SERVLETS AND JSP COURSE

CONCEPT OF SERVLETS

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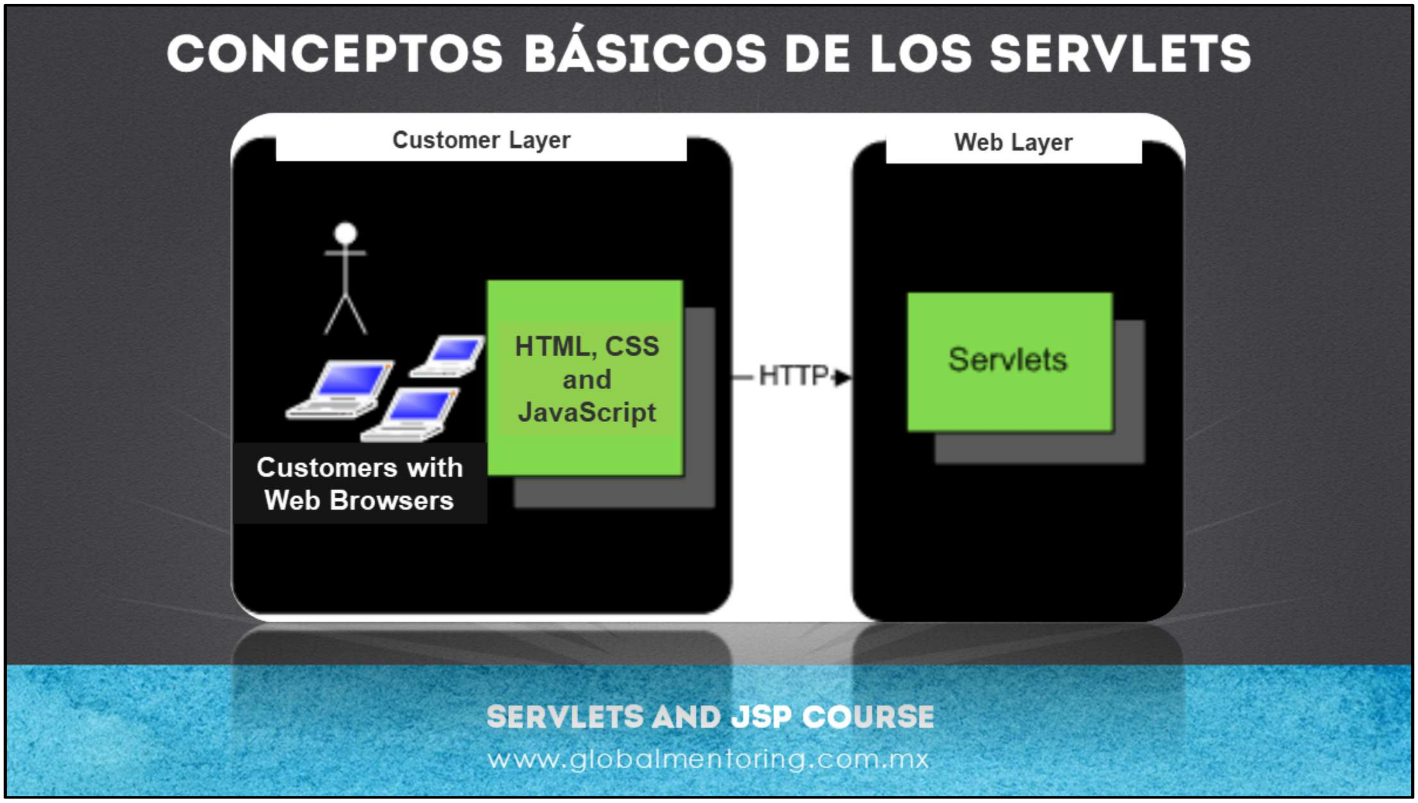
Hello, Ubaldo Acosta greets you again. I hope you're ready to start with this lesson.

Let's study the basics of Servlets.

Are you ready? Come on!



CONCEPTOS BÁSICOS DE LOS SERVLETS

Customer Layer

Customers with Web Browsers

HTML, CSS and JavaScript

HTTP

Web Layer

Servlets

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In this lesson we will review the basic concepts of Servlets.

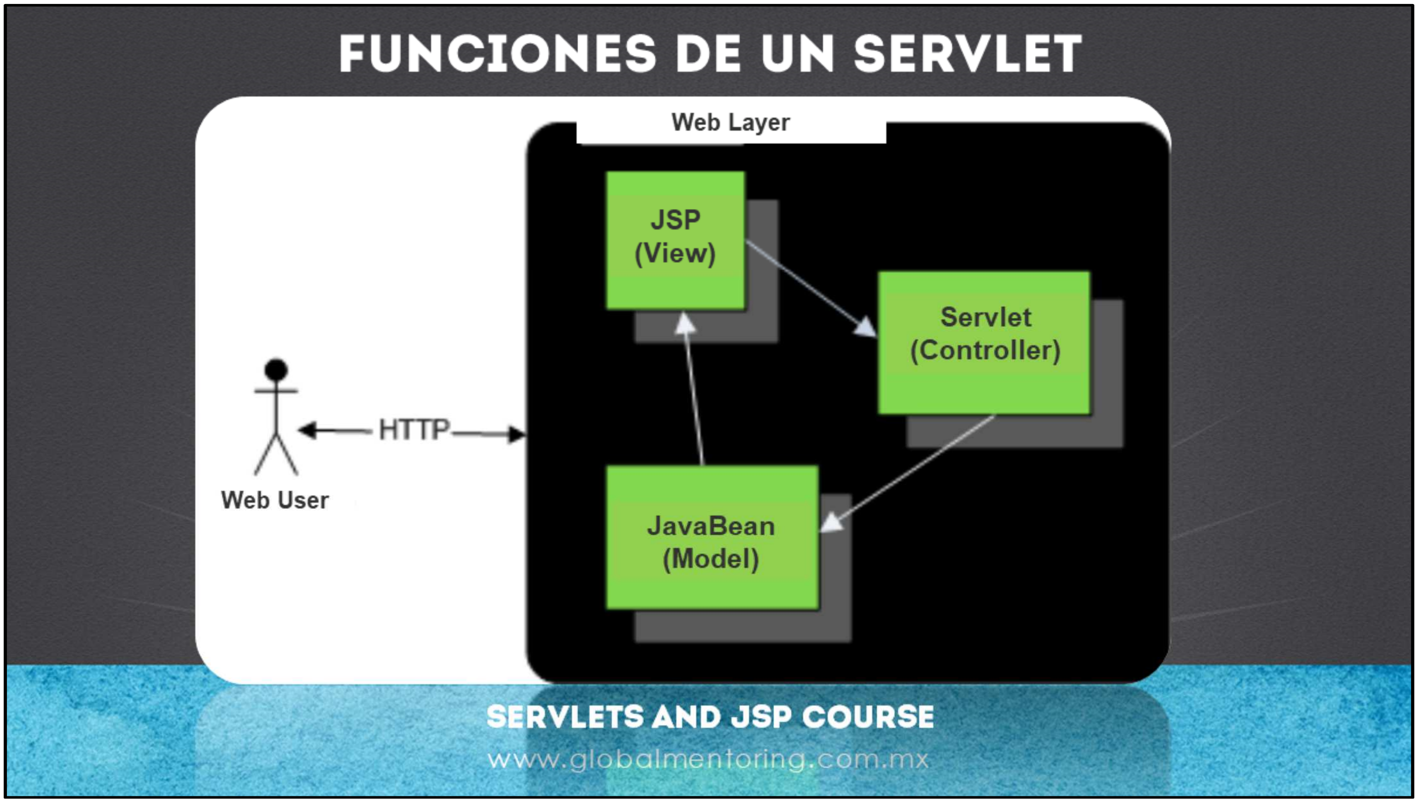
A Servlet is a Java class that allows you to process Web requests through the HTTP protocol.

When the client makes a request to our web server, through a Servlet we will be able to process said request. In the request parameters can go as a result of executing a link or information that comes from an HTML form, and in this way it is that the communication between client and server is started.

Once the Servlet processes what is the client's request and retrieves the parameters, it usually performs a processing (such as retrieving information from a database, or doing some server-side calculation) and as a result of that processing it goes back to show information to the client that made the respective request. This is the most frequent flow of the use of Servlets.

A Servlet then allows:

- Read Web client information (request parameters)
- Generate a response to show the client (HTML and binary files such as PDF, Audio, Video, etc.)



FUNCIONES DE UN SERVLET

Web Layer

JSP (View)

Servlet (Controller)

JavaBean (Model)

HTTP

Web User

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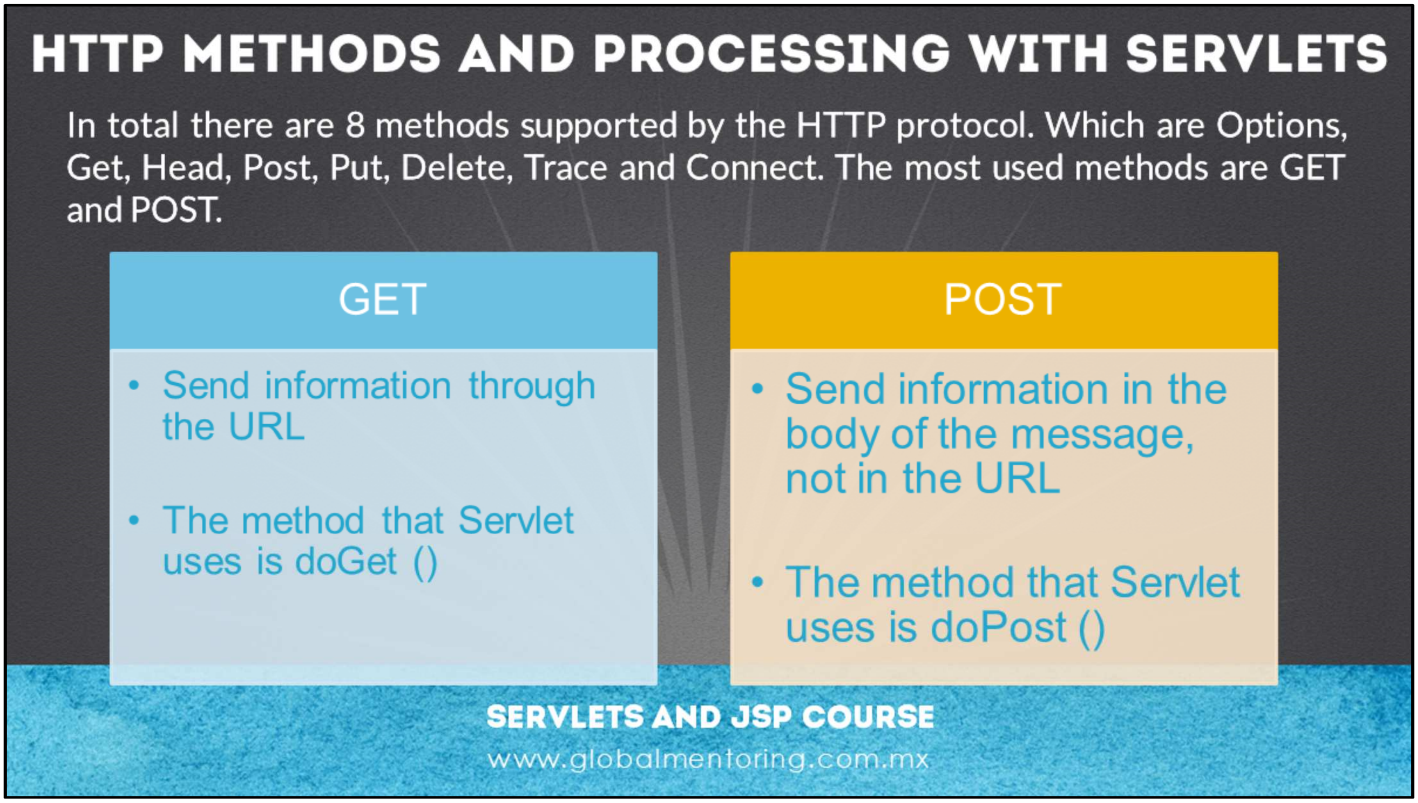
Let's now review the functions of a Servlet. The most common use we will give Servlets will be to control the flow of a web application, for example in the MVC architecture (model-view-controller) the Servlet plays the role of a controller, in this way the Servlet will allow us to control the flow in our web application.

A Servlet contains Java code and can generate HTML code in an embedded way, this means that the Servlet will NOT be the best option to generate HTML code because it will be much more complex to embed the HTML code in our Java code. We will see later that to simplify the generation of HTML code is that JSPs technology was created.

The Model View Controller consists of the following in broad strokes (later we will study this design pattern in detail). In the first place the user visualizes information, this information could have come from a JSP or some static HTML code. Once the client views the information, he makes a request. The request is processed by our controller Servlet and subsequently the controller Servlet is supported by the business information of our application.

In Java we can have different classes that act as the Model, in this case a JavaBean class is the one that contains the data of our model and later the Servlet what it does is to decide which is the JSP that is going to be shown and in turn it is going to send the model you need to be able to display the new account information to the user.

The Model-View-Controller (MVC) what it does is to separate the responsibilities in a Web application. This design pattern is applied in the presentation layer and in this case in our web layer. In summary, the View displays the information to the user, the Controller retrieves the parameters, processes the request and decides again where the response will be directed. In turn, the controller relies on the data of the model, which is the business information of our application, to be able to deliver this information to the JSP and finally this one is in charge of showing the information to the user of a new account. Then the Servlet is the one who will have all the task of administration of navigation and the flow of our web application.



HTTP METHODS AND PROCESSING WITH SERVLETS

In total there are 8 methods supported by the HTTP protocol. Which are Options, Get, Head, Post, Put, Delete, Trace and Connect. The most used methods are GET and POST.

GET

- Send information through the URL
- The method that Servlet uses is doGet ()

POST

- Send information in the body of the message, not in the URL
- The method that Servlet uses is doPost ()

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Now we will review the most used HTTP methods and the most used methods in Servlets to process these HTTP methods.

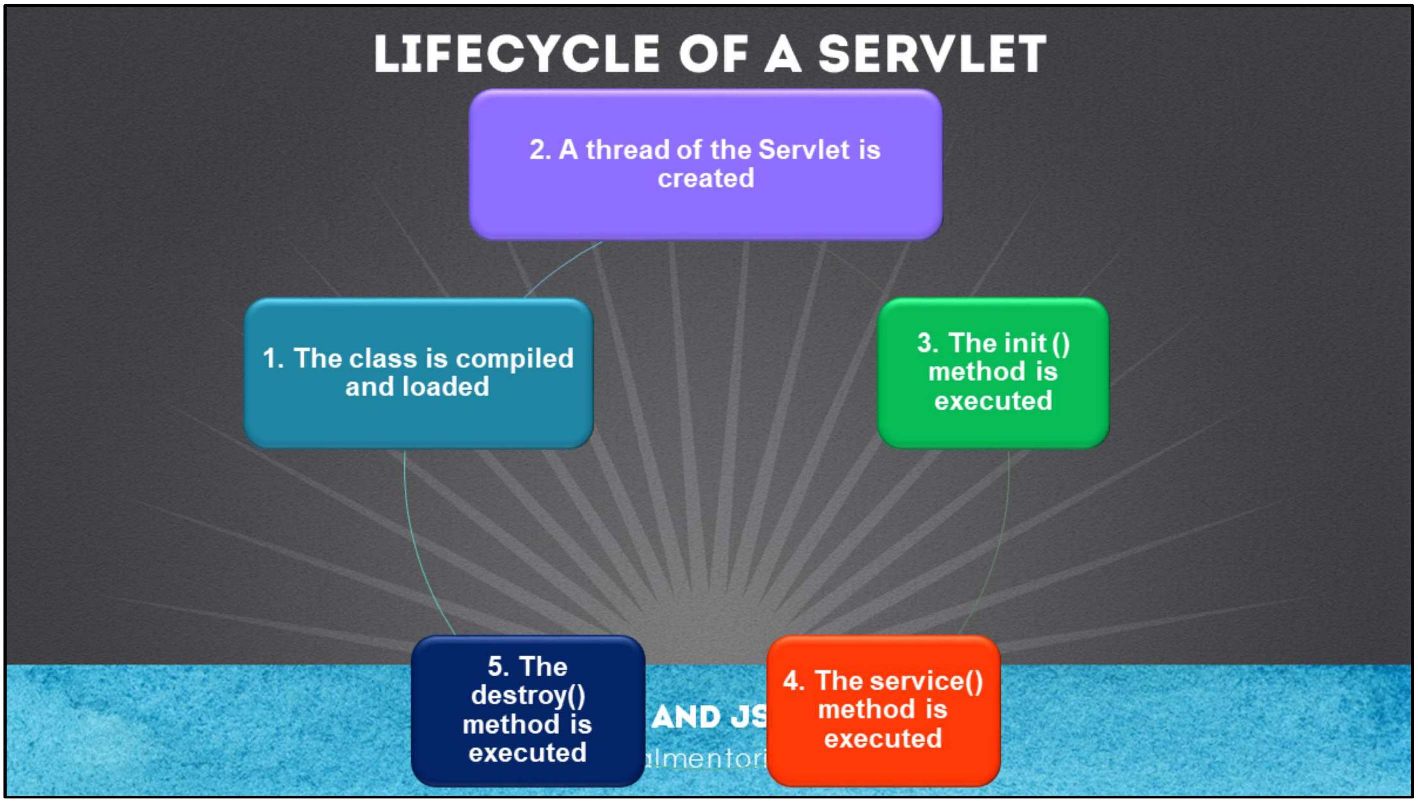
In total there are 8 methods supported by the HTTP protocol which are Options, Get, Head, Post, Put, Delete, Trace and Connect. For our course, what we are going to do is only detail the GET and POST methods since they are the ones we will most frequently use.

In the case of the GET method, what we are going to do is send information (parameters) to our web server through the URL, so we can see the parameters in the URL of the web browser. The method that is used in the Servlet to process this request is the doGet () method.

In the case of the POST method, the information is not sent in the URL but in the body of the HTTP message, therefore the information will not be displayed in the URL but will be sent as part of the content that the web server will receive, what this method is we should use if we do not want the information sent to the server to be displayed. The servlet what it does to process this request is to use the method doPost ().

In summary, the GET method of the HTTP protocol must be processed with the doGet method on the Servlet side, and in the same way the POST method of the HTTP protocol must be processed by the doPost method of the Servlet.

When creating a class of type Servlet we must extend the class javax.servlet.http.HttpServlet, and this class that we create must in turn overwrite the methods doGet or doPost according to the request that is sent by the client. Later we will study the HttpServlet class in more detail.



LIFECYCLE OF A SERVLET

2. A thread of the Servlet is created

1. The class is compiled and loaded

3. The init () method is executed

5. The destroy() method is executed

4. The service() method is executed

Let's review the life cycle of a Servlet. A Servlet is a Java class that extends the class javax.servlet.http.HttpServlet. In order to comply with the life cycle of a servlet, what we need to do is (1) compile it and load it into the Java memory in the virtual machine, subsequently for each one of the requests that are requested to the servlet (2), a new instance of Servlet, but in this case a Servlet is only a subprocess, that is, it generates a thread of the class that already exists in memory, this with the intention that the creation of a Servlet is much more efficient and is more fast execution of HTTP requests processed by Java.

(3) Subsequently, the init () method is called, this method is equivalent to a constructor in a normal Java class, so in the case of a Servlet this method will allow us to initialize our Servlet class in case of what is necessary. It should be noted that just like a constructor, this method is only executed the first time the Servlet is called and in subsequent calls, this init () method is no longer executed.

(4) Once we have our Servlet running and waiting for requests, the service () method is executed, this method is the one that will be indirectly entrusted with calling our methods doGet, doPost or any of the mentioned methods previously. It should be noted that the service () method should not be overwritten since if they overwrite it, the respective method will no longer be called, such as doGet or doPost.

Once our Servlets have finished processing the user's requests, which can be one or many, (5) the destroy () method can be called. This method is equivalent to the finalize () method in a normal Java class and is used precisely as a destructor of the Servlet class in case we need to release certain resources. This is the life cycle of a servlet and we will put it into practice in the following exercise.

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