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Computer And Society

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INTRODUCTION : With the installation of IBM 43.31 Computer at the University of Dhaka on March 15 1985 and IBM 43-41 Computer at the Atomic Energy Centre in Savar on May 31,1985 Bangladesh may now be considered to have entered into the Computer Age. There are at present 9 mainframe computers in Dhaka including 5 of the IBM 43 series, one Honeywell and 3 of the IBM 370 series and there are 22 smaller machines including 6 of the IBM 36 series and 16 of the IMB 34 series of which one is in Chittagong

The development of Computers has been acclaimed as the most important technological breakthrough of the twentieth century. It has ushered in a Computer Revolution akin to the Industrial Revolution of the Nineteenth Century.

It is a pity that people in Bangladesh are still generally ignorant of the vital role played by Computers in today's society. The recent devastating cyclone in the coastal areas has perhaps opened up the eyes of our people to the urgent necessity of modern weather forecasting facilities based on satellites linked directly with computer systems. It is only the Computer which can analyse vast quantities of meteorological data in sufficient depth to determine weather patterns and hence make long-range forcasts. In an agricultural country like Bangladesh, such weather forecasts are vitally important for our peasants who unfortunately do not get much help at present from our government in this regard.

Computers have indeed become an essential component in all activities in modern science engineering agriculture education medicine government industry and business in advanced countries.

In academic research in Universities computers are performing complicated calculations which would have been impossible in previous years. They are being used by government agencies like the Census and by Banks and Insurance Companies to store, sort and retrieve billions of items of data of national importance.

They are monitoring and controlling physical biological and industrial manufacturing processes with undreamt of accuracies as for example in the production of electricity or news papers.

They are enabling hospitals to use sophisticated equipment to diagnose illnesses.

They are recording and processing sales, purchases, inventories, bills, payrolls and many other daily business transactions.

They are being used in formulating realistic economic models for planning the future.

They are making possible international television voice and data communication systems including earth satellite transmission systems and they are being used for space-flight navigation.

DEVELOPMENT OF COMPUTER

The earliest data processing devices were based on the employment of fingers stones and sticks for counting and the use of knots on a string and scratches on a door for record keeping some of which are still in use in the villages of Bangladesh. It is well-known that the Babylonians first started writing on clay tablets with a sharp stick and the Egyptians wrote on papyrus using a sharp-pointed reed as a pen and organic dyes for ink.

The earliest form of a manual calculating device was the abacus which originated in China and in some form it is still being used to teach children the first rudiments of arithmatic.

Charles Babbage is generally recognised as the first person to propose the concept of the modern computer. He designed and partially built a steam-driven mechanical calculator called the 'Difference Engine.' In 1833 he outlined his plans for an 'Analytical Engine' that would have been the forerunner of a modern computer but the machine was never built as his ideas were too advanced for the technology of his time. Many of his ideas were recorded and analysed by Lady Augusta Ada Byron, the daughter of Lord Byron, the famous English poet.

The first electromechanical digital computer was developed by Howard Aiken and was called Mark—1 which embodied many of the concepts of Charles Babbage. The first operational electronic dignital computer, the ENIAC was developed at the University of Pennsylvania in 1946 to compute artillery ballistic tables for the U.S. Army The first stored programme electronic computer EDSAC was developed at Cambridge University in 1949. It was based on concepts advanced in 1945 by John von Neumann who proposed that the operating instruction be stored in a high speed internal storage unit or memory and that both data and instruction be represented internally by the binary number system. These concepts form the basis of the design of present day computers.

The UNIVAC installed at the U.S. Bureau of Census in 1951 marked the beginning of the first generation of electronic computers. They were quite large and produced enormous amounts of heat because of their use of vacuum tubes. In the second generation of computer introduced in 1959 vacuum tubes were repiaced by transistors The use of magnetic cores as internal storage was the other major hardware development. The IBM360 introductd in 1964 signalled the arrival of the third generation of computers.

Starting from 1970, we now have the forth generation computers which make use of LSI i.e. large scale integration semiconductor circuits for both the logic and memory circuitry. The use of LSI technology enables thousands of electronic components to be placed on a tiny chip of silicon.

It is interesting to note that whereas the first generation computers were room size, the fourth generation microcomputers are typewriter size and whereas the first generation computers could do 300 multiplications per sec. the fonrth generations can do 20 million multiplications per sec. The average cost of performing 100000 multiplication in 1952 was U.S $ 1.26 and today the cost is only a fraction of a cent! Now what is a computer? A computer is an electronic device that has the ability to accept data, internally store and automatically execute a programme of instruction, perform mathematical logical, and manipulative operation on data and report the results. There are many types of computers like digital and analog computers microcomputers, minicomputers and main frame computers.

Computer equipment and devices are known as hardware while operating instructions that direct and control computer processing are called software. Computer hardware include equipment such as (i) The Central Processing Unit (CPU) of a computer system, (ii) Computer Terminals which use a keyboard for input of instruction and data and a video screen for output of information. (iii) Magnetic Disk Units which can store millions of items of data as magnetic spots on circular disks.

Computer software includes all types of programmes of operating instructions which direct and control computer hardware in the performance of data processing assignments. This include (a) System software such as operating systems which control and support the operations of a computer system and (ii) Application software which are programmes that direct processing for particular use of the computer such as a telephone billing programme.

COMPUTER AND SOCIETY

Is the Computer a curse or a blessing? There is no doubt that the Computer has excited public imagination and has generated both great fears and great hopes. According to a University Professor of Sociology, the Computer is "an instrument for imperialist domination." It has clearly become in the minds of some people a symbol for all that is evil in modern society.

Leaving aside such perverse criticism, there are others who genuinely fear the dehumanising influence of computers. We are vaguely aware that in the future our children or grand children will be educated by computers, our financial transactions will be taken care of by them and all our informational needs will also be serviced by them. Can it happen that the essentials of our personal life will be stored in the memory bank of some computer and used by autocratic rulers for their personal ends? Long ago in the book "Erewhon" by Samuel Butler the fear was also expressed that by evolution, machines may become conscious enslave man and supersede him.

Fortunately such a thing has not come to pass. It is improbable that we will be like the two scientists who are standing excitedly in front a large computer in a cartoon in the New York Times. One of them holds in his

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duced into such diverse area as transportation and communication banking and finance education and medical care. In advanced countries even airline and hotel reservations have become computerised. As a result of such new activities new jobs have been created.

Computer has not resulted in unemployment anywhere in the world. If schools universities and hospitals use computers for recordkeeping purposes there is no fear that the people engaged in administrative jobs in these organisations will become redundant. On the contrary, they are likely to be come more efficient.

This is particularly true for a modern government which is engaged in development work and is therefore a major purchaser of scientific and technological knowledge. The government has the responsibility of providing for food, shelter education and medical care ensuring economic growth by setting up industries and even for giving warning to people against cyclones and floods. All these activities require social planning and here the new intellectual tools like systems analysis computer simulation planning programming and budgeting are of the greatest importance. The development has use of systems analysis and computerized information management makes decision processes more efficient and rational. There is no doubt that computers will increasingly help the political decision-makers to aim at the ideal of universal social justice or at least at the greatest good for the greatest number.

Will a computer be able to think or to put it in another way will it ever be able to compose a poem? This is the closest a computer has done in this connection.