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Computer in Our Daily Life: Impact on Our Society

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ABSTRACT

We are living in the computer age. Most of our day-to-day jobs are being influenced by the use of computers. In some areas such as Science and Technology improvements cannot be achieved without the use of computers. Hence, it has become necessary for each and every one of us to have a basic knowledge about computers. Many people are aware that a computer is a machine that can perform arithmetic operations. But they fail to understand that it is also a machine that can choose, copy, move, compare, and perform other non-arithmetic operations on the many alphabetic, numeric, and other symbols that we use to represent things. The four characteristics of computers which make them very useful tools are their speed, storage capacity, consistency and accuracy.

1 Introduction

1.1 As each year draws to a close, the editors of Time magazine review the years newsmakers and select one as representative of the year just passing. This selected newsmaker is then featured in a cover story in the year's final issue. A politician, a chief of state, a scientist-perhaps these are the people you'd expect to see featured in the special issue. If so, you might have been as surprised as were millions of others a few years ago to find that Time's "Man of the year" wasn't person at all. It was a machine: the computer.

1.2 It has to be remembered that the computer is only capable of doing what it is instructed to do. Hence, errors may occur only due to inaccurate programs(a series of step-by-step instructions that provides a problem solution and tells the computer exactly what to do) or data. Unlike human beings, computers are very consistent and are not bored or tired when performing many thousands of calculations. They are ideal machines for carrying out works of a highly repetitive nature. They cab also store large amounts of data. Once recorded, a piece of information can never be forgotten and can be retrieved with in a fraction of a second. The first computers were built to manipulate numbers in order to solve arithmetic problems. But soon computer scientists invented methods to manipulate symbols and data.

1.3 Today Bangladesh Army is on the verge of total computerization upto unit level. It is therefore imperative that we are exposed to this incredible machine which can enable us to be more efficient in the execution of our prescribed mission.

2 The Use of Computers

2.1 The use of computers- particularly personal computers-has expanded so rapidly that their presence can no longer be denied or ignored. Everyone needs to feel comfortable with this machine in order to function in a modern society. To be a computer-literate person, you need to know about computers themselves,the hardware; what they do, their applications; how they are applied through software; and the social impact of their use.

2.2 A computer is a fast and accurate electronic symbol(data) manipulating system that's designed and organized to automatically accept and store input data, process them, and produce output results under the direction of a detailed stored program of instructions.

2.3 Computer perform at very high speeds. The time required to execute a basic operation such as addition is usually measured in microseconds(one-millionth of a second) for the smallest computers,and in nanoseconds(one-billionth of a second) for larger machines.The reliability of computer circuits enables them to run errorless for hours and days at a time. Computer"errors" can usually be traced to faulty programs or inaccurate input data-both generally caused by human and not computer frailties.

2.4 Computer can manipulate both numeric and non numeric symbols. Data are facts or informational raw materials represented by these symbols. Information is the relevant knowledge that results from the processing and arranging of data in an ordered and useful form.

2.5 These data processing activities are readily carried out by computers. A computer can accept input data from,and communicate processed output to, a large number of devices. The circuits in a computer are designed to facilitate calculating. Classifying,sorting, and summarizing are made possible by the computer's ability to perform simple comparisons and then, depending on the result, follow a predetermined course of action. And split -second storage and retrieval activities are possible through the use of primary and secondary storage devices.

2.6 A system is a group of integrated parts that have the common purpose of achieving some objective(s). Since a computer is made up of integrated components that work together to perform the steps called for in the program being executed, it is a system. A basic computer system is comprised of input and output devices and a central processing unit (CPU). CPUs of all sizes contain primary storage,arithmetic-logic, and control sections.

2.7 The space in the primary storage section is divided into four areas: input, where data are held for processing; working storage , where intermediate processing results are kept; output, where finished results are kept prior to release; and program storage, which holds the processing steps. In addition to primary storage components, most computes also have secondary storage devices. These are usually connected online to the CPU where they can accept data directly from, and return data directly to, the CPU without human intervention.

2.8 All calculations and comparisons are made in the arithmetic-logic section of the CPU . Engineering design determines the type and number of arithmetic and logic operations that can be performed. The control section of the CPU maintains order among the system components and selects,interprets, and sees to the execution of program steps. After an initial control setting,it automatically selects program instructions in sequence until specifically instructed to do otherwise. Computer have the built-in ability to obey different types of instructions. Once problem-solving or job instructions are stored in a computer,the system can process data automatically and without human intervention until the problem is solved or the job is completed.

2.9 Computer system differ in size and in design. Sizes vary from the smallest microcomputers to minis, mainframes, and supercomputers. And the architecture can vary from systems that use single arithmetic-logic and control sections to those that use multiple sections in order to work simultaneously on several program segments and thus speed up processing. Computer have impressive capabilities, but they also have a few mordant limitations. Programs must be reliable, applications logic must be understood, and must be suitable.

3 Computer and Their Impact on Our Society

3.1 Major technological innovations have a habit of affecting lives of individuals. A society is composed of different types of individuals. In trying to assess the impact of computers on society, we have to consider two points: the first is that of the incredible speed with which this form of technology has made itself felt in so many areas of everyday life. The second point is that computers have penetrated our society far more deeply than the average person realises. The use of the term "society" really means those organizations within the society for which the individuals works; for example, the educational, commercial, industrial, administrative, transport, medical, social, legal and financial organizations. All are depending upon the help of computers to some degree or the other.

3.2 Computers are increasingly used in education and this is mainly due to the fact that it can provide a large data bank of information. Computer can also be used to assist in the actual teaching and learning processes. Computers can make learning fun; unlike teachers, they have infinite patience and always give immediate replies. There are essentially three methods involved: computer assisted instruction (CAI),computer assisted learning (CAL), and computer managed learning(CML).Uses of computers in education render the following advantages:

3.2.1 COMPUTERS OFTEN TAKE OVER TIME CONSUMING JOBS LIKE CLASSIFYING STUDENTS ACCORDING TO ABILITIES, PREPARING TIME-TABLE, SCHEDULES, ETC.

3.2.2 COMPUTERS MAINTAIN PROGRESS CARDS AND PRESERVE THEM CONFIDENTIALLY.

3.2.3 THEY PROVIDE EASY ACCESS TO FILES FOR INFORMATION ON REFERENCE AND GUIDANCE.

3.2.4. THEY PROVIDE DIRECT INTERACTION BETWEEN STUDENTS AND THE SUBJECT TO BE LEARNT

3.2.5. THEY ENGAGE THE STUDENTS IN TUTORIAL INTERACTION AND DIALOGUE.

3.3 Applications which perform mathematical, statistical,and model processing form a large class of computer usage. This class of usage is sometimes referred to as "scientific use". In mathematical applications,the computer is used t perform computations required by mathematical solution procedures. Statistical applications perform the computations to arrive at statistical quantities such as median,mode,standard deviation, etc. Computer models are nothing but a set of computer program statements which are written in order to solve a particular problem or a process that is being investigated. For example, a planning model is a set of program statements which compute the values in the various planning equations. The user may change the input data to a model in order to investigate the effect of various parameters on the model that is represented. Such computer models are used in sciences such as physics, chemistry, astronomy, engineering, etc. More recently,computer are increasingly used for research and data analysis in less mathematical areas such as medicine, social sciences and the humanities.

3.4 One of the first non-scientific uses of computers was concerned about routine clerical work. Before the introduction of computers, aids such as punched card accounting machines and adding machines were used in office administration. It is relatively easy to develop computing procedures for clerical duties since they consist of repetitive tasks.Computer applications to business and commerce dates back to the middle 1950s. All over the world, most large and medium size companies are totally dependent on computers for their numerous administrative functions. Thus, small companies which were use the services of computer bureaus are switching over to in-

house computers. Even in India,a number of companies are using computers for their administrative functions. In these connection, it is important to know that commercial data processing accounts for about 70% of the total computer usage. The introduction of microcomputers is enabling even smaller offices to function faster and more effectively with the use of these machines.

3.5 The most established application of the computer in business is processing of payroll. This involves the preparation of paylips for weekly wage earners and monthly salaried staff. The data for each fresh run of a payroll program includes items such as number of hours worked per employee, overtime and number of days absent.Permanent files are used to store records for each employee. These files are accessed and updated during each program run. Normally, they contain information of permanent nature such as position or grade of the employee,insurance particulars, personal tax particulars,total pay till date for the current financial year, total tax deducted,pension contribution,etc. Some of the data such holey rates for different grades and salary structures, taxes and national insurance tables are also stored for common reference. In a normal payroll application, lot of time is spent in retrieving information,updating and sorting files and printing out individual payslips using reprinted forms. The compeer does only simple calculations like hours worked times rate of pay for the job per hour. The program may consist of a number of closely related subroutines, each responsible for a particular part of the solution. Some sophisticated payroll packages will also include a coin analysis program to determine the exact numbers of the different notes and coins required for each packet.Some program have the facility to print out cheques to the individual bank account of each employee. Files generated by payroll may be enlarged to include additional information of the employee such as length of service, qualifications, training, attendance, and vacation record, etc.

3.6 Some of the additional areas in which the computer assists in business and commercial organisations include stock control, processing of sales order and sales accounting, sales analysis, market research and forecasting, and production planning.

3.7 Financial institutions are making ever increasing use of computers. Most of the banks in developed countries can not function without them because of the banks volume of transactions and customers enquiry that have to be dealt with daily.

4 Industrial Applications

4.1 Process Control: Computerised process control system are being used to monitor continuously operating facilities such as oil refineries, chemical plants, steel and paper mills, and electric power generating stations. This processes are similar in that they convert input materials and energy into output materials measure variables such as pressure, temperature flow, and so on. If the process is deviating from an acceptable standard,regulating devices are adjusted to bring the process back into control.

4.2 Production Control: During the actual production on an assembly line, computers may be used to transmit such facts as the time spent on the operation, the status of a machine tool, the size of a queue requiring work,or the need for machine set up or repair. The computer can be used to compare the actual conditions against the production plan in order to determine if appropriate control action is required .In addition to controlling the overall production process,computers may also be used to control individual production tools such as shapers,milling machines, etc.

4.3 Electricity and Power Stations: Power stations, both conventional and nuclear-powered, have become increasingly complex in the last ten years. This complexity results from an ever-increasing demand for greater efficiency and for cheaper electricity. As a result, highly sophisticated instruments are now used in power station control rooms. To control boilers, turbines and switch gear more effectively, large quantities of accurate information is required-information that can be scattered over a very large station. Hence, computers are used to collect and process these readings. The type of computer needed for these purpose is smaller and less comprehensive than those normally used in large scientific and business organisations. This computers are more rugged and are design to withstand much greater extremes of temperature by the industrial environment. The computer is also used by electricity authorities for load control.

4.4 Space Technology: Now-a-days, satellites are also used to provide world wide communication links for data transmission. Satellite communications provide significant benefits. They operate at high band-widths (the higher the band-width the greater the speed-upto 120 million bits per second) and provide flexibility of communication (links can be installed rapidly and removed easily). They permit easy transmission of data across national boundaries and provide easy access to remote areas not served by other forms of communication. They can relay to moving objects such as ships and aircraft as well as fixed locations.

5 Communications

5.1 Electronic Mail: Computer networks enable machines to communicate with each other. In the office environment, a network enables information to be piped from one office to another or to any other point on the network. The sort of material you might write in a letter or say over the telephone can be transmitted over the network. Messages are keyed in at one point and displayed at another. Thus, information can be sent from person to person without any paper. Normally, such a message will be retained on a storage unit attached to the network until the recipient is ready to deal with it. Relaying message in this way is known as *electronic mail.*

5.2 Air Travel: While an aircraft is in flight, the conditions around it may change rapidly. A human pilot has only limited reactions to deal with these continuously changing situations, which may include sudden pressure changes,variations in wind speed and direction, and so on. As the flying speed increases, control decision must be taken more quickly. The pilot has to react not only to the instructions related to him from traffic control but also to the changing situations mentioned

above. In some situations, the computer itself automatic corrective actions without waiting for the slower human intervention.

5.3 Transportation: Other transport facilities such as railways also make use of computers extensively. They use computers for preparation of time-tables,scheduling,and for the control of busy stretches of track. Computer controlled ticket machines are used for the automatic checking of tickets.Computer programs are used by shipping companies to find the best method of loading and storing cargo. These programs take into account the variable factors such as size, weight, destination, urgency,etc.

6 Public Utilities:

6.1 Telephones: Any large organization with geographically dispersed units has a problem to the control of messages which are transmitted from one location to another via telephones. This problem can be solved by a telephone system in which each location is equipped with a transmitting and receiving terminal linked to a central switching centre. The switching centre makes the connection between the receiving and sending terminals. The switching function,which was done manually till now, is being performed by the computers. They also make a record of all messages for reference (if necessary) and maintain a log of calls for subsequent billing.

6.2 Medicine: The medical benefits the ability that profession computer systems can file and maintain vast amounts of information,and retrieve information from the files at high speed. Computer records can be built upon patients so that all the facts are available for scrutiny when decisions have to be made. Doctors can search through data banks of medical information to examine various case histories and to seek out up-to-date knowledge. The computer can be used to assist in the diagnosis of a patient's condition and to watch over the progress of a patient under intensive care. Computer can also be used in medical research and medical policy making.

6.3 Computer Aided Design (CAD): Aerospace, motor manufacture and electronic industries are using computer Aided Design (CAD) systems to develop new products. Development of a new product will involve the following steps: (1) preliminary design, (2) final design, (3) model development, (4) model testing, (5) prototype testing, and (6) production and construction. All these steps are made by using a computer. This will also enable industries to keep up with present demands and fashions.

6.4 Computer In The Home: The size and cost of computers are progressively becoming lesser. Today , individuals are finding that they can easily afford to buy their own home computer which can be plugged on to the home TV. Many parents in Europe and USA buying "Micros" as presents for their children. Computer are used in homes for playing games. They are marvellously entertaining and a wide variety of software is available which include traditional games such as chess and draughts.

7 Military Use of Computer

7.1 Military Planning: The computer assists in identifying various options. Operational Research (OR) is of prime importance for preplanning of any operation. The same is possible with the help of the Decision Tree. These are programmed into the computer, necessary variables are set and the best possible course is determined. It therefore not only helps in making decision but also in checking of decisions by the commanders.

7.2 Military Hardware: Computer are now a days widely being used in the weapon systems for increased efficiency and accuracy. Thus the probability of hit is greatly increased. Computers are the basic elements of the Strategic Defence Initiative (SDI) program,PATRIOT missile system and the cruise missiles.

7.3 Geographic Information System: In short GIS is a specialized data management system designed for the entry,analysis, management and display of data commonly found on maps. The system provides a multiple use of map. It can display a particular area of a region in the specific details asked for. This may include road network or facilities or boundaries or a combination of these. It can be modified to add map corrections provide additional symbols supported by legends.

7.4 Training: Training of armies are constrained by budgetary controls. Besides, sophistication and skill both require additional cost. To minimize on such high cost training which is equally restricted by the availability of training facilities test ranges and the element of safety, forced armies to look for alternatives and thus simulators were developed. Some of them are:

7.5 Management: This includes a wide variety of utilities necessary for all managers for the sound running of their organization. The Management information serves the five purposes of information-descriptive, explanatory, predictive, evaluatory and innovative, the new term being self explanatory needs no further elaboration. Some of the facts that a manager can accomplish are:

8 Conclusion

8.1 The world is passing through the information age. Computers have revolutionized every facets of human civilization. The recent advance in the field of science and technology has surpassed all previous parameters. The rapidity of its growth has outdated an invention of yesterday. To keep pace with such trend there is a dire need for automation.

8.2 The existence of modern tactical army has created a need for computerization for effective, faster and more accurate decision making at all level. Throughout the world defence organizations have resorted to computer in an effort to remain abreast with further development of the organization is the contribution of computer.Bangladesh should not be an exception to that and therefore go for total computerization at all level.

8.3 Everyday more and more of us find that computers have become part of our daily life. Newspapers we read have been typeset by computers,engineers have designed our houses with the help of computers, our payslips and telephone bills are printed by computers,etc. Even more directly associated with the machines are those who use them to their day-to-day work-scientists and storekeepers, clerks and directors, accountants and engineers, besides the growing number of computer personnel who are responsible for making the machines work.

9 Recommendation

9.1 For any developing country to incorporate a change would mean a massive financial involvement. Thus computerization would mean a structural change in the organization. This would need a very close scrutiny and concrete long term measures. However, Some of the suggestion or field where computer can be used more effectively:

9.1.1 Computerization of commercial world in our country such as Shop, Banks, Insurance and Credit companies.
9.1.2 The Govt should made necessary arrangement for the Computerization of various institutions.
9.1.3 School and college students should be given preliminary knowledge on computer.
9.1.4 Formulations of strategy and policy guidelines for promotion and development of computer technology in the Army.
9.1.5. Identification and selection of application areas and fixation of their priorities.
9.1.6 Formulation of action plan for developing necessary trained manpower.
9.1.7 Procurement and installation of hardware and software from abroad.
9.1.8 Standardization of hardware and software.
9.1.9 Ensuring optimum utilization of hardware, particularly the main frames.
9.1.10 Promotion of higher training and research in the field of computer science and its applications.

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