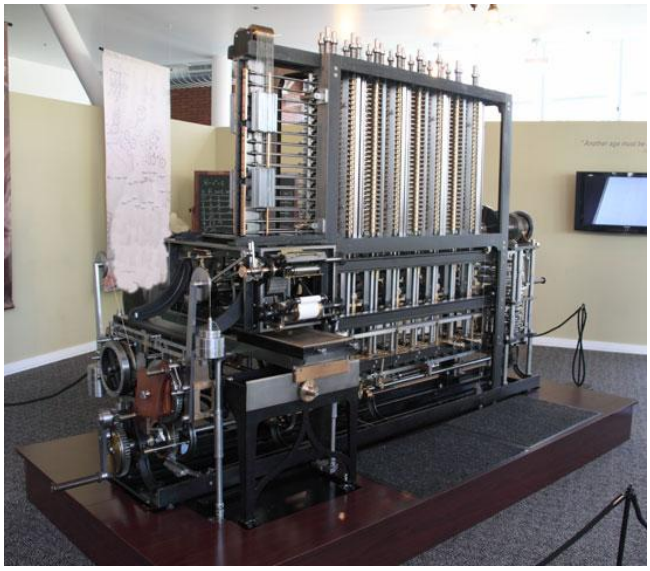
Evolution of the Computer

The first computers were designed by Charles Babbage in the mid-1800. These computers are known as the 'Babbage Engines' because they are mechanically powered computers. These computers were never completed during Babbage's lifetime, but their designs were preserved and one was eventually made about 200 years later in 2002. (Shown in the picture below)



Even though these computer look absolutely nothing like today's computers they used a number of technologies that are used in today's computers. This includes the idea of separating storage from processing; the logical structure of computers and the way data and instructions are inputted and outputted.

Another important mechanic computer was the Automatic Electrical Tabulating Machine this was used in the U.S Census of 1890 to handle data of more than 62,000,000 Americans and it was the first binary computer. The Konrad Zuse's Z1 was developed in 1938 and it was the first electro-mechanical computer.

The electro mechanical computers are evolution from the mechanical computer. These early electro-mechanical computers either analog or digital such as the Model K and the complex number calculator both produced by George Stibitz. George Stibitz was responsible for the first remote access computing, which was done at a conference at Dartmouth college in New Hampshire. He took a teleprinter to the conference, leaving his computer in New York City, and then proceeded to take problems posed by the audience. He then entered the

problems on the keypad of his teleprinter, which outputted the answers afterward.

It was these technologies that form the foundation of the modern computer. The Z3 (a descendant of the Z1 developed by Konrad Zuse) was the first program-controlled digital computer. Other electro-mechanical computers included Bombes which were used during World War 2 to decrypt German codes.

In the 1950s the first commercial computers were available. While the previous electro-mechanic computers were mainly focused on scientific, mathematical and defense capabilities the new commercial computers were designed for business functions such as banking and accounting. The J. Lyons Company (a British catering firm) invested heavily in some of these early computers. In 1951 LEO became the first computer to run a regular office job. The UNIVAC was the first commercial computer in the U.S. Its first unit was delivered to the U.S Census Bureau. It was the first mass produced computer and over 45 units were eventually manufactured and sold. The IBM 701 was another famous computer in the early commercial computing; it was the first mainframe computer produced by IBM, it was the same time that the FORTRAN programming language was being developed. A smaller IBM 650 was made in the mid 1950s and it was popular because it was smaller in size, but they still cost $4 million in today's money.

In the mid-1950s the transistor computers were made to replace the previous vacuum tubes it allowed computers to be smaller, but in the early days they were considered to be unreliable compared to vacuum tubes but they consumed less power. The first disk drive, the IBM 350 RAMAC, was the produced in 1956. Remote terminals also became more common with 2nd generation computers.

In the 1960's the microchip and the microprocessor were invented, it is one of the most important advances in computing technology because it is small and not as expensive as the big computers. This allowed small businesses to be able to get hold of one of these computers. There were 3 microprocessors designs that came out at the same time. The first was the Intel 4004 then the TMS 1000 and lastly the Garret AiResearch. The first processors were 4-bit. Then 8-bit processors came out in 1972, 16-bit processors came out in 1973 and 32-bit processors came out soon later. AT&T Bell Labs created the first fully single-

chip microprocessor, which used 32-bit buses, 32-bit data paths, and 32-bit addresses, in 1980. ^4-bit microprocessors were used in the early 1990s but didn't appear in the PC market until the early 2000s.

In the 1970s the first personal computers were built. Most of these were limited production runs and worked based on small-scale integrated circuits and multi-chip CPUs. The Altair 8800 was the first popular computer using a single-chip microprocessor. In 1977 three PCs the Commodore PET, the Apple II and the Tandy Corporation TRS-80 went and sold millions. The Apple II was the only one with full colour and graphics capable display and it sold more than 4,000,000 units.

In the 1980s-1990s the early notebooks and laptops were produced. The first of these called the Osborne 1 in 1981 had a small 5" monitor and was large and heavy compared to modern day laptops. The first laptop with a flip form factor was produced in 1983 called the Gavilan SC. In 1988 display monitors reached VGA resolution (Video Graphics Array) and by 1993 they had 256-colour screens. Other hardware such as high-capacity hard drives and optical drives were added in the 1990s and the 2000s.