European Journal of Computer Science and Information Technology
Vol.3, No.1, pp. 15-42, March 2015
Published by European Centre for Research Training and Development UK (www.eajournals.org)

CATEGORIES AND GENERATIONS OF COMPUTERS

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ABSTRACT: *This scientific article speaks about generations of computers, PC history, saving data, Von Neumann architecture, input/output peripherals, software instructions, programs, mainframe, minicomputers, microcomputers, supercomputers, libraries and operating systems, computer networks and Internet, introduction to the world of computers, evolution of computer systems, from the literature specialized in computer science. Computers are divided into: mechanical computers-water and gas meters, electromechanical computers-electricity meters, electronic computers (I generation of computers, II generation of computers, III generation of computers, IV generation of computers), optical computers and biological computers. After the highest prevalence, electronic computers are divided into: analogue-electronic computers, digital electronic-computers and hybrid electronic computers.*

KEYWORDS: Mainframe, Minicomputers, Microcomputers, Supercomputers, Computers, Operating Systems;

INTRODUCTION

This scientific article speaks about: the electronic computer, the computer science, the Information Technology, PC-History, personal computers, Von Neumann Architecture(an electronic computer with four major modeules: Arithmetic-Logic Unit(ALU), Control Unit(CU), Central Memory(CM) and Input-Output Devices(I/O). Also it was existed HARVARD Architecture and DataFlow Architecture. I presented: digital circuits, Boolean algebra, CSIRAC(one of the first computer based on Von Newman Architecture), electronic tubes, transistors, integrated circuits, integrated circuit called microprocessor or CPU(Central Processing Unit), Intel's and AMD's processors, saving data, William's tubes, Dynamic Random Access Memory (DRAM), Input-Output Pheripherals, calculations, logical operations, industrial robots, the first generations of computers, program instructions, categories and devices, Internet, World Wide Web, software instructions, basic instructions, categories of instructions(transfer instructions, arithmetic instructions/logical instructions, test instructions or condition, instructions proper order), binary code, computational data(numbers, letters, symbols), binary logical values(1, 0), the machine language of the computer, computer programs, program instructions, professionals programmers, semi-professionals programmers and amateur programmers, graphics data, software engineering, stationary(desktop, tower, all in one, and so one); portable(laptop, notebook, netbook), tablet computers(or PC type and others), all portable celular phones handled of type smartphone, all tablet computers, some multimedia players like of type iPad from Apple company; notebook with detachable keyboars, which can be used as a tablet computer, simple computers(packets computers), fast computers->used to the so-called "farms" of Servers; mainframe, electronic games consoles, display of books and electronic media e-book, scanners, printers, TVs, DVD playback devices, Blue-Ray control, robots of all kinds, common elements for machine tools of type CNC, integrated computer(embedded). Many machines and devices, from cameras and devices based on GPS

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

system navigation are conrrolled by embedded computers. An example of integrated computer is on-board automotive computer. I made also a clasiffication of computer from the following

CRITERIAS:

I.Computer -general classification (after the working-capacity and speed responding), computers are: mainframe computers, minicomputers, microcomputers, supercomputers(Cray 2).
II. Classification by generations of electronic computers: the first generation of computers(ENIAC, UNIVAC), the second generation of computers, the third generation of computers, the fourth generation of computers(VLSI-Very Large Scale Integration), the fifth generation of computers.

This scientific article presented libraries and operating systems, directories, folders, memory and the use of the electronic computers. So, the first digital electronic computers, beeing very large and expensive, were used at complicated scientific calculations and were used for military purpose. The ENIAC was designed to calculate artillery attacks, but were also used to calculate artillery attacks and also to calculate the density cross neutrogen, in projecting of nuclear weapons. The electronic computer programmable COLOSSUS was used in cryptanalysis.
In 1950, LEO, one of the first electronic computer based on Von Newmann architecture(UAL, UCC, memory, input out devices), was used to inventary mangement. In the prior art, the electronic computers were employed for generating and editing sound images and video. For embedded computers, the first major applications were the guiding APOLLO mission and MINUTEMAN missiles.

Today we use industrial robots in all of our activities and also the progress of electronic artificial intelligence is considerable. The computer networks and the Internet are very important in all of our activities: economy, inductry, agricultures, services, accountability, mathematics, physics, informatics, office activities, personal activities and home activities.
Informatics is structured in: the computer's architecture, the opearating systems, the algorithms, the programming languages, the programming, the coding of information, the database management systems and the artificial intelligence.This scientific article speaks about a brief history of the electronic computers. Important here is the apparition in 1975 of the ekectronic computer called APPLE I, produced by Stephen Wozniak and Steve Jobs.

The fifth generation of electronic computers will be eqquiped with three-dimensional integrated circuits, with neural networks, with special command systems and the fingerprint recognition systems voice, with possibilities of analysis, interpretation and decision. After the literature of computer science, the readears know the main classes of electronic computers(supercomputers, mainframe, minicomputers, microcomputers). After the criteria PERFORMANCE the electronic computers are: supercomputers, large computers, minicomputers, microcomputers.

The electronic computers after the way of operation of electronic computers are divided into: electronical mechanical computers, the electronic electromechanical computers, the electronic computers, the optical computers and the biological computers.After the highest sperading it had received the electronic computers which in turn are divided into: the analogue-electronic computers, the digital-electronic computers, the hybrid-electronic computers.From the types of

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

the electronic computers, the most widely spreading had received the digital electronic computers, which in their turn, after the criteria increased performance are divided into: electronic microcomputers, electronic minicomputers, mean electronic computers or mainframe environments and electronic supercomputers.

LITERATURE/THEORETICAL UNDERPINNING

A computer called calculation system, is a machine processing data and information as a list of instructions called program. Nowadays computers are built in the vast majority with electronic components and therefore the word "computer" usually means an electronic computer. Computers that are freely programmable and can, at least in principle, process any data or information are called universal. Most computers today are not only planner information, but are also devices that facilitate communication between two or more users, for example in the form of numbers, text, images, sound or video or all at once(multimedia). Science of processing information with computers is called computer science. The technology necessary for using them is called information technology, IT (abbreviated from English Information Technology). In principle, any computer that has a certain minimum set of functions (i.e. which can emulate a Turing machine) can also perform the functions of any other computer. This versatility has led to the use of computers with similar architectures for different activities, from salary calculation in a company to the control of medical and industrial robots.
PC-history

The oldest known mechanism that seems to be working as a calculating machine is considered to be the mechanism from ANTIKITHIRA, dating from 87 BC and apparently used for calculating the movements of the planets. The technology that was the basis of the mechanism is not known. With the revival of mathematics and science during the European Renaissance came a succession of mechanical computers, based on the principle of a clock, for example the machine invented by Blaise Pascal.

The technique of storing and reading data on perforated cards appeared in the XIX century. In the same century, Charles Babbage is the first man who designed a fully programmable computing machine (1837), but unfortunately the project will not have success in part because of the technological limitations of the time. In the first half of the XX century, the calculation needs of the scientific community were satisfied by analogue computers, highly specialized and increasingly sophisticated. Improving digital electronics (thanks to Claude Shannon in 1930) led to the abandonment of analogue computers in favour of digital (numeric) which models the problems in numbers (bits) instead of electronic or mechanical signals. It's hard to say which was the first digital computer; notable achievements were: Atanasoff-Berry computer, the German Konrad Zuse's Z cars, for example electromechanical Z3 computer which, through very impractical, was perhaps the first universal computer, then the computer ENIAC with a relatively inflexible architecture which required wiring changes each time it is reprogrammed and BRITISH secret computer COLOSSUS, built on a system based on lamps and electronic programmable.

ENIAC design team, looking its shortcomings, has developed another, more flexible, architecture which became known as the von Newman architecture, or "stored program architecture". This is the basis of nearly all current computing machines. The first system built on Von Neumann architecture was EDSAC.

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

In the 1960s, lamps (electronic tubes) were replaced by transistors, more efficient, smaller, cheaper and more reliable, which led to miniaturization and cheapening of the computers. Since the 1970s, the adoption of integrated circuits dropped even more the price and the size of computers, allowing, among other things, the appearance of personal computers.

Von Neumann Architecture
Although the design and performance of computers have improved dramatically compared to 1940, Von Neumann architecture principles are still the basis of nearly all modern computing machines. It is named like this after the famous mathematician of Austro Hungarian Empire John Von Neumann.

This architecture describes a computer with four major modules:
1.Arithmetic-Logic Unit(ALU);
2.Control Unit(CU);
3.Central Memory;
4.Input-Output Devices(abbreviated I/O)

They are interconnected by a bundle of wires called bus on which circulates calculation data and program data (instruction) and are run in the tact of a clock (continuous pulse sequence). Conceptually, computer memory can be seen as a set of numbered "cells". Each cell receives as an address a unique number; they can store a small amount, predetermined, of information. Information can be: either an instruction or data itself. The instruction tell the computer what to do, and the data are the information that need to be processed according to their instructions. In principle, any cell can store (save) both instructions and data. Interesting is the case when one or more instructions, already stored in memory, are seen by other instructions as data that need to be processed/modified, and are, themselves, dynamic modified by necessity.
Other architectures used for the general use computers are, for example, HARVARD architecture and Data Flow Architecture.

Digital circuits (hardware)
The principles above are implemented with a variety of technologies, such as Babbage's machine which consists of mechanical components. But the only technology that has proven enough practical is the one of the digital circuits (numeric), electronic circuits that can perform binary arithmetic operations in Boolean algebra.But the first "known" digital used electromechanical relays to represent the state "0" (locked) and "1"(conduction), arranged in logic gates. Relays were quickly replaced with electronic lamps, vacuum tubes, 100% electronic devices used in electronic analogue for their amplification properties, who could also be used as switches (basic elements in computers) status, 1-0 or 0-1.Properly arranging binary logic gates, circuits can be built which execute more complex functions, for example adders. The electronic adder adds two numbers using the same process, algorithm, learned in school by children: each correspondent digit add and the shipment is sent to the figures on the left. Consequently, bringing several circuits, it can obtain a UAL and a complete UCC.

CSIRAC, one of the first computers based on Von Neumann's architecture, and probably also the smallest computer possible, had about 2000 lamps (tubes), so even for minimal systems it needs a considerable number of components. Electronic lamps were characterized by several limitations, severe in their use for building logic gates: they were expensive, less reliable, they were taking a lot of space and consuming large amounts of power. Although they were

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

incredibly fast compared to electromechanical relays, they still had a relatively limited operating speed. So, since 1960, lamps (electric tubes) were replaced by transistors, devices that function as them, but they were much smaller, faster, more flexible, less power consuming and much more expensive. Between years 1960-1970, the transistor was also replaced by integrated circuit that contains more transistors and interconnecting wires corresponding on a single silicon wafer called CIP.

Since the 70s, UAL combined with UC were produced unitary as integrated circuit, called microprocessor or CPU (Central Processing Unit).
In time, the density of the transistors in integrated circuits has grown incredibly, from a few dozen in the 70s to more than 100 million transistors per integrated circuit, at INTEL's and AMD's processors, starting from 2005.

Saving data
Electronic lamps and transistors can be used for building memory circuits called flip-flop-so or "dump flip-flops" (CBB) and they are used for high-speed small circuits, called the "direct access". But few computer designers have used bistable for (large) memory needs. The first computers used "Williams tubes" essentially projecting points on a TV screen and reading them again later, or lines of mercury, in which the data was stored as sound waves, which were traveling tubes at low speed(compared to the speed of machine operation).These methods, which were not productive enough, were replaced with storage devices (memory) in magnetic carrier medium, e.g. memory with round magnetic cores, in which a permanent magnetic current (but weak) in a ferrous material which can be read, if needed, for using the data.

Finally, there appeared Dynamic Random Access Memory (DRAM).Dram is made up with banks of capacitors, electrical components which can hold an electrical charge for a certain length of time. Writing information in such memory is made through the charging of the capacitors with a specific electric change, and reading by determining (measuring) their change (if it is loaded or downloaded).

Input-Output Peripherals
I/O (Input-Output) is the general term for those devices which help a computer receive information from the outside world, including instructions on what to do, or send back (outside) results of calculations or logical operations that it have done. Results can be designed as information to people, or can be used directly as decisions in controlling other machines; for example, in case of an industrial robot, the most important output device (device O) of the computer (the robot) embedded in it creates detailed commands required for all mechanical operations (movements) of the robot itself.

The first generation of computers was equipped with a range of quite limited and reduced execution speed I/O devices, for example, for introducing calculation data and the program instructions there was mainly used a punched card reader or device, or a similar device, and for displaying the results it was used a printed, usually a modified teleprinter of type "TELEX".
In time, there appeared a huge diversification of I/O devices. For today's personal computer, the most common ways for direct input of data are keyboards and mice, and the main way in which the computer shows information to the user are monitors, however printers or devices that generate sound are used routinely.

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

Ather devices are specialized in only certain types of inputs and outputs, e.g. digital camera and scanner.

Two main categories of devices are:
1.Secondary storage devices: disk, CD, DVD, hard disk and others; storage capacities can differ greatly between them.
2.As well as devices for connecting to computer networks.

The possibility to interconnect computers to transfer data and information between each other opened the door to many new applications. The Internet, and here in particular World Wide Web, allows billions of computers around the world to connect to each other to transfer between themselves all types of information.

Software instructions
Instructions interpreted by the control unit and executed by ALU aren't resemble with human language. The computer knows by building a relatively small set of basic instructions that are simple, well defined and unambiguous. Sample examples of instructions are "it copies the memory cell 5 and place the result in cell 10", "adds the contents of cells 7 of 13 and place the result in cell 6", "if the contents of cell 999 is 0 (zero) the next instruction to be executed is found stored in cell 30", if not "it follows the sequence (sequence of instructions) on".
The computer's instructions are divided into four categories:

1.Move data from one location to another (transfer instructions);
2.Implementing arithmetic and logical operations on data(arithmetic instructions, logical instructions);
3.Testing conditions, for example "the memory cell 999 contains one 0"(test instructions or condition);
4.Modification of the sequence (string) of operations (instructions proper order).

In computer "external" instructions are stored and thus represented in binary code, just like other computational data (numbers, letters, symbols). For example, the code in machine language for one of the copy operations in a microprocessor manufactured by company Intel is 10110000, "1" and "0" are the two binary logical values "understood" by the microprocessor (computer machine). In addition to the above example, we can infer that an adding instruction in Intel microprocessor, must be represented in another way so than the copy, for example 01001110. The set of instructions implemented in a computer forms and it is called the machine language of that computer. Simplifying speaking, if two computers have CPUs (Central processing units) that respond equally to the same set of instructions, software (executable) written for one can run and on the other for almost no changes, but for example at different speeds. Easy portability represents a motivation for computer designers, so that they don't radically change existing designs than for substantive reasons.

Programs
Computer programs are lists of instructions executed by a computer. These may include a few instructions that perform a simple task, computational data(numbers, letters, symbols) up to millions of program instructions (some of them executed repeatedly), plus data tables. A personal computer from 2008 in the category under 1000 euro is able to execute over 4 billion of instructions per second.

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

Composing and writing these programs is done by programmers, which are professionals, semi-professionals or amateurs, depending on the topics to be solved and development environment. In practice, the programs are not writing no longer, in machine language of the computer. Writing in machine language is extremely laborious and errors it could easily slip, which can cause decreased productivity at programming.

Currently, desired programs are usually described/written in a programming language of higher level (superior), who, before it can be executed, is automatically translated in language-machine by specialized programs (interpreters and compilers) i.e. in a language intelligible of computing machine (personal computer).Some programming languages are very closely related to machine language to the computer base, such as assembly language, so that are called low-level languages, that do not pay me the attention (if the interpreter or compiler works correctly).The language chosen for a particular problem depends primarily of the nature of the problem, the professional competence of the programmers, the possibility of design tools and the budget available. Programs are also called software, they can be permanently stored and/or only temporarily stored; but the software can include, in addition to the actual programs, also auxiliary material such as: graphics data, in the case of a computer game.

Modern software design tools and also programming techniques, that focus on code reuse (for example object oriented design) makes possible the realization of a complex programs consisting of tens of millions of instructions; for example Firefox browser of Mozilla organization consists from more than 2 million lines of code in C++ language.
The management of these complex programs makes the subject of a science called software engineering.

Constructive variants of personal computers
Today, personal computers are produced in numerous forms and presentations. Probably the most familiar is personal computer, with his constructive variants:
1.Stationary: desktop, tower, all in one, and so on;
2.Portable: laptop, notebook, netbook, etcetera.
3.Tablet computers (of PC type and others);
4.The following more recent devices are all programmable computers itself (or only in factory, or by the user): all portable cellular phones handled of type smartphone, all tablet computers, some multimedia players like of type iPad from Apple company; Some manufacturers offers combined types, such as a notebook with detachable keyboard, that can be used as a tablet computer.
1.Simple computers, for example packets computers;
2.Fast computers, used to the so-called "farms" of Servers; usually they are not deserved by human users, and therefore they don't need to be ergonomic. For them are often used rectangular shapes, which enables the compact stacking.
3.Professional computers of high speed and large dimensions, which are the mainframe. Machines and special devices: electronic game consoles; electronic case received; display of books and electronic media e-book; scanners, printers, TVs and even DVD playback devices and Blue-Ray control contain digital elements that are, in a way computing components; robots of all kinds; command elements for machine tools of type CNC and more.
4.The most common form is of the integrated computer (embedded) that is embedded completely in the device that it orders. This, it is generally programmed from the factory, and the end user does not get the opportunity to change his program. Many machines and devices,

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

from combat aircraft fighter to digital photo cameras and devices based on GPS system navigation, are controlled by integrated computers. Another example of integrated computer is on board automotive computer.

I.Computer –general classification (after working capacity and speed work-responding), computers are:
1.Mainframe computers
2.Minicomputers
3.Microcomputers
4.Supercomputers
II.Classification by generations of computers:
1.The first generation of computers;
2.The second generation of computers;
3.The third generation of computers;
4.The fourth generation of computers;
5.The fifth generation of computers;
I.General classification (after working capacity and speed)
1.Mainframe computers represent very large computers with the following advantages in processing data:
-processing at very high speed;
-greater capacity of data storage;
-permits simultaneously using (multiuser) from several terminals or consoles (around 1000 consoles);
-executes simultaneously many programs (multitasking);

The scientific article "Virtual Worlds. Opportunities and Challenges in the 21-st Century" tells that "This paper offers a broad version of potential benefits which virtual worlds may provide for improving leraning, collaboration, motivation and therefore, the improvement in academic performance of students. The paper underlines how virtual worlds may offer new experimental platforms through new interactions perceiving the chalangeable nature of technology. The article is based on the results of the experience developed in the mainframe of the educational innovation project performed at La Laguna University during the 2012-2013 academic courses. The technological infrastructure has been created already and the 3D graphic modelling was designed using open source software aiming for creation the "La Laguna Virtual University" virtual world. Teachers have given ubiquitous classes in this virtual environment interacting with students. All feedback from teachers and students has already been gathered in this exoperience." [1]

2.Minicomputers are computers with small dimensions, with a storage capacity below of the mainframes and with a smallest number of users, with access to the console. It is recommended for smaller companies, whose subsidiaries, branches or workplaces do not exceed the boundaries of a country or a region (approximate 100 consoles);The scientific article "Minicomputers' Strength in Numbers" tells " Abstract: The minicomputers are VAX machines, a brand commonly used by scientists and engineers, with power between that of a personal computer and a mainframe. Three of the minicomputers were Sandia's facility in Albuquerque, and 11 were 1,100 miles away in various buildings at Sandia's lab in Livermore, Calif.

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

Full text: Computer scientists at Sandia National Laboratories have found a way to link 14 oridinary minicomputers in several locations into a network that makes them work like a supercomputer. The minicomputers are VAX machines, a brand commonly used by scientists and engineers, with power between that of a personal computer and a mainframe. Three of the minicomputers were at Sandia's facility in Albuquerque, and even more 11 and 1.100 miles away in various buildings at Sandia's lab in Livermore, Calif. Combined, they solve problems with speeds comparable to that of a Cray 1, a widely used supercomputer taht costs significantly more than the minicomputers.The trick, according to Robert Whiteside, program manager at Sandia, was software that turned the network into a parallel processing computer. Individual minicomputers solve mathematical problems linearly, one step at a time. The Sandia software breaks problems into several small parts that can assigned to each minicomputer for simultaneous, or parallel, processing. Then the results of each minicomputer are brought together to final processing.When the same problems were run on Cray 1 and Sandia's "Supernet" system, the network was sometimes twice or fast as the Cray, sometimes slower but still providing an efficient performance for the price and sometimes very much slower. "[2]

3. Microcomputers are personals computers based on microprocessors. Currently data processing capacity and high working speed on Internet makes that networks of computers to compete strongly minicomputers and even older computers.

4. Supercomputers are large computers characterized by:
-very high execution speed (more than 109 operations/second);
-capacity storage (memory);
-very huge accuracy data representation;
-can receive input data from more than 10.000 workstations (personal computers);
-appreciable prices (for example Cray 2 costs 17 million $);

Currently, in the world there are about 600 supercomputers typically used in the military area and aerospace, even that scientific institutes or governmental sphere in social security institutions.The scientific article "Supercomputers" says that "The early history of supercomputers is closely associated with Seymour Cray, who designed the first officialy designated supercomputers for Control Data Corp. in Mineapolis in the late 1960s. His first design, the CDC 6600, had a pipelined scalar arhitecture and used the RISC instruction set that his team developed. In this architecture, a single CPU overlaps fetching, decoding and executing instructions to process one instruction each clock cycle.Cray pushed the number-crunching speed available from the pipelined scalar architecture with the CDC 7600 before developing a four-processor architecture with the CDC 8600. Multiple processors, how-ever, raised operating system and software issues. When Cray left CDC in 1972 to start his own company, Cray Research Inc., in his boyhood hometown of Chippewa Falls, Wis., he abandoned the multiprocessor architecture in favour of vector processing, a split that divides supercomputing camps to this day. Cray reasaerch pursued vector processing, in which hardware was designed to unwrap "for" or "do" loops. Using a CD6600, the European Centre for Medium Range Weather Forecasts(ECMWF) produced a-10-day forecast in 12 days. But using one Cray Resaerch's first products, the CRAY 1-A, the ECMWF was able to produce a 10-day forecast in five hours."[3]

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

II.Classification by generation:
This classification it follows the historical evolution in connection with technological successes. As I mentioned, it can distinguish several generations of computers:
1. The first generation of computers, which was developed around 50s from the twentieth century. They had control unit with electronic tubes, higher access time, were unreliable and with higher energy intensive, they were very expensive (Examples: ENIAC, UNIVAC).
2. The second generation of computers, which was developed in the 60s of the last century. They were equipped with central unit transistors, were much smaller, were cheaper, more reliable and faster than about 100 times that of the first generation.
3. The third generation of computers, was developed after 1965, it used the first integrated circuit and it had smaller sizes and higher reliability. They were about 1000 times faster than the second generation of computers and enabled high-level programming (Fortran, Cobol, Algol, Pascal, etc.)
4. The fourth generation of computers was specified in the 70 years of passed century and it is now also used (4 and 5 generations).
These computers had the central processing unit built on the microprocessor or parallel processors (multiprocessor); also were used VLSI circuits (Very Large Scale Integration) and new software adopted to high-technology hardware structure. It was characterized by significantly reduced size and had greatly increased reliability compared to third generation computers.
5. The fifth generation of computers is under testing and development. These computers have huge capacity of memory and processing, are based on nanotechnology and new materials in the electronic structure, which allows to design software for artificial intelligence (automatic recognition of images or voice signals , allow the human-machine dialogue naturally, may have the capacity optimization and decision).

III. Classification of computers by capacity and working speed:
1. Mainframe computers-> they are very large computers, with the following advantages in working data:
->processing at very high speeds;
->large capacity of data storage;
->allows simultaneous usage (multi-user) from several terminals or console (around 100 consoles);
->run multiple programs (multi-tasking);
2. Minicomputers are smaller computers, with a storage capacity less than a mainframes and a smaller number of users, with access from the console. It is recommended for small companies, whose offices or workplaces do not exceed the boundaries of a country or a region (approximatively 100 consoles);
3. Microcomputers-are personal computers based on microprocessor. Currently, data processing ability and high working speed on Internet make that networks of microcomputers to compete powerfully minicomputers and even the bigger computers.
4. Supercomputers are very large computers, characterized by:
-> very-high execution speed(more than 109 operations/second);
-> data capacity storage (memory) very high;
->high precision of data representation;
->may receive input data from more than 1000 workstations;
->prices appreciable (for example Cray 2);
Libraries and Operating Systems

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

Not with long time after the development of the computers, was found that the same routines (parts of the programs (sub-programs)) with a well defined purpose , may sometimes be used in several different programs, one example being the calculation of the mathematical functions. For reasons of efficiency , standard versions of these routines began to be collected in libraries and programs made available to all interested parties. Another set of required routines have proven to be communicating with various I / O (peripheral devices input / output) .
In the 1960 computers started to be widely used in industry and economy, and a computer could be used at the simultaneous execution of multiple tasks through interleaving in time of programs. Soon appeared and the software (system program instructions) specialized in the automatization planification of these tasks.

The combination between a software manager of the hardware and a software planner of tasks became known as the "operating system". An example of operating system was the System OS/360 of the american company IBM.The next major step was time sharing, through which many users can use a workstation simultaneously. For each of these programs is stored in memmory, executing on all portions of the program for a short period of time, thus providing each user (client) computer illusion works only for him. Module storage (memory) data has envolved and be appeared the concept of "file system" in which files of data carrier dunt arranged in a hierarchical structure of "directories" or "folders". Add major operating system was a few years ago a graphical user interface (GUI). Besides these basic functions operating systems and often contain additional toolbox that are highly functional and partial complex sophisticated. Embedded computers come with operating systems much smaller and more limited in function, some even without operating systems. In this case highly program that leads all operations performs itself.
Use

The first digital electronic computers, being very large and expensive, were used at complicated scientific calculations and were used often for military purpose. The ENIAC was designed to calculate artillery attacks, but was also used to calculate the density cross neutron, in projecting the hydrogen bomb. Many of modern supercomputers are used for simulations of nuclear weapons. Other computers were used in cryptanalysis, for example the first electronic computer programmable COLOSSUS.Despite the focus from the beginning on military scientific applications, computers started and in other areas, such as business.LEO, one of the first computer based on VON NEWMAN architecture(UAL, UCC, memory, input output devices) was used to inventary management since from 1950. With the advent of microprocessors and computers significantly cheaper, they have found applications in accounting, office, weather forecasts and composition of another nature, in repetitive mathematical calculations and spreadsheet.

In the prior art, computers were employed for generating and editing sound, images and video. Today, these activities are carried out almost exclusively on the computer. Also, the computer games industry is very lucrative.Computers have been used to controlling mechanisms (electromechanical devices) from the moment when they became enough smallest and cheapest for this purpose. The first major applications for embedded computers were guiding APOLLO mission and MINUTEMAN missiles. Today we are meeting increasingly rare mechanical equipments that are not controlled in one form or another by the computer.
One of the most complex such equipments are industrial robots, machines more or less similar to man and to his skills. The computers are increasingly be used in a domestic environment,

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

for applications like "is somebody at home?", "if it is somebody at home, the computer turns on T.V. at 7:00 PM" or reduces the "the heat on night".The industrial robots are regular presence in mass production, but humanoid robots have not yet reached at the level to which they are portrayed in the SF anticipation literature and they are today only toys or subjects in research.

Also, the progress of artificial intelligence in creating a computer "with electronic intelligence at the human level" has been until now so far extremely slowly, although over the time were developed methods that enable to computers to perform tasks quite well, which initially is suspected that were by excellency uniquely human, such as chess table or reading handwritten. The computer networks and the Internet

In 1970's, from the military research institutes from United States have begun to interconnect computers using the telecommunication technology. The computer networks had coordinating-subordinate character, meaning that the respective structure contained computers "equal in rights", that which were subordinate to the commands of a main computer called "conductor". The project was sustained by the agency DARPA of Defence Ministry, and the network of computers which was founded was called ARPANET.

Over time, the network ARPANET has huge expanded, beyond its initial academic and military purpose, and became known as the Internet. The evolution of networks brought a redefinition of the nature and the limits of a computer. In the words of John Gage and Bill Joy from Sun Microsystems "the network is the computer". The operating systems and the applications of computers have changed, including now the ability to define and access the resources from other computers of the computers network(either programs and informations, or devices connected to them), as extensions of the local resources. Initially these facilities were available primarily to people working in high-technology environments, but after the 1990's, with the spread of applications such examples as e-mail or WWW (World Wide Web), and with and development of technologies of connecting in the computer network fast and cheap as Ethernet or ADSL, the computer networks broke practically all areas of life.

Introduction to the World of computers-Informatics, Evolution of Computer Systems
The contemporary society is confronted with one of the most spectacular phenomenon ever known: the electronic computerization. It's a new environment, an environment which surrounds us and which we have to learn to live. This environment, which for some people it is more difficult to access, represents the result of the latest and most important revolution that mankind has known in terms of progress, the information revolution.Many humans have referred to this phenomenon as the second literacy computerization. And why not? In fact? It Disappear ordinary pencil, paper, book, the huge archives where you search, and rarely you find what you are looking for and all of these are all slowly, but almost certainly, replaced with the little monster, the electronic computer…

The application of new technology is recognized as being particularly important for economic growth and improving the quality of life, in general.The globalization has now all the necessary elements in letting self-regulate effectively. The application of new information technologies has generated the higher global production, with fewer resources; less energy, less physical work.

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

Just thinking of the fact that until now, the morse signals, the telegraph, the telephone, the radio and the television had served to a single purpose: transmission information. Well, now a computer connected to the Internet simply include them all. Eventually, everything is changing…

The global economy is moving towards as a knowledge society and innovation, with enormous growth potential. For achieving this desiderata, it requires a considerable number of people trained in the field of information technology, people-able to cope the fast pace of development of society. Thus, the knowledge and the innovation becomes the decisive factor in determining competitive capacity.The addressing of changes in a rational way is vitally important. If the twentieth century belonged to the engineering, culminating with the computerization, we can now say with certainly that the twenty-first century is the century of communications, of cybernetics and electronic computers.To the top shy or impressive, computers occupied entire rooms or levels. The time has solved this problem. Now, the computer occupy only a corner of the office without too much inconvenience. But the process, has not been stopped, because look the first palm-tops, even the tiny cell phones began to have hardware features becoming more ambitious, more complex, for software applications more elaborate,higher consuming of resource, which shows the greatest speed of development of the information technology. The electronic informational revolution it monitors all what surround as. All around us is electronically processed, compared, framed, electronically transmitted and displayed. We have gained a new existential partner: a terminal of the mondial informational network, with the expansion in sophisticated domains from sphere of scientific area, military domain and the aerospace area.

Given the above, it requires an overview of the premises underlying of triggering of the informatization phenomenon. It is important to follow in time the evolution of what today we call electronic computer: how do appeared electronic computers? Which made the first electronic computer? Which are the components of a electronic computer? And the interest questions can continue. Also, we must be aware that the technology and informatic "boom" will not stop here, and that it is probably what why I have detailed today in a few years it will be commonplace.

1. Informatics is the science that deals with development, implementation, evaluation, operation and maintenance of systems that process information.
2. Computer technology is the application of informatics in society in all fields.
3. Information Technology, abbreviated IT represents the combination of information technology with other technologies.
4. The informatics culture uses in a clever way personal computers and other information systems in daily activities.

In a generally accepted way, an electronic computer may be defined as "a electronic machine", that shapes and manipulates the information, at order of a the human operator. For the electronic computer, the information is both as input and as output, meaning that a certain kind of information entered into the computer for processing are transformed into other information necessary for development of knowledge in a particular field.in other words, the personal computers processes automatically the information, his construction having like based on information theory.

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

The information has the character of a message object, new , which aims the elimination indeterminate about realization any particular event. Any information, regardless of its complexity, can be transformed into elementary information provided by the precision of any variant from several possible .from most times, there is confusion between the notions of "information" and "data".

I have to mention that the information can be processed by an electronic computer in its rough. The modelled and manipulated information by electronic computer has an encoded representation. This representation is provided to electronic computer as input data and after some complex processing, the electronic computer will provide to user the usual results, respectively the output data. The data are actually a model of representation the information to be processed by the calculus system. The informatics is a relatively a new field of activity, its development as science is conditioned by the appearance of the electronic computer.
The informatics represents in fact a complex of disciplines through which it ensures the processing, respectively the rational manipulation of informations through the electronic computers

The accentuated development of the domain has imposed the structure of the informatics in different subdomains, but independent, after it follows:
1. The computer's architecture-constitutes the way of organization and connecting of the physical components of your computer, in order of the configuration and an optimum performance.
2. The operating systems-deal with the way of organization, the control and the coordination of the various programs of the calculus systems, considering optimal ways of functioning.
3. The algorithms-represent different possibilities for the design of applications, the steps of following, for the corect of different categories of informations.
4. The programming languages are possibilities of translations of algorithms in languages that can be understood by the electronic computer.
5. The programming includes the process and automation possibilities of design activity and processing applications in accordance with a considered program.
6. The coding of information involves performing numerical and symbolic calculations in order to translate real-world phenomena in mathematical models easily described algorithmically.
7. The database management systems-deal with methods of organizing large amounts of data, so the access will be more easier.
8. The artificial intelligence- represents the set of techniques and methods that deals with the capture and reproduction of aspects of human knowledge and processing symbolic, non-algorithmic.
There are other possible ways of defining and classifying the subdomains of the informatics and of its applications.
By using artificial intelligence systems, the application domains of informatics it greatly expand through the implementation of new montions, such as: the knowledge processing (not data), the symbolic processing (not algoritmic).
If the classical information is defined as the science of automatic processing information (datas), the computer intelligence is the science of automatic processing of the human knowledges.
The basic scheme of a personal computer includes the following elements:

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1.The hardware-is the physical part of the computer, which includes: cpu, memory and peripherals.
2. The software-is represented by the totality of software programs available in a calculus system.
3. The peopleware-designates the human staff dealing with development, implementation, operation and maintenance of calculus systems.

Computing –Brief History

Although hard to believe, the first means for calculus the decimal numeration system was the abacus.

This it allowed people, with about 2000 years BC, to perform the calculations of increasingly complex calculus based on simple arithmetic operations. In ancient china, the abacus was as a frame with 9 bars on which slide 7 balls, was the used and fastest "calculus device" of that time. depending on the utility, the abacus has undergone minor modifications. however, he managed to keep up in today, so we can say that he was the device that has the longest life.
In the seventh century bc, the indian mathematician brahmagupta had the merit to discover the philosophical entity zero in mathematics.in the same period the indians used a positional numeration system, very logical, easy to use and understanding in arithmetic calculus.
The arabic school of science had made a remarkable contribution in various fields such as: the medicine, the astronomy, the chemistry, the physics, or the mathematics. even the name of algebra (al-jabr from the vocabulary) is of arabic origin.

The expansion of arabic civilization in the mediterrana and until far east orient has created the premises of taking of the concepts from the ancient egyptian civilization, the phoenician,the indian and translating them into new models of thinking and their spread throughout the land under the influence of arabic origin.In 1617 John Neper from Edinburgh creates the logarithms and invented a computational tool which was formed of 10 rods called "rods of Neper" on the basis of which were built the first tables of logarithms.`Undoubtedly, books with tables of calculus occupied a significant volume were difficult to transport and it takes the problem of creating of an instrument more complex than the abacus, but with the same efficiency and power calculations with logarithms.

Almost simultaneously, in different parts of Europe, in the seventeenth century, it bases of methodological slide rule, an ingenious tool used until recently mainly in engineering domains, which can give results fast and quite accurate. The first calculus machine itself was invented by Blaise Pascal in the year 1642. The calculus machine was composed of a gear mechanism, that could add and substract and make transportation at adding from a position at the next higher rank position. The principal was the basis of "the marked machine" whose life was over three centuries and with a spreading throughout the world. In 1671, Leibnitz realized a mechanic marked machine, which knew how to multiply on the basis of repeated additions. The same mathematician was concerned with the simplification of the numeration systems, discovering the binary numeration system. This theoretical discovery, corroborated with the industrial revolution has constituted the premises of the appearance of the first elements of automation and robotics, what is today considered as rudimentary. Let's enumerate only the automatic loom of Voncanson, the perforated drums of the germans barel organs or the loom with punched cards of Jacquard's. Between 1834-1854 George Babbage, an english of french origin, elaborates the first analytical machine realized more theoretically than practically. Starting from perforated cards to the loom, Babbage introduced in his machine and a block of

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memorising which keeps the data that would be processed and the intermediate results. Staring from perforated cards to the loom, Babbage introduced in his machine and a block of memorising which keeps the data that would be processed and the intermediate results.
In 1854, George Boole invents the logical calculus and lays the foundations of the Boolean algebra. In order to facilitate the registration of data obtained at censuses, the statistician Herman Hollerith builds in 1887 a mechanical recording and processing system of data using the perforated cards. The firm founded by him, merges with other similar firms forming in 1911

COMPUTING TABULATING RECORDING COMPANY.

In the year 1924, it changed again its name in International Business Machines Corporation (IBM). Up to this time the mechanical calculus machines it functioned mechanically using gears. Some machines with gears used until 60-70 years of the last century as the name of tabulator. They had treated the information recorded on perforated cards and had printed the results on the paper. In 1920 appear the first electromechanical calculating machines. In the same period is discovered the principle the principle of the magnetic drum, the first magnetic device of information storage.And all in these years Ecles and Jordan has realized the first electronic cell of memory, and the first toggle flip-flop circuit with electronic tubes.Between 1939-1944, the Professor Howard Aiken at Harvard University invented the first electromechanical computing machine called the Mark I. The invention is taken by IBM and it is built as industrial product. The main beneficiary was the American administration.

Mark I had in his componence the relays and gears, the counting for realization of the calculations and perforated paper tapes for the introduction or outgoing of the datas. The processing process can be updated by changing of the perforated cards packet. During of the second world war, it pay attention to the calculus for artillery ballistics. Thus, the american army substantially had supplemented the annual budget for a contract with the University of Pennsylvania to the realization of an electronic computer. The team led by John William Mauchly and John Presper Eckert managed between 1942-1945 to create it. Named ENIAC (Electronical Numerical Integrator and Computer), was inaugurated in february 1946 and was used by the american military until 1955.His objective was to reduce the computation time and replacement gears with bistable circuits. In 1944 it managed the construction of the first arithmetic sumator and from here to the final form of the project was not a single step. ENIAC had a desk command control panel with 40 panels with landmarks for slips of papers with cables of relation. Programming is done by placing slips of papers with cables in various landmarks (as in telephone exchanges) and positioning of many several switches on the control panel.Data were introduced on perforated cards. This computer has in his componence 18.000 of electronic tubes, had occupied an area of 160 square meters and had weighed about 30 tons. The calculation speed was of 1900 additions or substractions with numbers of 10 digits, per second, exceeding of 1000 times the rapidity of the most performing classical calculating machines. The energetic consumption was enormous and for the introduction of a group of commands were necessary several hours and even days.

The checking had continued another few days and has involved cheking of electronic processing instalations, as much as the logical aspect of the information. The language used was in machine code. In 1951 was built UNIVAC(Universal Automatic Computer), the first commercial computer, and was considered the representant of the first generations of

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computers. John Von Neumann in 1949 had the idea of the introducing inside the computer, both initial data and the software that led to the creation of the first computer with memorized program taht can be programmed directly by the operator.

The discovery from 1949 of the transistor realized with the semiconductor materials was quickly exploited for the miniaturization of the electronic circuitry, such as in the domain of electronic computers, by replacing the electronic tubes with transistors, were created the premises of the transition to the second generation of the electronic computers.The using of the circuits with the transistors in parallel and of the semiconductor memoryes has enabled to the firm IBM to launch in 1964 the electronic large computers from the System Series 360 which inaugurated the third generation of the electronic computers.The elimination of the systems with discrete components: diodes, transistors, resistors, etc. and the expanding of the integrated circuits in the componence of the electronic computers had ensured a considerable increasing of the calculus speed, a decrease of the consuming energy and the defection rate.

According to some authors it considered that this was what the fourth generation of the electronic computers, the one in which we find ourselves.In 1971, Intel created the first I.4004 microprocessor. On four bits, whose construction was made possible due to the development of microelectronic technologies and of the high embedded capacities memoryes.In 1971 is produced and the first microcomputer MICRAL by the firm R2E (France), which was used the 8008 microprocessor, produced in the same year by Intel firm.Shortly Intel had realized the second generation of microprocessors represented by the I8080 microprocessor. Two young men, Stephen Wozniak (26 years old) and Steve Jobs(20 years old) had produced in 1975 an electronic computer called Apple I, so that introducing and the notion of personal electronic computer. In the late 70s of the last century (1978), appears I8086 microprocessor, which marks the transition from 8-bit microprocessors to 16-bit ones.The memory capacity has increased considerably, had mainly the advantage of the using of dynamic semiconductor memories of high capacity of today, the memory on a hard disk (HDD) and the optical storage memory.
In the year 1982, it appears the microprocessor I80286, in its componence entering the system-devices and virtual memory mechanisms, multitasking and protection.The appearance of the microprocessor 80386 in the year 1985 realizes the transition to the 32-bits microprocessors. Compared to this, the microprocessor 80486 and the following (from Pentium series) have the mathematical coprocessor embedded in the same circuit and the calculus speeds had increased greatly, working at the frequency clock at 100-1000 MHz or higher.

Generation V, at which it tends, will be equipped with three-dimensional integrated circuits, with neural networks, with special command systems and the fingerprint recognition systems voice, with possibilities of analysis, interpretation and decision. [4]
From the literature of computer science, we know the main classes of computers:
1.Supercomputers
2.Mainframe
3.Minicomputers
4.Microcomputers
Usually for the computers' classification it utilizes the criteria that characterize the performance. The general characteristic of an electronic computer include the following:
1.Speed operating
2.Large computers (Macrocomputers)
3.Minicomputers

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4.Microcomputers
1.The supercomputers can execute above 10^3(10 billion) of operations per second and costs hundreds of millions of dollars. Researches and projections in the industry of the supercomputers are made in the USA and Japan. Supercomputers are used in highly complex data processings in aerospace, nuclear physics, astronautics, seismology, weather widgets.
2.Large computers can run 10^12(1 billion) operations per second, their cost is a few million dollars. Usually, large computers include dozens of magnetic disks drives and printers, hundreds of consoles (console consists of a viewer, a keyboard and sometimes a printer) ordered at different distances. These computers are used in the large computer centers and operates non-stop.
3.The Minicomputers may execute hundreds of millions of operations per second, and their cost does not exceed 200.000 dollars.
4.The peripherals equipments of a minicomputer include several magnetic disks, one or two printers, multiple consoles. The microcomputers are easier to use than larger computers and they are applied in computer aided design, in industrial automations for processing of datas, in the scientific experiments.

The microcomputers, also called personal computers are realised at low price between 100$ and 15.000$ and provides a computing speed of order of millions of operations per second.
It usually, the peripherals equipment of a microcomputer include viewer, keyboard, a rigid disk drive, one or two floppy disk drive and a printer. The corporations that produce microcomputers exist in many countries, but among world leaders, widely unknown, are the companies: IBM, Hewlett Packard, Apple, Olivetti.

I mention that the latest technologies allow the construction of personal computers in various versions: desktop (desktop PCs), notebooks (laptops) and small computers that may be held in one hand and operated with the other hand (palmtop).Depending on the type of electronic components we distinguish generations of computers. So, the first generation of computers include electronic computers with electronic tubes and the second generation of computers have electronic computers with transistors. The third generation of computers has at basis the integrated circuits. An integrated circuit contains in a single capsule several transistors.
As the technological progress, the number of transistors in a capsule grows to one million, thus leading to large-scale integrated and very large circuits.The modern electronic computers are made with such circuits and they make part of the fourth generation of electronic computers.

The Technical Fundamentals of The Computers-The Classification of The Computers
Since the advent of the first computers until today, in the world were produced a wide range of electronic computer products, which differ among themselves through various features such as: construction and their way of operation, architecture, the operating speed, internal memory and external memory capacity, physical measurements, the power of electronic consumption, the number of users that can simultaneously use the computer and more:
I. After the way of operation the electronic computers are divided into:

1. Electronic mechanical computers->the water and gas meters;
2. The electronic electromechanical computers->electricity meters;
3. The electronic computers->the first generation of electronic computers, the second generation of computers; the third electronic generation of computers and the fourth generation of electronic computers;

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4. The Optical Computers;
5. The Biological Computers;
II. The highest spreading it had received the electronic computers, which in turn are divided into:
1. The analogue-electronic computers;
2.The Digital –electronic computers;
3.The Hybrid –electronic computers;
1.The analogue electronic computers are the electronic computers at which the analogue processed signal has analogue form. The analogue signal is the signal, which it is variable and continuous.
Advantage: very huge computational speed, comparable with the speed of the signal of the input.
Disadvantage: the precision of the calculus relatively small, somewhere at the 30% from the precision of the calculus of the electronic digital computers.
2.The digital electronic computers are these computers at which the processed signal has digital form, 1 and 0 numerical.
Advantage: The calculus precision higher than that of analogical signal;
Disadvantage: the calculus speed compared with that of the analogic electronic computers much smaller;
3. Electronic hybrid computers are those computers that have high computation speed and the precision of calculus higher, but the main disadvantage is that the precision of calculus higher, but the main disadvantage is that the technologic construction is more composed and so:
->they have special devices, which will transform the taken signal from one form to another, from analogic signal into digital signal and vice versa.
From these types of the electronic computers, the most widely spreading had received the digital electronic computers, which in their turn, after the criteria the increased performance are divided into:

1.Electronic microcomputers;
2.Electronic minicomputers;
3.Mean electronic computers. or mainframe environments;
4.Electronic supercomputers;
1.The electronic microcomputers-are those electronic computers that have like basis a processor composed from a microprocessor implemented into a single corpus called tablet. These electronic microcomputers are called electronic personal computers-PCs;
Advantages:
1.Small physical sizes, even and portable;
2.Electronic consumption petty 140-250 W;
3.Simple in exploitation;
4.Price relatively low 5000-8000 RON;
Disadvantage:
1.The speed calculus is relatively small;
2.The capacity of the operative memory and of the external memory relatively low;
3.Number of users pretty small-one;

The scientific article “World Shopping Network to Acquire Microcomputer Applications” tell that ““Abstract: SANTA ANA, Calif.--(Business Wire)--May 9, 2000-World Shopping Network Inc.(WSN)(OTCBB:WSHP) Tuesday announced the signing of a binding letter of

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intent to acquire Microcomputer Applications Inc.(MAI), a leading developer of multilayered security products.

"MAI is well established in the global billion dollar security industry", said John Anton, president of WSN. "The aquisition will ensure MAI's future growth through market penetration and shortened new product development cycles. We see a bright future for MAI's security technology not only in networks and Internet e-commerce, but also in new applications from cash machines to parking metters."

Full text: SANTA ANA, Calif.-(BUSINESS WIRE)--May9, 2000-World Shopping Network Inc.(WSN)(OTCBB:WSHP) Tuesday announced the signing of a building letter of intent to acquire Microcomputer Applications Inc.(MAI), a leading developer of multilayered security products

Microcomputers Applications has been providing solutions for software piracy its inception 20 years ago, and has recently expanded its product offerings to address other security issues.
"MAI is well established in the global billion dollar security industry", said John Anton, president of WSN. "The aquisition will ensure MAI's future growth through market penetration and shortened new product developemnt cycles. We see a bright future for MAI's security technology not only in networks and Internet e-commerce, but also in new applications from cash machines to parking meters."Under the terms of the pending aquisition, WSN will wholly aquire MAI, from their existing KEY-LOK "technology to new technologies and products currently under development. Richard Bernatchez, president founder and chief executive officer of Microcomputer Applications Inc. will join WSN and assume responsability for preserving and expanding MAI's product line."We are excited about adding this security oriented aspect to WSN", said Anton. We have been looking for a company to acquire in the business-to-business field, where companies are able to grow and sustain profits. The aquisition of a security-oriented company fits our target profile. MAI was a perfect fit becuase of its desirable product offerings, unique opportunities within the security and demonstrated profitability".

"The acquisition provides a great opportunity for MAI", said Bernnatchez." WSN's commitment to research and development will accelerate product development and diversify MAI's product line. WSN's position in the marketplace will greatly expand the exposure of our already rapidly growing product line. MAI already services the huge Microsoft Windows software market, and the acquisition will allow our recently developed products to exploit the groving LINUX security market."Founded in 1995, World Shopping Network Inc.(http://www.wsnetwork.com/) offers a wide range of products and services for business and personal use, each designed with the mission of incorporating Internet technologies to facilitate and expand PC computing.KEY-LOK "is a trademark of Microcomputer Applications Inc. Other product and company names herein may be trademarks of their respective owners.Some statements in this release are forward-looking and are subject to certain risks and uncertainties. These risks and uncertainties include, but are no limited to, economic conditions, changes in laws and regulations, demand for products and services of the company and the effects of competition. These risks and uncertainities could significantly affect anticipated results in the future and actual results may differ materially from any forward-looking statements." "[5]

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2.The electronic minicomputers are those computers which have like basis on one processor consisting of two or microprocessors, until 10.
Advantages:
1.Greater computing speed;
2.The capacity of the operative and external memory greater;
3.The number of users greater;
Disadvantages:
1.Greater physical sizes;
2.Higher consumption energy;
3.Relatively higher price;

They are often used as servers in the computer networks, but lately they are not practically used, since their performances are almost equal to the performances of the personal electronic computers, their price of is much smaller, and therefore, in their place often more and more are used the personal electronic computers.

3.Mean electronic computers or mainframe environments
The mean electronic computers or mainframe environments are those computers that have like basis one processor composed from few several tens, until one hundred microprocessors.
Advantages:
1.Greater calculus speed;
2.The capacity of the operations memory and of the external memory greater;
3.The higher of users;
Disadvantages:
1.Larger physical sizes;
2.Higher energy consumption;
3.Relatively higher price;

1.In order to function normally they need requirements special conditions such as: the tension of supply is 220V, the alternative current to be stable and the temperature in the room where the electronic computer is placed must be 20 degrees Celsius +-2 degrees Celsius. They are used to managing the transnational companies, large cities, for example the servers of the large websites like Google and others.

The scientific article “Intranets Internet Mainframe Data Online” responds to the following questions:
“Why A Mainframe Web Server?
- Faster, easier deployment
- Classic mainframe strengths: performance, reliability, security
- Lower costs

Data: International Technology Group Survey Of 67 Large IT Organizations
Why Mainframes Still Matter
- More than 75% of internal data accessed by corporate PC users is in mainframes
- More than 60% of all data available over the Web originates in mainframe databases
- Last year, 83% of all commercial transactions were processed by mainframes; in financial services, insurance, and transportation, the figure exceeded 95%

Data: International Technology Group”[6]

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4.Electronic supercomputers are those electronic computers that have basis one processor composed from few hundreds until thousands of microprocessors.
Advantages:
1.Speed calculation very high;
2.The capacity of the operative memory and of the extern memory very high.
Disadvantages:
1.Large physical sizes;
2.High power consumption;
3.Price very high;

1.In order to function normally require special conditions such as: the tension supply 220 V, the alternative current to be stable and the temperature in the room where the electronic computer is placed must be 20 degrees Celsius +-2 degrees Celsius.The electronic supercomputers are used to manage the devices that research the outer space, at researches from the great universities of the world, at directing of the armies of the large countries.The motto "Computers and their associated devices must be projected as un understanding deep of the fact that people accept to utilize them only if they feel that are helpful and are closely in their daily work. To meet this requirement those who project the computer systems must know how thinking the potential users so like the strategy to transfer knowledge through human-computer interaction in the new systems". (Alain Dix "Human Computer Interaction", 1998)Supercomputers have an internal memory and a speed very high: executes up to several hundred million instructions per second, being the fastest types of electronic computers.
They are usually used for specific applications that require complex applications that require complex animated graphics, geological and weather forecasts, complex problems of physics for which it wishes the application through the algorithms exact mathematic-fluid dynamics, the nuclear physics.

The most known type of supercomputer is CRAY.
The scientific article "IBM Supercomputers Built to Order for DOE; IBM has been tapped by the U.S. Departement of Energy to build the two fastest supercomputers in the World" says "IBM has been tapped by the US Department of Energy to build the two fastest supercomputers in the world. Under the $290 million contract IBM will build one computer that will simulate nuclear weapons explosions and weapons deterioration. Full text: IBM has been tapped by the U.S. Departement of Energy to build the two fastest supercomputers in the world. Under the $290 million contract, which the DOE announced lat week at the Supercomputing show in Baltimore, IBM will build one computer that will simulate nuclear weapons exploisions and weapons deterioration. Another will be used to crunch numbers for such scientific research as helping to predict changes in the global climate and to track the relationship between the atmosphere and pollution.IBM said it expects to deliver the supercomputers over the next to two to three years, with the first IBM eServers king delivered from one system sometimes next year, according to Rawi Arimilli, and IBM fellow, in Austin, Texas. Combined, the two supercomputers, named ASCI Purple and Blue Gene/L, will provide a peak speed of 460 teraflops-or trillion calculations per-second-and will have more than 1.5 times the combined processing power of all 500 computers currently on the Top500 list of supercomputers, according to IBM.

"Most trends you see in the industry are slowing down, but in the supercomputing environment, you see just the opposite", Arimilli said.

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ASCI, for DOE's Advanced Simulation and Computing Initiative-Purple will run, about eight times faster than the last supercomputer IBM bulit for the DOE, last year, and will work at a speed close to that of the human brain, IBM said. The supercomputers, which will reach a peak speed of 100 teraflops, will be a massive cluster of IBM eServers and storage systems powered by 12,544 Power5 microprocessors. The chips will be contained in 196 individual computers, linked together via an interconnect, with a bandwidth of 12,500 GB. It will run IBM's AIXL operating system and hold 50 terabytes of memory. ASCI Purple will enable the DOE's Lawrence Livermore National Laboratory, in Livermore, Calif., to simulate nuclear weapons explosions without having to actually detonate and test weapons, said IBM, in Armonk, N.Y. Michel McCoy, acting ASCI program leader at Livermore, said the computer will reduce the degree of "known unknowns", in nuclear weapons exploisions by improving the performance of the simulations, giving researches more information.

The Blue Gene/L will have a peak performance of 360 teraflops woth 130.000 clips for use at Livermore, as well as at Sandia and Los Alamos national labs."[7]The supercomputers are working on 32 and 64 bit and have a performant architecture, mainly through classical principles (e.g. multiprocessor systems-with multiple central units). In the USA there is an institute specializing in research in the field of the supercomputers, called NCSA-The National

Center for Supercomputers Applications.
For the architecture of the multiprocessor electronic computers it uses the concept of parallel architecture: multiple processors are interconnected for the realization of those same tasks.
The processors can be realize in the same time, sequences of independent operations, because that after that, the intermediate results obtained must be combined properly.Usually there is a main processor called MASTER, that coordinates the others giving them to the execution independently tasks from the program of the user or putting them on hold.Systems designed as parallel architectures can be classified after the data flows and the flows of instructions in systems with: one flow of instructions and one flow of data, one flow of instructions and multiple flows of data, multiple flows of instructions and one flow of data or multiple flows of instructions and multiple flows of data.

After the number of processors (granularity): dozens of autonomous processors connected or hundreds until dozens of thousands of processors connected in parallel (cubes).
After the way of using the internal memory of the processors, there are:
a) Shared;
b) Own;
The development of the parallel algorithms, i.e. the learning of the possibilities of the decompositions of the new algorithms in sequences that can be executed independently or developing new parallel algorithms constitutes a new and fertile direction of the Informatics.
An algorithm of solving a problem will be much faster if it is implemented into a parallel version and executed on a parallel machine (the independent operations are executed in parallel, after that the obtained results it combine).
Large computers can perform one trillion operations per seconds, their cost being few million dollars.
Usually, large computers include dozens of units disk magnetic and printers, hundreds of consoles situated at different distances. These computers are used in large calculus centers and they functioning non-stop.

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

Minicomputers appeared in 1970, having high costs, their name comes from the phrase "the minimum configuration of calculus". They were interactive systems, the users were placed in front of terminals and they were in dialogue with the computer-and multiuser: at one time multiple users (a few tens or even hundreds) can use the computer through terminals.
This feature imposes an performant operating system (called RSX) that can manages at one moment the programs of several users and that offers the protection mechanisms of the memory.

For the structuration of the informations of the users found in the form of files on magnetic supports, appears the notion of folder (director of files).
There are two levels of directories, unlike the directory tree of UNIX and DOS.
The programming on minicomputers was more difficult than on microcomputers, which appeared further as an insufficient development of the software products destinated for the programming.

From the point of view of the architecture, the characteristic for minicomputers is the existence of "a bus of informations" called BUS, by the means through which it realizes the communications between processor, memory, terminals (a special role it has the operator terminal) and other peripherals.The communications are arbitrated by the controller of the bus, which takes over the functions of the input-output channel.It gives the right of information of communication by an entity connected to the bus with the programs, including the one of debugging (correcting errors of conception) had appeared later, for microcomputers.The minicomputers worked on 16 and 32 bits. From the processes of editing, link-editing and execution of the programs were conducted separately realized, through independent applications, which requiring a fairly large amount of available memory, and this condition can often be difficult to accomplish, in the conditions in which many users has exploited simultaneously the calculus system.

The programming environments, specifics to different languages, which can include the facilities for all phases of realization of the programs, including the one of debugging (correcting errors of conception) had appeared later, for microcomputers.From the representants I mention: VAX 8600, VAX 8650, PDP 11. The evolution of minicomputers had led to multi-user systems more performant, which can be operated simultaneously by several hundreds or even thousands of users.From the point of view of the performance, they are closest to the supercomputers at the other pole are found the personal electronic computers. However, it can be said that the differences between big minicomputers and small mainframes are noticeable.

The microcomputers are electronic computers whose central unit is a microprocessor. The first microprocessors emerged in 70's, but they had developed mostly in 80's and they continuous to evolve; they work on 8, 16 or 32 bits (the case of electronic computers used today). They are interactive systems, mono-user single user (at one point they are exploited by a single user). The microcomputers had spread recently as a result of the evolution of technology which had reduced greatly their costs of production. Moreover, these costs are into a continuous decrease and their performances evolve increasingly.

The first microcomputers were the personal electronic computers of family: SINCLAIR, SPECTRUM, COMMODORE.

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

These electronic computers can work directly in the BASIC language(a program that translates into machine language and executes each instruction, once this it was written).
The most common peripheral of these electronic computers is the stereo, whose fiability leaves sometimes desirable.Subsequently had appeared the professional personal electronic computers (PC).

Worldwide I mention the electronic computers APPLE MACINTOSH, with a interface very friendly to user, with a interface very friendly to users, this PC-s especially created for non-professionals and the electronic computers of the type IBM PC, which had recorded an technological evolution downright spectacular, based mainly on evolution of the microprocessors (the most known are by Intel firm).The Growth of technical performance was closely followed by the evolution of software in a spiral of increasingly dynamic.

The most spread operating system of the microcomputers is DOS, which has at base the first operating system of the microcomputers CP\M enhanced with the principles from UNIX (such as the structure of directories).In addition, especially in the last decade, software products have evolved greatly developing an interface becoming more affordable, which has attracted more and more users and non-professionals user.
In this regard, the example of Windows systems, become more and more performance, it is very conclusive.

Thus, the personal computers have become the processing information system widely used such as for office processing, as much as for both for professional applications.
Frequently, for creating of calculus system, with high performances and a relatively reduced cost, it prefer for the connection of the personal electronic computers in the computer networks.

Types of electronic computers
Depend your real needs, exists several types of systems, optimized for a specific purpose: gaming systems, Office, CAD, etc.
Why such a distribution is required?
Because exist large prices differences depending of category of the system. For example, a PC gaming is more expensive than a PC for regular use of the Office or at home.
If you have enough (too much money), this distribution is not much point: simply just take your best PC (personal computer), which will be too good at any application. If you the money do not take you out of house, read on!
Computers desktop to office are called customary applications or personal electronic computers to home.You need a cheap system, with a processor entry-level (the least performance, but also the cheapest); motherboard will be preferably equipped with audio and video solutions on board more than enough for the internal purpose; the memory and the hard disk can be selected as capacity and speed from the cheapest on the market.
In addition, often such system is able to run without problems a series of games (not just of the latest generation), even if set at parameters of lower quality.
So if you are not a gamming enthusiast, but sometimes you play a more old 3D, this system can be ideal if you are concerned about price and performance.

The electronic computer CAD or desktop publishing
You need a performance system, with a powerful processor (most likely Intel) motherboard will be preferentially endowed with audio solutions on-board and video card will be a middle

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

class graphics accelerator; RAM memory will be necessary in a big quantity, and the hard disk will be preferred large and fast.To such a configuration, oriented on audio production, sound cards acquire a major importance, and an audio sound, which targets the segment (semi) professional can cost significantly.
Price may be improved by equipping with a video card cheaper and less performance.

Computer games
Need a performance system, with a powerful processor (rather AMD): the RAM memory will be necessary in more large quantity and HDD will be by preference big and fast.
The video card will must be one from the ridge of the range of performance, to may benefit fully from the audio effects of the games.
The monitor will must be with a great diagonal, for an adequate visual experience. Such a system usually cost much.
The advantage is on him will may run any other applications (from which are more exigent in terms of hardware resources than of the games). In addition, you will beneficiate of a gaming experience reserved to few mortals).
A personal electronic computer (PC) is an electronic computer of general purpose, whose sizes, capacities, and initial sale price, it makes him useful for individuals, and it is intended to be used directly by an end user, without any intervention of any operator of the electronic computer.
This contrasted with models with the processing in mass or with time-sharing, which allowed systems of minicomputers more big, and more expensive mainframes that will be used by many people, usually in the same time.
Large data processing systems require a continuous and efficient staff.
The software applications for most of computers include, but are not limited to, processors of text, spreadsheets, databases, web browsers, and e-mail clients, digital media play-back, games and personal applications and special software.
The personal electronic computers can be connected at one local area network (LAN) through a wireless connection or cable.
A personal electronic computer can be a desktop computer or laptop, netbook, tablet or a portable PC (Palmtop).
PC owners early had to write their own programs to make them useful even without operating system.
The earliest microcomputers, equipped with a front panel, had required the loading of manual of program called bootstrap to load storage external programs (paper tape, cassette, or possibly diskette).
Users from today have access to a wide range of commercial software, freeware and open share, in free source, ready to be run or compiled.
Since the early 1990's, the Microsoft operating system and hardware Intel have dominated the personal computers market, firstly with MS-DOS and then with Windows.
The popular alternatives at the operating systems Microsoft Windows include the operating systems OS X and those free in open Source Linux and BSD.
AMD offers a major alternative to central units processing INTEL.
The applications and the games for PCs are usually elaborated and distributed independently way from producers of hardware and operating systems, while the software for mobile phones and other systems is approved and distributed through an centralized E-SHOP.
Finally, I can say that exist the following types of PC's:
I.Stationary electronic computers:

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

1.Workstations;
2.Office computers;
3.Games computers;
4.Single units(compact electronic computers);
5.Nettop;
6.PC home theater;
II.Portable electronic computers:
1.Laptop;
2.Desktop electronic computer;
3.Netbook;
4.Tablets;
5.Ultra-mobile PC;

METHODOLOGY

The methodology of research took in calculus all the informations about minicomputers, microcomputers, mainfarmes and supercomputers, all the generations of electronic computers, specially the fifth generations of electronic computers reffered to artificial intelligence, neural network and capabilities and posibilitties of analysis, decisions and interpretations.

RESULTS/FINDINGS

As results, the redears can say that different types of PC's are implemented in different domains of activities like: learning, economy, accountability, research, finance-banks, insurance, mathematics, physics, hystory, geography, culture, health, environment , literature, art, theaters and universityes. Everywhere in the world is present the PC and the Internet. For example in Australia, the pupils and students study from home. Here is applyed e-leraning.The Internet, the personal computer and the computer networks are indispenssable in the tweenthy-one century, where everyone learn, communicate, implement, study and work in real time, and adapts in this century of speed, engineering, modernization and continuous changes.

DISCUSSION

I studyed all the literature of computer science about PC, history, definitions, Internet, computer networks, classifications of electronic computers(mainframe, mincomputers, microcomputers and supercomputers) and generations of electronic computers, and I can say that the Internet and PC-s are indispensable in the world, in all domains.

IMPLICATION TO RESEARCH AND PRACTICE

Implications to resaerch and practice is implemented by students and teachers at Hyperion University from Bucharest, where we make researches in the doamin of computer science.

CONCLUSION

In conclusion, I studied in this scientific article the evolution computers from the literature of the computer science. As the readers know, the electronic computers are classified in: minicomputers, microcomputers, mainframe and supercomputers. In time, the evolution of

ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)

generations of electronic is present, with the following structure: the first generation of electronic computers, the second generation of electronic computers, the third generation of electronic computers, the fourth generation of electronic computers and the fifth generation of computers, to which we attend. The fifth generation of electronic computers is under testing and development, and will be equipped with three-dimensional integrated circuits, with neural networks, with special command systems and the fingerprint recognituion system voice, with possibilities of analysis, interpretation and decision.These electronic computers have huge capacity of memory and processing, are based on nanotechnology and new materials in the electronic structure, that permits to design software for artificial intelligence (automatic recognition of images or voice-signals, allow the human-machine dialogue naturally, may have the capacity optimization and decision).

FUTURE RESEARCH

Future research will be in the domain of the computer science, about Internet and computer networks.

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ISSN 2054-0957 (Print), ISSN 2054-0965 (Online)