Computers in Professions

Before we begin looking at the parts of a computer and how they operate, let’s take a look at some examples of various industries that are using computers as an integral part of what they do.

Business

One area that impacts all of us is business, especially retail stores. In order to make decisions about which products to offer at specific locations, how much inventory is needed, and how to market their products, businesses need a lot of data. Much of the data they need is readily available to them. For example, they know how much inventory they have in each store. They know how much has sold and at what price. They also know on what dates and at what times sales have taken place, and much more.

But how do businesses manage all of this data and actually use it to help them make decisions? They use computers! Many businesses use a process called data mining. Data mining allows them to search huge amounts of data in order to discover buying patterns. Retailers may see patterns related to specific products selling on a given day or in a specific location. This can help them figure out the best time to market a particular product, when to order extra product to ensure they have enough on hand when something is popular, and when to discontinue a product. They use computers to process this information and present it in a usable format.

Have you ever wondered why many retailers ask for your zip code or phone number when you checkout? They do this as a part of their data mining process. The information collected helps them keep track of purchases made in a particular geographic location, as well as your past buying history, allowing them to identify trends. Based on this information, retailers can offer promotions, such as discounts or special pricing, designed to specifically target you and other customers with buying habits similar to yours. Computers make all of this possible by allowing businesses to customize the shopping experience for individuals and small groups, thereby helping them get the most out of their advertising investments and avoid wasting money promoting products which that particular group would probably have little interest in purchasing.

Some other computer technologies that are increasingly being used by retail businesses include:

1. **Personal Shopper Systems (PSS)**: Handheld computers that customers can use to scan an item’s tag or label as they move throughout a store. The device can then display information about the product being scanned, including price and discounts, as well as a total all of a customer’s items before they reach the checkout line.

2. **Radio Frequency Identification (RFID) Tags**: Intelligent bar codes that communicate with networked systems to track the location of a product from the time it’s made until it’s pulled off the shelf and purchased. Transportation companies can track product packages to their final destinations and stores can see how quickly the products leave shelves and who’s buying them.
**Education**

Computers are used by colleges and universities, high schools, and even preschools, to maintain student records and for business purposes, such as tracking expenses and payroll. However, the most profound uses for computers are in facilitating actual learning.

Many colleges require students to own their own computers and to submit assignments electronically. **Learning Management Systems**, such as MyHills, which we use in this course at Indian Hills Community College, are used not only for online courses, but in many face-to-face courses, as well, allowing faculty and students to communicate over the Internet, submit assignments, take exams, and access course materials without having to actually be on campus.

Computers enable students and professors to explore and keep up on the latest research in their fields of study by accessing journal articles, e-books, and other resources available online through their college libraries. Using the Internet, students and faculty can communicate with one another one-on-one or in small groups with both audio and video, simulating a face-to-face experience, without the need to travel to campus. Instructional software can simulate a variety of activities, from running a business to dissecting a human cadaver, allowing students to learn in ways that were not previously possible.

**Law Enforcement**

Law enforcement agencies make use of computers in a variety of ways.

Computers using facial reconstruction and recognition software can help investigators in crime labs identify suspects and victims. Vast databases are used to track similarities among crimes, helping detectives solve serial crimes. Smart meters in major cities can manage multiple parking spaces, making it easier to enforce parking regulations.

A growing specialty in law enforcement is the field of computer forensics, which allows technicians to recover deleted or damaged files from a suspect’s computer for use as evidence in a court of law.

**Medicine**

In medical fields, the application of computer technology has been astounding.

For example, patients suffering from muscular diseases can benefit from software that allows them to control the movement of robotic limbs.

Computers also help medical students develop the skills they need. Patient simulators – life-sized mannequins that can breathe, speak, blink, and respond to stimuli – give medical students a sense for how an actual patient might respond to certain procedures and treatments.

Some surgeons use computer-guided robots to help them perform surgery. These tools can help surgeons make smaller, more precise incisions, resulting in less trauma and faster recovery times for patients.
These are just a few examples of how computers are being used in a number of professions. Professionals in many other diverse fields, such as art, science, and agriculture, are increasingly relying on computers to help them advance.

Understanding how computers function can help you accomplish the tasks before you today, as well as prepare you to succeed in your own career in the world of tomorrow.

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