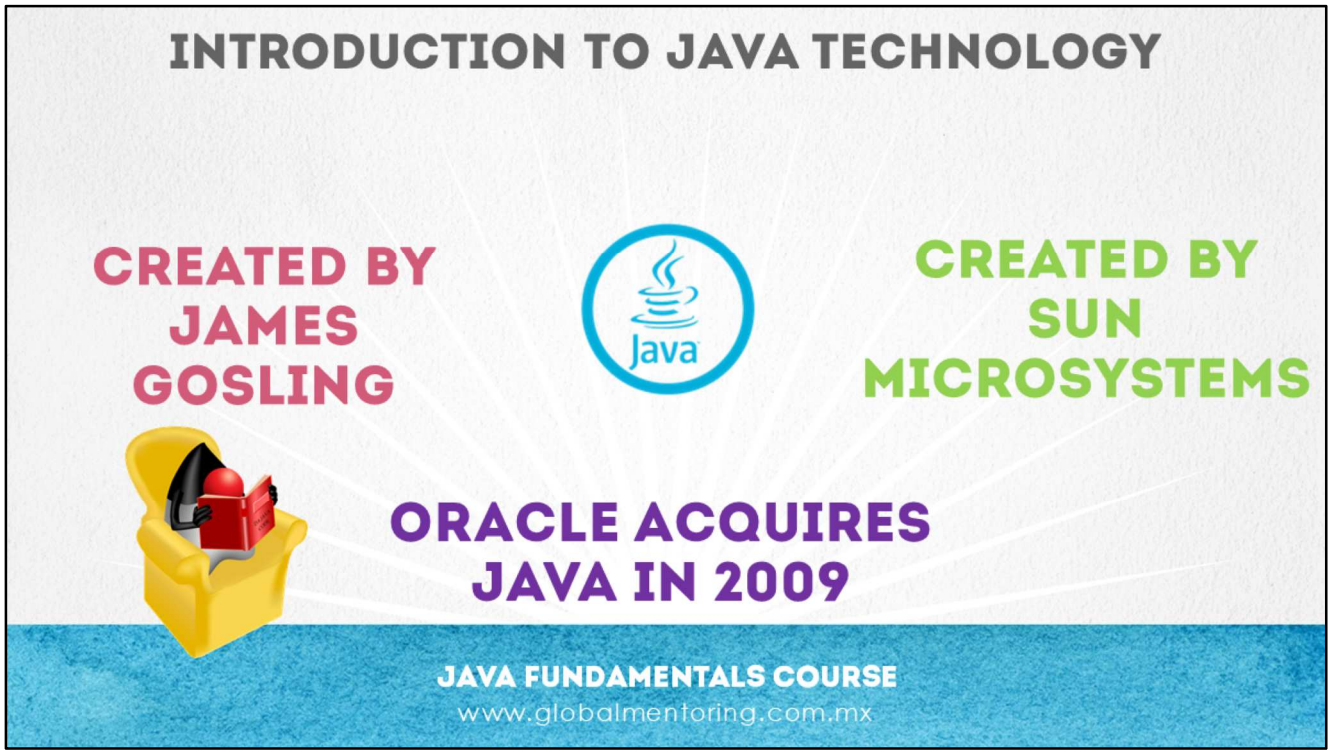
Hello, I'm Ubaldo Acosta. Welcome again.

In this first lesson we will study an introduction to Java technology, we will see what is the Java language and why it is important to master this technology nowadays. One of the main reasons why becoming a Java expert is that there is an incredible demand for well-trained professionals in Java technology, but few people are prepared to face these challenges, so it is the best time for you to take advantage and become an specialist once and for all.

Throughout this lesson we will study, among other topics, the different versions of Java, and the evolution of this technology until this day.

Also, we will study the most important characteristics of Java and the important reasons why Java is considered the number one language in the world today.

So, if you're ready, let's start this fabulous journey in learning the most popular programming language in the world, Java.



Java is more than a programming language, it is a very complete technology and considered as the number one option for many of the business developments today. But let's start with the basic elements, so in these lessons we will study Java as a programming language developed by Sun Microsystems. I would like to tell you that although we are going to see some historical points, it is not our intention to make notes of obvious things that can be found on the internet, but only with the intention of putting them in context, and have a general picture of what we are going to learn.

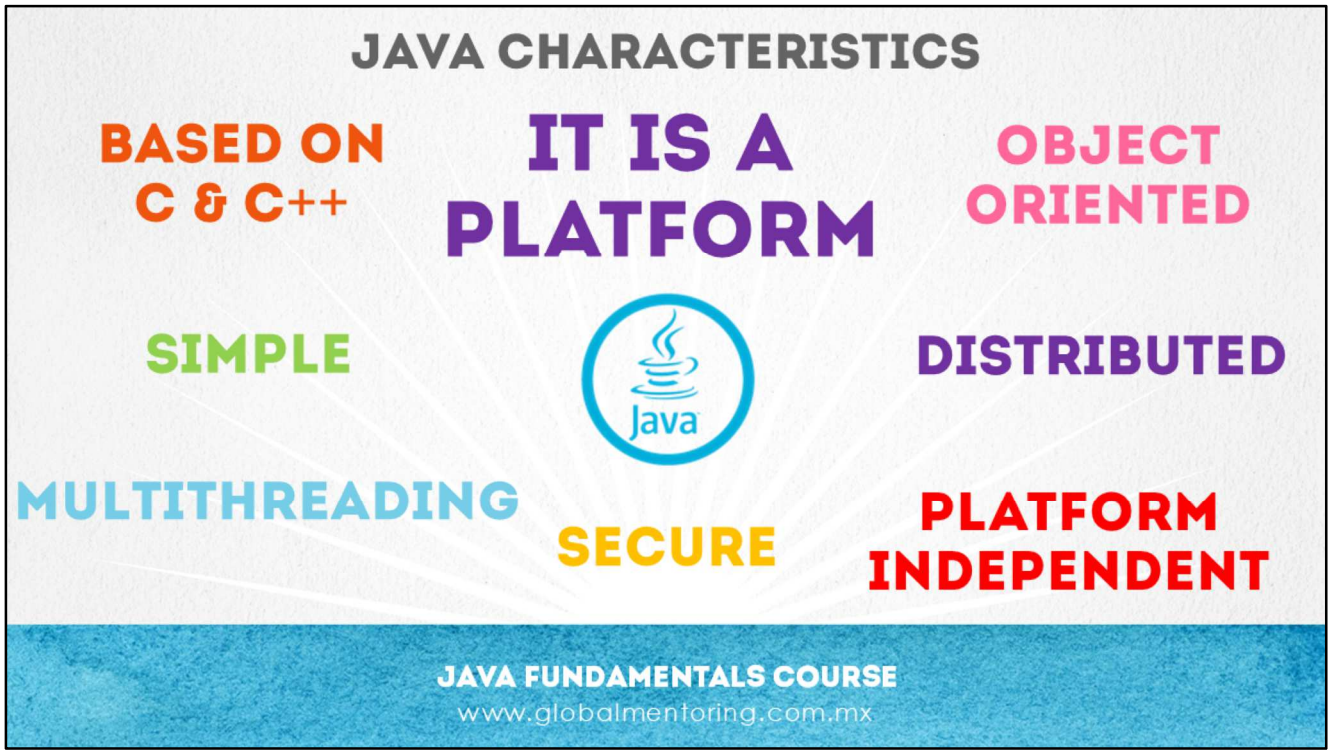
Java was born in the early 90s, created by James Gosling, with the aim of creating a programming language to be used in the new generation of smart devices. They tried to use C++ and extend it, however this language was complicated and James Gosling decided to create a new language called OAK, later changed the name to Java (the legend says that they decided to choose the Java name due to the coffee they used to drink, Java it's a type of coffee from Asia). Whatever may have been the origin of the name, Java is today a name that everyone who uses a computer is aware of, either by its Java Virtual Machine, or some Java plug-in, and this is because many applications installed on our computer use Java as a programming language.

The success of Java was the possibility of installing a component, known as Applet, in a Web browser, and with the Internet boom it was possible to extend this concept to any Web page and start running Java applications anywhere in the world.

Over the years, the success of Java, not only in the internet but in the creation of business systems, made Oracle put its eyes on this technology, and finally in 2009 was acquired by this mega software company.

It has been several years since Oracle's acquisition of Java, and fortunately, the evolution of language, tools and support from large companies, as well as the community of Java programmers (counted by millions around the world), continues to make Java the number one language worldwide for the creation of general-purpose software. So much so that Google based the Android operating system on the Java language, creating an extension of the JVM known as Dalvik.

For all the above, the support for Java technology is not only still growing, but it’s back in fashion thanks to the new versions, large companies and their decision to continue creating software based on this programming language, as well as the incredible community of Java programmers that remains faithful and adding new followers day by day worldwide.



The success of Java resides in several of its characteristics, for example, Java is a simple language, since it simplified most of the complexity of C++. Java is based on C and C++ languages. The Java language has the following general characteristics:

Object Oriented: Unlike structured languages (such as the C language), Java defines classes in order to classify and model the information of information systems, whatever that may be. Objects group encapsulated structures and contain both their data and the methods (or functions) that manipulate that data.

Simple: For simplicity we mean that Java used several of the characteristics of languages such as C and C ++, eliminating the issues considered more complex. Some characteristics of Java are simple inheritance, memory management, among many others, that we will see throughout the course.

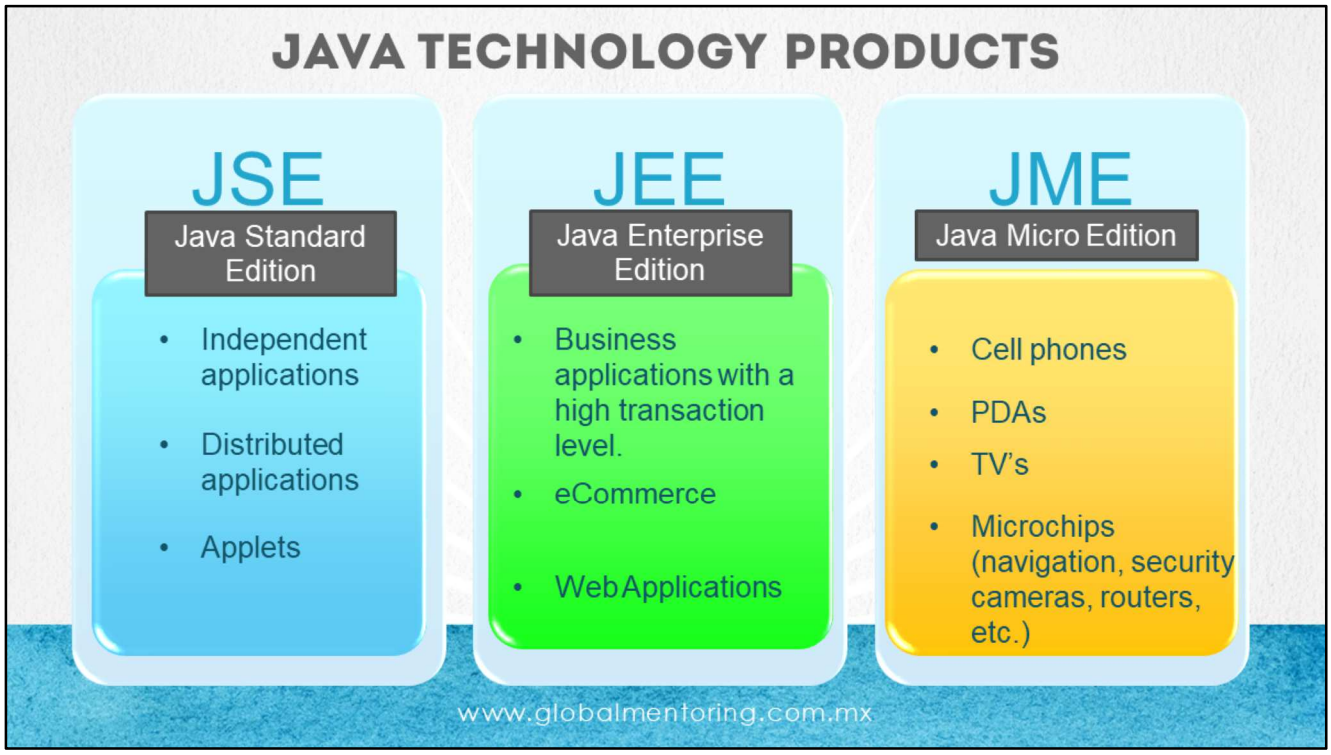
Distributed: Java provides a collection of classes for use in network applications, which allow open connections with servers or remote clients, so that we can have applications installed on different servers or computers, and still access those Java components remotely .

Multi-threads: Java allows you to execute several tasks at once, in which each subprocess is a lighter process than if you create a new process from scratch, this concept is known as threads and one of the biggest advantages is that many of Java's advanced API tasks automatically consider the use of threads for the execution of many of the processes that are used in real life. So in various scenarios we will get these benefits automatically :)

Secure: The Java Virtual Machine (JVM) does not allow our application to use resources outside the allocated space and resources, in this way, many of the Java applications are more secure than if the Java code were executed outside the Java box (JVM).

Platform independent: Java has platform independence because creates an intermediate code, which is known as Bytecode. This code can be executed on any platform or operating system. In this way we have several advantages, both when creating Java code, and when deploying or distributing our applications, since we can choose to create our code in one operating system and execute it in another. From here comes the saying "write once - run everywhere", as we will make the effort to write the code on a platform, but once created it is possible to run the application on multiple platforms, bringing many benefits for the programmer as well as for companies.

These are just some of the main features of Java. As we progress in the course, we will put into practice each one of them and you will be able to realize for yourself the power of Java.



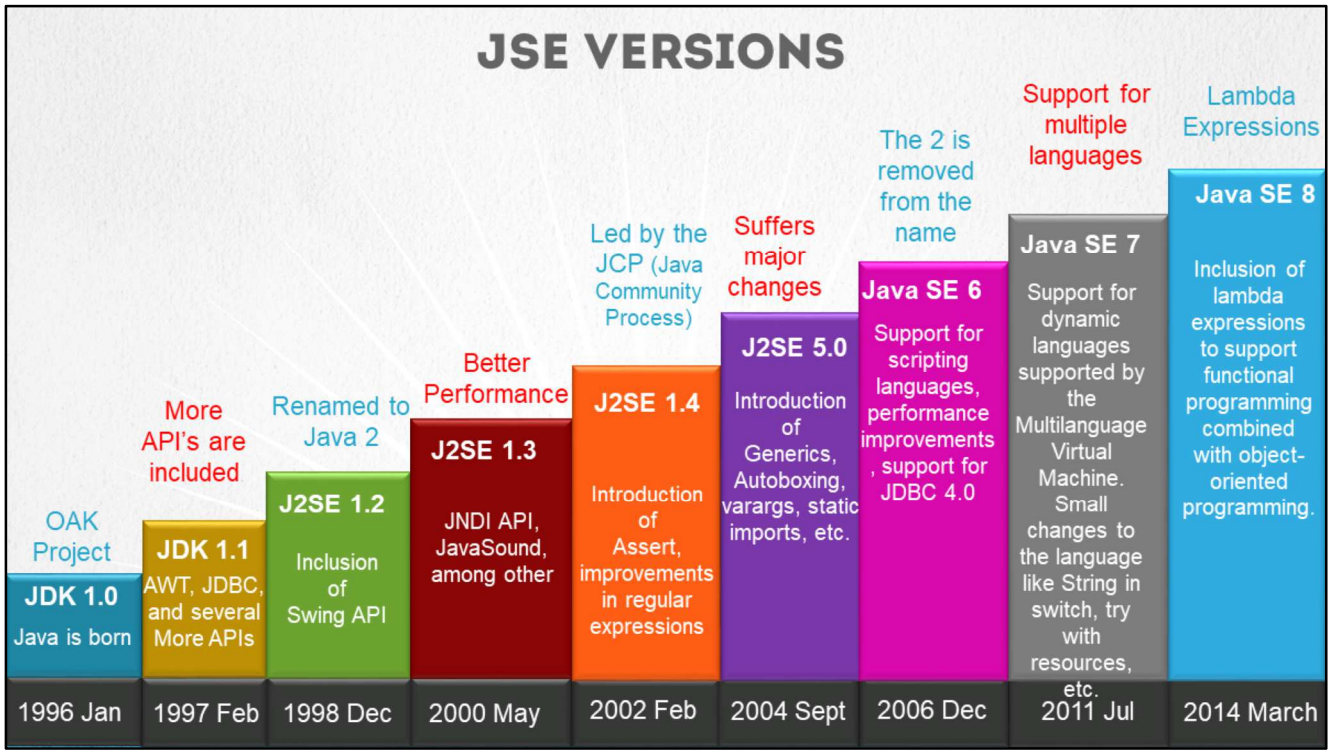
Java is divided into different groups, depending on the type of solution that is required. However, all are based on the Java language and the Java Virtual Machine, so once we have knowledge of this incredible programming language, it is possible to go deeper into each of these technologies. Each version or edition includes its own SDK (Software Development Kit), which allows programmers to create, compile and execute the applications created in each version.

The ***Java Standard Edition*** (JSE) is used to create software for Desktop or Applets applications. For example, the Netbeans software that we will use in this course is an example of a Desktop application. In this course we will focus precisely on this standard version and thus establish the foundations of the SDK, since these are the basics of Java that will allow us to go deeper in other courses, both in this same standard version and in enterprise versions that we will talk about next.

The ***Java Enterprise Edition*** known as Java EE, is used to create large-scale, server-side enterprise applications, and this type of applications can be accessed from clients created with the standard version, or any other type of client, such as Web clients or Web Services, among others. The enterprise version of Java was previously known as J2EE, so if we find documentation of this version, we already know that it refers to the enterprise version of Java.

Finally, the JME version is the Micro version of Java with the aim of creating applications for mobile phones and devices, as well as microchips for security cameras, GPS, routers, or any device with a much lower capacity for both processing and storage. It is worth mentioning that the Android system installed in thousands of cell phones and mobile devices is based on the Java language and the Java Virtual Machine, and creates an extension called Dalvik to be able to execute Java code on Android. This makes Java more relevant than ever before, not only in desktop applications and in the enterprise environment (in which it is the number one programming language), but now also with this growth of Android, the Java language has popularized on mobile devices with Android.

In conclusion, we can see that Java is not only a programming language, but it is a whole technology that includes desktop applications, enterprise and mobile applications, so Java is HUGE and is so exciting to learn this technology. Besides hundreds or thousands projects, frameworks and technologies that extend, complement and enrich Java technology.



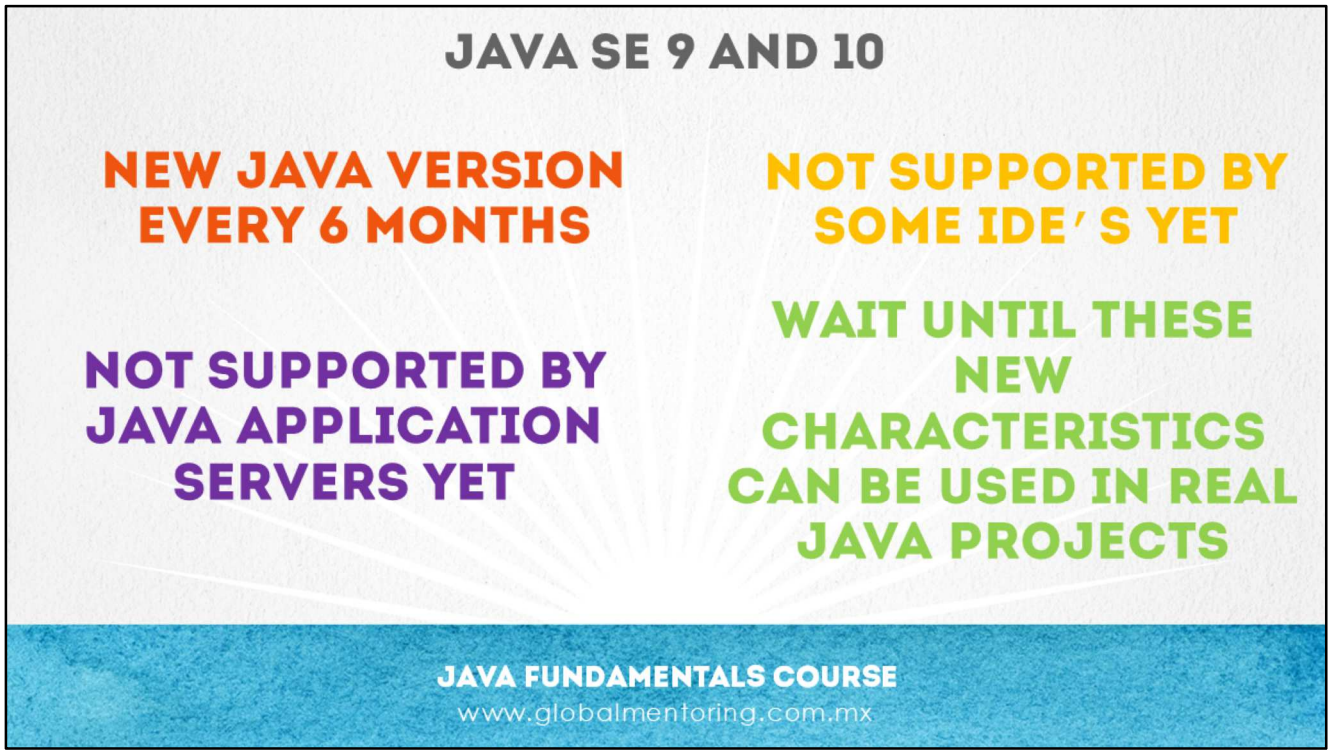
Next we will see the different versions of the standard version of Java. In 1996 Java was born, originally called OAK. In 1997 the version 1.1 arises in which it includes the first visual form of Java known as AWT (Abstract Window Toolkit), among several other APIs. An API (Application Programming Interface) is a set of classes and libraries to solve a specific problem, for example the JDBC API that allows us to connect to a database, among several other APIs.

One of the most important changes in the Java versions was undoubtedly made in the J2SE 5.0 version and the Java SE 8 version.

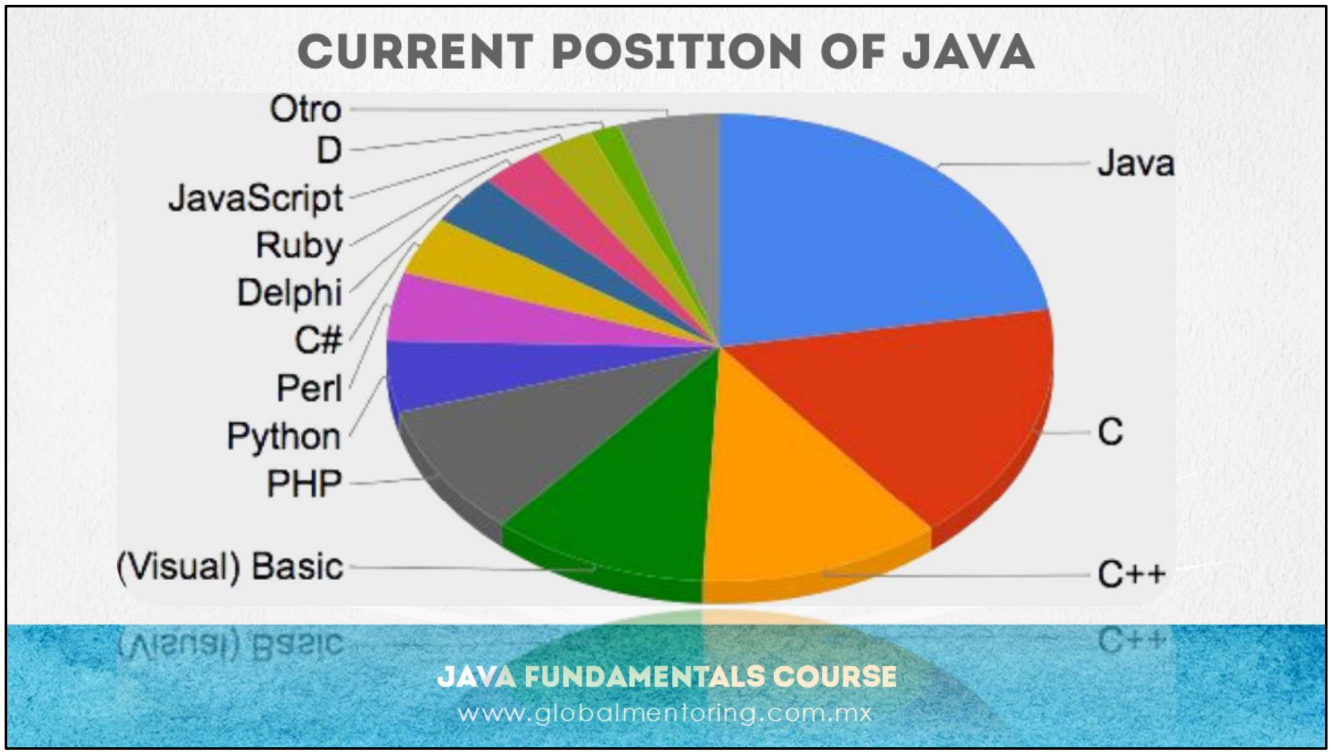
In the J2SE version 5.0 the concept of Generics was introduced, which changed the way we did conversion between Java objects, assigning a specific type to be used especially when working with collections. This eliminated many of the execution errors when handling object types and specifying the type of data a collection should contain.

And the biggest change for java, not only because of the years that have passed and the language has matured, but because it also implies a paradigm shift, is the inclusion of lambda expressions, with which we can combine the power of oriented programming to objects with functional programming, that although it is not a new paradigm, if it is something new for Java programmers.

I know that several of these concepts or topics are new to many of the programmers that start with Java, however it is precisely what we will be studying in this and the following courses of their specialization in Java technology.



Although there are already version 9 and 10 of Java in the market, these versions are not yet supported by application servers such as Glassfish 5, therefore the version we will use throughout the course will be the Java SDK 8 version, which is the version currently supported by most application tools and servers. As we begin to support the current versions of Java we will begin to include them as they apply to the real Java world.



As we can see today Java technology continues to dominate the world of programming, and this is just one of the reasons why studying and mastering Java takes you one step ahead of any competition you have along the way.

However, in many cases we have been told that learning Java is very difficult, and that our chances of dominating it as the market demands are few, this is true only if you believe it, because in reality with your effort and effort you have everything to your favor to be able to master this fabulous programming language, and thus be able to incorporate you into the thousands of job opportunities, both national and international generated by the Java system development market.

And although there is a lot of competition in the systems development market, there is still a shortage of Java programmers, so there will always be many opportunities for people who are well prepared and specialized like you ☺

In addition to the features already described in Java, it is important to mention several other reasons why to be a Java expert.

Fortunately, there is a community of millions of Java programmers worldwide, this allows fellow programmers to contribute knowledge and solutions to many of the problems that we can face on a day-to-day basis, and unlike other languages and / or development platforms, in which knowledge is very closed, the Java community contributes abundant free content through the internet, so many solutions can be found through these communities and support forums that exist worldwide.

The support to Java that the large software industries provide, allows Java to be the number one option today when we are about to select a new project, this in turn allows excellent job opportunities to be generated worldwide and although there are many programmers, the demand for them far exceeds the number of programmers needed to meet this demand. This allows us to be well prepared have a lot of opportunities for our growth and professional development.

In addition, learning Java facilitates learning other programming languages, since both good practices, design patterns, frameworks and other technologies that are generated due to Java development are usually adopted by other languages and technologies to also facilitate their software developments. , so once Java is learned, it will be easier to understand and communicate with other programmers of other programming languages.

These are just some of the most important reasons why we become a Java expert. With this we already have more clear both the history, the main characteristics and the reasons for which to master Java. Next we will install the Java software and put into practice the concepts that we will study and apply in this course.