History Of Computer Programming

The computer was invented around 500 BC. But it isn't something like the computers we see today. the first known computing device was the abacus. It was used to do simple calculations like addition and subtraction. With a good practice, a man can do calculations using an abacus as fast as doing it using a calculator. But that's not enough for today's needs of people. One of the major problems of early computing machines was they were designed to do a single task or some small number of multiple tasks. So, if you need to do another task using a computing device, you have to design a machine to do that particular task ground up. So, that difficulty led people to build a machine that can do whatever you want making a simple adjustment of that machine. This is how computer programming started.

In 1819 an English mathematician called Charles Babbage invented the difference engine. It's a mechanical calculator that can calculate values of polynomial functions. And then he invented the analytical engine. this machine used instructions written on punch cards. A punch card is a piece of paper used to write data in their digital representation that were invented by a French merchant called Joseph Marie Jacquards in around 1740. Holes and absence of holes are the characters that represent the data. At the time analytical engine was invented an English mathematician called Ada Lovelace was interested in this machine. She developed a way to calculate Bernoulli numbers using this machine. She simply wrote another program using punch cards. So, the same machine can be used to do different types of calculations with different programs. This is considered as where programming was born. Later punch cards were replaced by magnetic tapes, a more efficient way of storing data and instructions. When you using that type of method you have to write exactly the things that the computer can understand.

When the use of computers got wider, the need of programming was also got wider. So, writing programs in machine language was bit difficult. Because machine language was bit hard for humans to understand. So, there was the need for a way to write programs that is easy for humans to understand. As result of that in 1949 Assembly language was invented. This language uses simple. In this language, binary codes were represented by more human-readable simple English words and numbers. Those languages later called second-generation languages. But this was still much harder for humans to understand. So, it was a low-level language.

In 1950s high-level programming languages were invented. So, the programmer can program with using simple English words numbers and syntax. The earliest examples are COBOL and Fortran. Unlike low-level languages in these languages, we won't have to deal with things like memory addresses and directories directly. We can use simple English words and methods to handle those thongs. When we write programs by using high-level languages, computers can't understand what we write directly. So, it should be translated in to machine language using a translator. These translators are called compilers and interpreters. The interpreter converts the program into machine language line by line and the compiler converts the complete program at once. How the program is written in a high-level language must be translated in to machine language by using an either of those. This conversion takes time. So, it effects the performance of the program. When the computer industry grows these performance issues couldn't be

tolerated. So, this led to the invention of C language. C language was developed by Dennis Ritchie in 1972 at Bell Labs. The Unix operating system was based on C language. Unix was a very popular operating system at that time. Even most of today's operating systems are based on Unix. As a result of that in 1980s C gained a huge popularity. Even today C is widely used on programs that demand high performance such as gaming. Because C is quite like a low-level language, it takes very less time in compiling. That makes it fast. In 1985 C++ was developed. C++ is a more improved version of C and it allows programmers to create classes and objects. That type of programming language is called an object-oriented programming language. This object-oriented concept was first introduced in early 1960s. In 1949 an American physicist John William Mauchly developed a language called Short Code. This language is considered to be one of first high-level languages. Those high-level computer languages are grouped in to be third-generation languages. Java, BASIC, LISP, Prolog and Algol are some of today's widely used high-level languages.

Most of the languages mentioned above are used for different types of needs. Some language paradigms were developed in 1960s and 70s. Some of the major paradigms are Imperative, Functional, Logical, structural and Object-oriented. Any problem that can be solved using a computer can be solved using one or more of these paradigms. Some languages are developed to solve problems related to multi paradigms.

The next step of growth programming languages began with the rapidly spreading internet. In 1990s internet was fast spreading. So that created the need of languages that specialized in coding of internet-related programs. Internet is full of treats like hackers and viruses. So, internet-related software needed special security features. As a result of that languages like JavaScript and PHP rose to popularity.

Computers are advancing more and more each day. The next era of this advancement is Artificial Intelligence. The idea is to make computer programs that can think like humans and it was introduced in the 1940s with the invention of programable computers. But it took long time to be successfully executed. This also created the need for special languages for the job. IPL is the first language created especially for artificial intelligence programming. LISP, Smalltalk, and prologue are languages are often used to AI programming. In 1997 AI called Deep Blue, a chess-playing bot beat a world chess champion to be the first successful AI to be ever made.

Computer programs are becoming more and more advanced. In order to create advanced programs that even can think like humans, the technology that creates them should be advanced as well. This is why computer languages have come a long way from punch card to high-level programming languages. Who knows what it will become in another decade or so.