Team Number: 2B
Era: 1981-1990
History of Computers Report

IMPORTANT PEOPLE

Computing machines have transformed from the size of a room with the first computer was ever created to the size of a smartphone that can easily fit in your pocket and with dramatic improvement of processing power. The programming languages which were used to create computer programs have grown from hard to read assembly languages to a huge variety of high level languages that can be learned by a five year old. We should know that the changes did not happen overnight; it took decades and there have been numbers of outstanding scientists and engineers who have made great contributions. Here are some notable professionals in the 1980s.

One of the most notable individuals during this era was Richard Stallman who founded the Free Software Foundation in October of 1985. Other than the free software movement, he is most known for the creation of the Emacs text editor, GNU debugger and other components of the GNU project which he launched in 1983. Since the 80s, Emacs has grown to be more than simply a text editor, but with massive amount of plugins has become more of a platform or environment for many linux enthusiasts. After creating such software, Stallman continues to provide his views on how critical free software is to contemporary society. For example, in various talks, he clarifies the meaning of “free software” as not software which is not necessarily free in cost, but should respect the freedom of the consumer.

In 1984, Fujio Masuoka invented flash memory while working for Toshiba. Flash memory is a type of nonvolatile memory and therefore, retains stored information after system reboot. There are two main types of flash memory, but both types of flash erase data by blocks. NAND flash writes data on the page level, while NOR flash writes data back by bytes. There are several examples of applications which utilize both types of flash including personal computers, video games, the digital camera, solid state drives, etc. Furthermore, in today’s society, the latter has dramatically improved the overall performance of personal computers from faster read/writes and an overall faster boot time.

Finally, an admired research professor at Texas A&M University created the C++ programming language. Bjarne Stroustrup developed the language in 1978 but it was officially released through his book in 1983. C++, in general, was a very popular object-oriented language at the time and gained much more popularity throughout the decades. While being both object-oriented and imperative in programming style, it provides the unique ability of low level memory manipulation similar to the C language (which first appeared many years earlier in 1972). Therefore, many of the operating systems used today are written in C or C++ languages such as Chrome OS, Mac OS X, and Linux. Other than in the OS world, C++ has become the go-to language for applications with time-critical requirements such as in the trading industry.
Additionally, other applications which utilize C++ include Facebook, Adobe applications, and even Microsoft’s Visual Studio.

HARDWARE DEVELOPMENT

In the 1980s there were many technological advancements in computers especially in microcomputers. Before the 80s personal computers were only just starting but not popular because of their expensive prices. The 80s was the decade where every home would have a personal computer. In the year 1980 Commodore released the VIC-20 home computer a successor to the Commodore PET having a significant cheaper price than its predecessor. This year was the first wave of people buying computers for home use. In the same year Seagate created the first hard disk drive that would fit in microcomputers or home computers. The hard drive allowed people to store large amounts of data that was previously not common in personal computing and has been a crucial part of computers today.

1981 began with the release of the 3 ½ inch floppy disk. Although the technology was not new, the down scaling of the earlier 8 inch floppy disk and more storage made it a piece of hardware to remember. The 3 ½ floppy disk became the popular way to share and transfer as well as backing up data. The distribution of software was commonly done with floppy disk up until the popularity of the CD-ROM. Within the same year IBM released its personal computer, IBM Model 5150, this computer used Microsoft’s MS-DOS operating system and revolutionized business computing by becoming the first PC to gain widespread adoption by industries. The computer led to the creation of software, peripherals and other commodities for use with the platform.

Following the surge of personal computing caused by IBM, Commodore introduced the Commodore 64 in 1982. The Commodore 64 boast 64kb of RAM and featured 16 colors of graphics rendering. Thousands of software was released during the lifespan of the computer until it was discontinued in 1993. The Commodore 64 holds the Guinness World Record as the most selling single computer of all time. Around this time, Sun Microsystems redesigned the workstation and cemented the idea that a workstation should have an ethernet interface, high resolution graphics, and the UNIX operating system.

1983 was the year of the CD-ROM, developed by Sony and Phillips able to hold 550 megabytes, 50 times more than the floppy disk from 2 year prior. The CD-ROM became the new standard of the distribution of software. Within the same year many companies worked together to set the standard for the disks so that any computer would be able to access its information. Later on, Fujio Masuoka developed and invented flash memory in 1984 while working for Toshiba. Being able to be erased and reused multiple times. Flash memory is now the fastest the way to store data at a reasonable cost soon to replace hard disk drives.
Throughout the decade, companies saw an opportunity in using computers for entertainment as computer processing and graphics became better and hardware became cheaper and more available to consumers. Companies such as Nintendo and Atari released multiple gaming platforms such as the Nintendo Entertainment System and Atari 7800. These gaming platforms were so popular that a whole new industry was created solely for video game development.

In the later years of the decade, technology was being developed to be smaller and more powerful as well as more portable. Addition component to the computer was invented such as the Creative Soundblaster sound card in 1986 and graphics card which were dedicated to a specific purpose rather than having the main CPU do all the work. The modularization made it possible to have better quality of graphics and sounds in a home computer which became multi purposed for entertainment and work. By the end of the decade, companies began to make portable computers such as Apple’s Macintosh Portable. Although these computers were innovative and used compact computer parts, they did not see much success and were expensive but opened the market for future cheaper and even more compact portable computers.

SOFTWARE DEVELOPMENT

There were many eye-opening moments in software development through the 80’s and 90’s. One would say the hallmark of this era was the introduction of the IBM PC and its underlying operating system which was MS-DOS. MS-DOS, or Microsoft Disk Operating System, provided solely a command-line interface and did not provide any multi-user support. The main reason for the latter was because the operating system, Xenix, which was also developed by Microsoft had multi-user support and was a very common unix variant which was used throughout the 80s.

Further, IBM’s “killer application” was introduced in 1981 to be Lotus 1-2-3 which was a widely successful spreadsheet program. Other than spreadsheets, it also provided graphs & charts, along with allowing the user to perform database operations. By 1984, it officially was known as the “killer application,” since everyone wanted it to be installed on their own personal computer. In turn, its success on IBM PCs hurt the sales of IBM’s competitors.

Along with spreadsheets, quite a few word processors were also introduced during the 80’s. For example, WordPerfect, being originally founded in Brigham Young University in Utah, was first introduced for DOS in 1982. About a year later in 1983, Microsoft Word version 1 was created for DOS. Both these word processors dominated the industry mainly due to their availability for various operating systems and personal computers in general.

Other than software specific for daily tasks, the world of programming languages came into the spotlight throughout this era with the appearance of major languages such as C++, Objective C in 1983 and Common Lisp, Matlab, Standard ML in 1984. In addition, Erlang,
Mathematica, and Perl first appeared in 1987. Each language which was introduced had its own unique set of constructs and offered some common functionality. Many languages came into being for a single purpose. For example, the Bash shell which was officially released in 1989, was a free replacement to the Bourne shell, which was originally used in Unix Version 7. A similar shell called Z shell was introduced in 1990. Z shell was an extension of Bourne shell with features from bash and ksh.

Alongside all of the languages, processors, spreadsheets, software specifically for CAD development and computer graphics was also created. Now famous programs such as AutoCad became available in 1982 alongside the founding of Autodesk. Additionally, Autodesk 3D studio was released in 1989. Mainly for individuals in the design and engineering industries, Autodesk products were introduced desktop applications.

Finally, one must not forget about the single most important invention which is still continuously being vitalized, the World Wide Web. By October of 1990, the three foundational elements of the World Wide Web were constructed namely HTML (Hypertext Markup Language), URI (Uniform Resource Identifier), and HTTP (Hypertext Transfer Protocol).

All in all, this decade brought along with it much of what computers are known to be today. An overall extensible machine which is utilized in many forms ranging from the everyday personal computer to supercomputers. From a wide array of applications in the personal computer to limited and finely tuned software for supercomputers, one might say it was the software which really changed the idea of a computer from a simple machine to now, the embodiment of how contemporary society interacts.

**IMPACT ON SOCIETY**

The 1980’s were an extremely important time for personal computers, software, and the internet, which had profound impacts on daily lives of people in this time.

1981 saw the start of Personal Computers becoming popular; soon many homes had these fledgling machines in them. The creation of the GUI (graphical user interface) allowed for users to navigate computers easily. This was the spark of making computers more accessible to the general public.

It only improved further when cheaper computers costing under $100 became available in 1982, along with the first 320kb floppy drive. With cost being negligible now, computers became more widely available to consumers. in addition we also saw the development of larger data storage with the new floppy drive, increasing computer’s capabilities. Throughout the early 80’s, a focus on personal computing resulted in software for gaming, programming, and overall productivity. Many of these new home computers could be attached with an existing tv in the household as the monitor which again allowed for more affordability.
In 1983, Apple introduced Lisa, their first computer with a GUI, creating a growing competitive market between Apple and Microsoft. In the same year Microsoft released Word, allowing for typed documents to be created with ease, as well as their new operating system; MS DOS. In addition, spreadsheet software was made, allowing for data sorting. As the previous years saw development in personal computer use and putting computers in homes, this year seemed to focus on businesses. With these changes, computers could now see a regular spot at the workplace.

1983 also gave us a build-it-yourself computer schematic, allowing for computer enthusiasts to get a feel for making their own computer. Meanwhile the internet got it’s first name domain system (which later was turned obsolete). While these aren’t as important as the above contributions, this marked the spark of computer enthusiasts being able to build their own computers, and also marked some of the important focus the internet got in this decade.

1984 gave us further advancements in software development via the Turbo Pascal kit, as well as MS-DOS’ advancement to 3.0. Laserjet also released their printer line, allowing for typed documents to be printed better. In Apple’s corner, they released their Macintosh line. These releases simply improved the state of computers overall, allowing for better computers, better printing, and in turn, more advanced jobs that could be done with these new machines. Our use of computers increased, and so did our faith in them.

In 1985, we see a large leap in data and software development, with CD roms being created, better displays being met with an enhanced graphics adapter, and MS/PC DOS 3.2 being created. Now with new data storage and better OS systems and GUI displays, computers were making strides in becoming easier to use and more appealing to work with.

We got another upgrade to Macintosh computers with a 3.5 in. floppy drive, and Amstrad revolutionized computer marketing by releasing a computer with an easy to follow manual, GUI, and a mouse in 1986. The 85-86 timeline shows a massive scale towards user friendliness in the computer scene, possibly drawing in an increasingly larger crowd, as well as efficiency from built in floppy drives to CD roms made for better storage.

1987 was the year a super-computer named Connection Machine was made, which was capable of doing 2 billion operations per second. Operating systems also got a large leap with Macintosh II, MS/PC DOS 3.3, and Windows 2 all coming out. The year was a major step up for processing power on all sides, which meant that users were able to do more on their computers. This advancement, like many before it, simply was another step giving us a better product.

Then we saw another leap in software in 1988, with the release of MS/PC DOS 4.1, Mac IIx (an improved version of the Macintosh II), and the Photoshop software. This gave us more creative power, from being able to do more, to being able to edit pictures in software still used today, 1988 really was a creative year for the computer scene.
Finally in 1989, we see the development of an affordable portable computer, as well as the invention of the world wide web. With this, the decade came to a close, leaving us with the very tools that helped us write this report: laptops and the internet.

Overall we saw massive improvements in society. We started with the simple inklings of personal computers and interface systems, and moved all the way into the high levels of operating systems, software development, creative software, portable computers, and the start of the world wide web as we know it today (though maybe smaller back then).
Resources

11. http://webfoundation.org/about/vision/history-of-the-web/