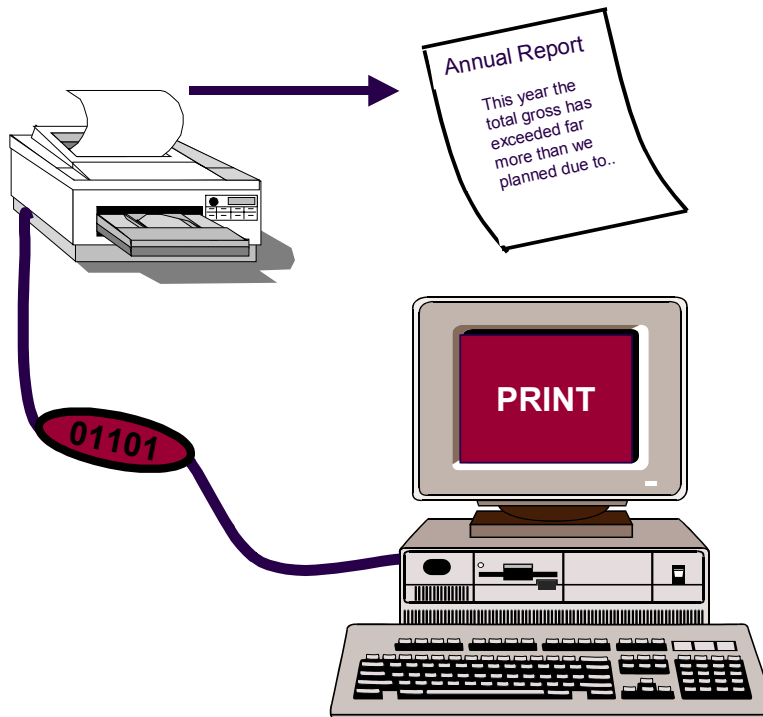


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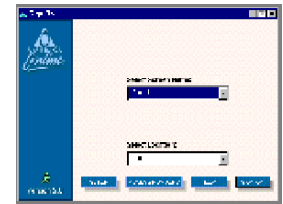
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Software tells the hardware what to do



Internet



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Once the PRINT command is entered into the computer, a stream of data is sent to the printer. This stream of data defines to the printer what the report should look like.

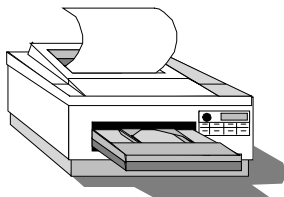


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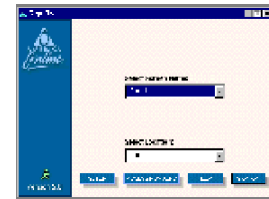
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Software tells the hardware what to do



Internet



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Software sends messages from the Internet to your computer screen and instructs the computer on what information to display or what sound to produce.

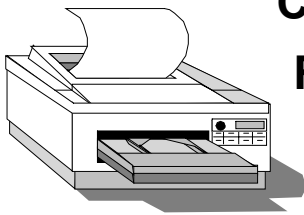


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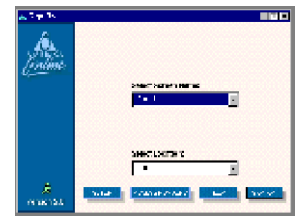
Software tells the hardware what to do



**Create
Report**



Internet



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It is software that sends instructions and messages to the Internet. The computer can also be used to RECEIVE a stream of data that presents information on the computer screen.



Software Drives Hardware



**Applications
Software**

Operating System

Machine Language

**Personal Computer
&
Related Peripherals**

It is software that tells the hardware what to do. There are different types of software and several steps that it must take to direct the hardware on what to do. When using a computer we interact with *applications software*. The software translates messages between the user and the computer hardware. Each type of software plays a different role in the translation process. Each type of software also speaks a different language.

So when you speak to the computer using input devices you are speaking to a software package that speaks one language. That software package translates your message for the next software package, which translates it for another, and so forth. It's like ordering from a Japanese restaurant. You give your order to the waiter in English, and he gives it to the cook in Japanese. This is the first of a series of slides that explain the *software translation process*.

We communicate with applications software in a language that we are familiar with. We use the mouse to click on icons and commands, or we may use the keyboard to enter commands. Regardless of the manner in which we communicate with applications software, we speak a language that it understands. Let's say we speak to applications software in English. The operating system, on the other hand, speaks a different language. The applications software, therefore, must translate the instructions that we give it into the language that the operating system understands. For example, if the operating system speaks Spanish, then applications software translates the instructions that you give it from English into Spanish.



Software Drives Hardware

Applications Software works in English but speaks Spanish to Operating System



Applications Software

Operating System

Machine Language

**Personal Computer
&
Related Peripherals**

Calculate my budget.

ENGLISH to SPANISH

Calcula mi dinero.

SPANISH

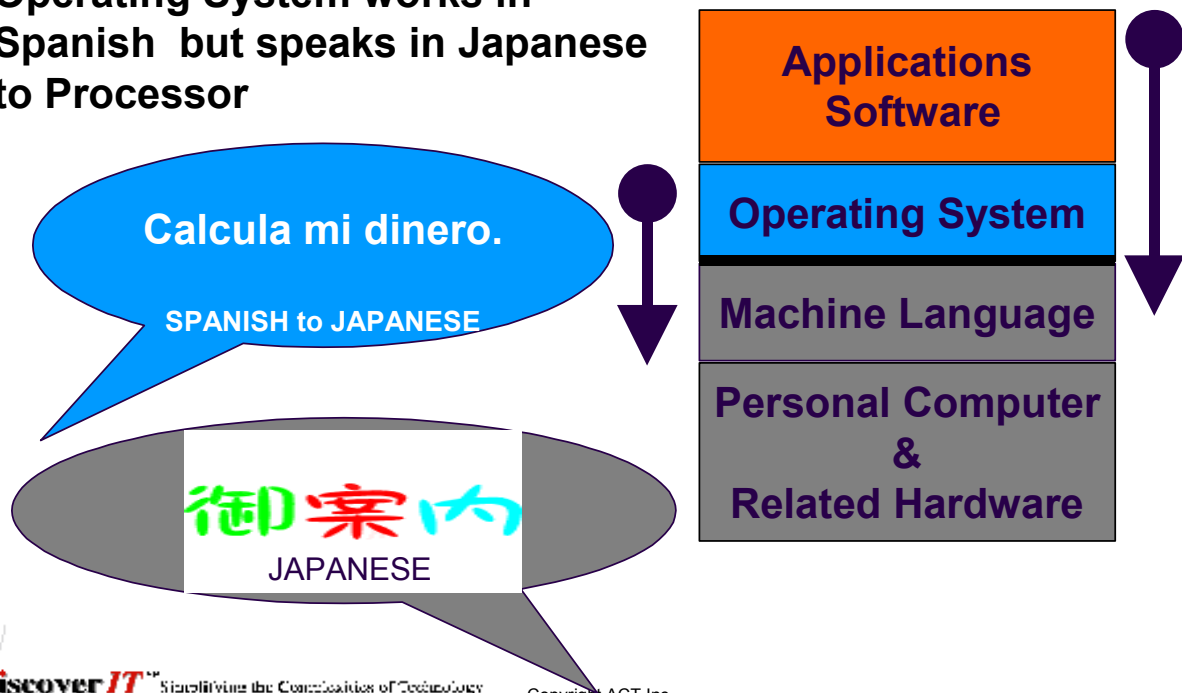
Remember, each type of software plays a different role in the translation process. Each type of software also speaks a different language.

You speak to the computer in English using a keyboard, mouse, joystick or other input device. The applications software listens in English, then gives your instructions to the Operating System in Spanish.



Software Drives Hardware

Operating System works in Spanish but speaks in Japanese to Processor



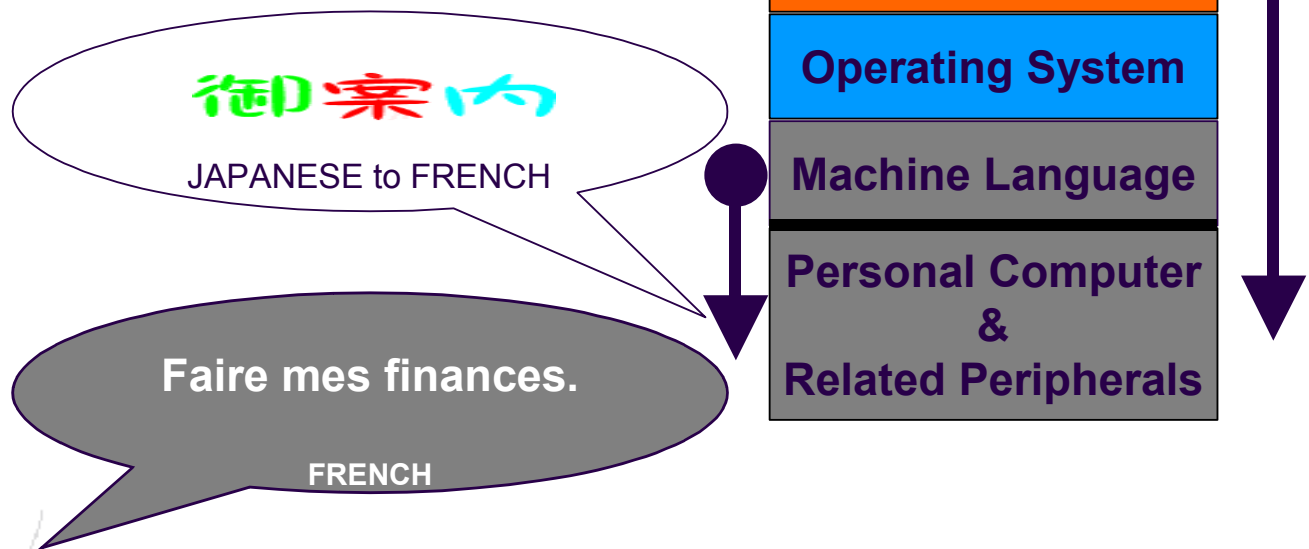
Remember, each type of software plays a different role in the translation process. Each type of software also speaks a different language. You speak to the computer in English using a keyboard, mouse, joystick or other input device. The applications software listens in English, then gives your instructions to the Operating System in Spanish. The operating system then translates the instructions into a language that the computer hardware can understand. This is called machine language.

The Operating System receives the instructions in Spanish, then translates the instructions into Machine Language, in this example we'll call it Japanese. Let's say that your message is to print the letter which appears on your screen.



Software Drives Hardware

**Processor works in
Japanese but speaks in French
to Peripherals**



Remember, each type of software plays a different role in the translation process. Each type of software also speaks a different language. You speak to the computer in English using a keyboard, mouse, joystick or other input device. The applications software listens in English, then gives your instructions to the Operating System in Spanish. The operating system then translates the instructions into Machine Language, in this example we'll call it Japanese. Let's say that your message is to print the letter which appears on your screen.

Once the message is in Machine Language (French in this example) the main processor or computer chip (i.e. Pentium) can understand it. The processor sends a message to the printer to place the information from the screen on a piece of paper.



Software Drives Hardware



**Applications
Software**

Operating System

Machine Language

**Personal Computer
&
Related Peripherals**

Remember, each type of software plays a different role in the translation process. Each type of software also speaks a different language. You speak to the computer in English using a keyboard, mouse, joystick or other input device. The applications software listens in English; then gives your instructions to the Operating System in Spanish. The operating system then translates the instructions into Machine Language, in this example we'll call it Japanese. Let's say that your message is to print the letter that appears on your screen. Once the message is in Machine Language the main processor or computer chip (I.e. Pentium) can understand it. The processor sends a message to the printer to place the information from the screen on a piece of paper.

That's the software translation process, simplified! From Applications Software, to Operating System, to Machine Language, to the actual hardware components in the system. It's like from English to Spanish to Japanese to French. That's what it takes to go from the keyboard to the printer.



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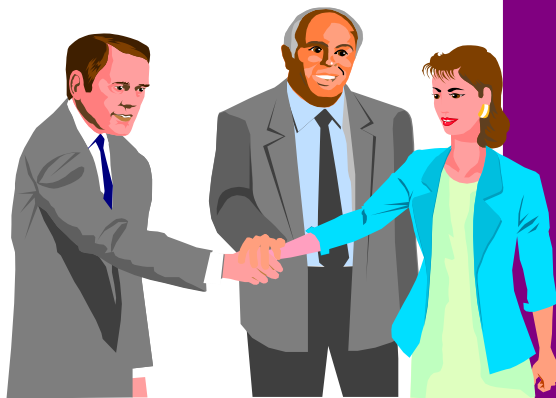
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Let's look at a personal computing system:



You

Software

Hardware

Telecom

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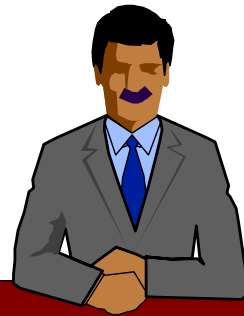
It is software that drives the process of communicating with hardware, translating instructions into several languages, accurately and often in nanoseconds. To help you understand this process better let's look at hardware in a little more detail.



The Personal Computing System

Processor

Storage



Workspace

Workspace is temporary, storage is permanent.

Let's review the concepts of memory, storage and processing. Summarize what happened in the last example of typing and printing a letter by relating printed letter to workspace, processor and storage.

You are directing the computer system or giving the lead instruction that tells the computer system what to do. You are functioning as the **processor** or computer chip. You used a keyboard and mouse to instruct your Word Processor (a type of Applications software) to put characters in memory in the form of a letter. Hopefully, you also saved a copy of that letter to your hard drive (a type of **storage**). You then used your keyboard or mouse to send a copy of the letter that appeared on your screen (the copy in **memory**).

The processor, memory and storage are the core components which allow the computer to function. Now let's look at the actual physical hardware components which make up the personal computer.



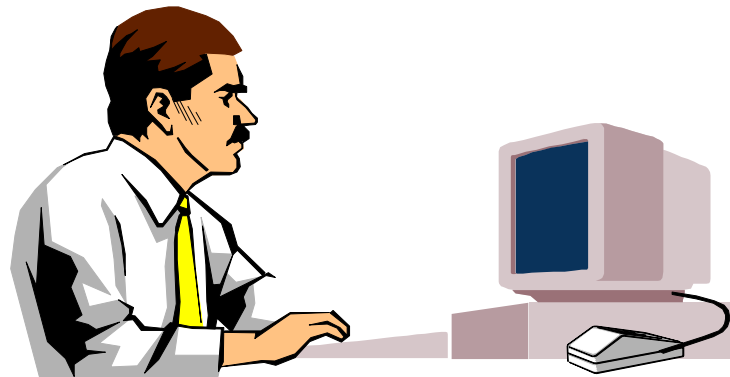
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Let's Review what you've learned

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Review

What are the 3
main components of computing?

- A. Memory, Storage & Processor
- B. Hardware, Software & Peripheral Devices
- C. Computer, Printer & Modem
- D. Mouse, Monitor & Modem



Review

What are the 3
main components of computing?

- A. Memory, Storage & Processor**
- B. Hardware, Software & Peripheral Devices**
- C. Computer, Printer & Modem**
- D. Mouse, Monitor & Modem**

A



Review

What is the difference
between memory & storage?

- A. Memory is temporary, Storage is permanent
- B. Too little memory can slow your computer
- C. Too little storage can slow your computer
- D. All of the above



Review

What is the difference
between memory & storage?

- A. Memory is temporary, Storage is permanent
- B. Too little memory can slow your computer
- C. Too little storage can slow your computer
- D. All of the above**

D



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