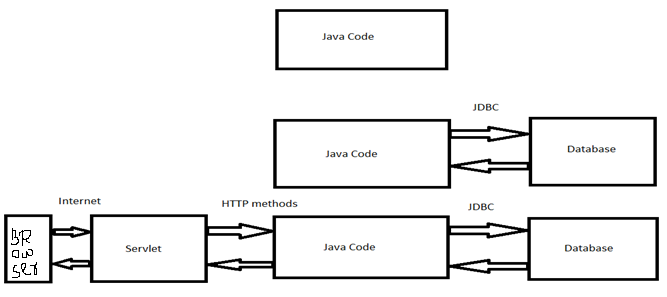
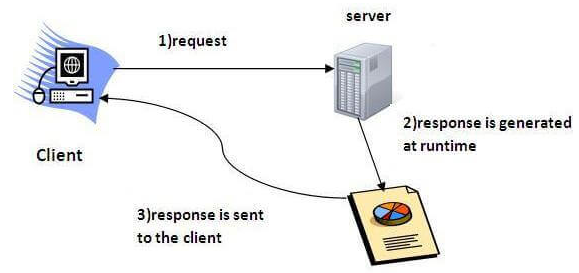
**Servlets**



**Servlet** technology is used to create a web application. It lives at server side and generates dynamic web page.

What is a web application?

A web application is an application accessible from the web. A web application is composed of web components like Servlet, JSP, Filter, etc. and other elements such as HTML, CSS, and JavaScript. The web components typically execute in Web Server and respond to the HTTP request.

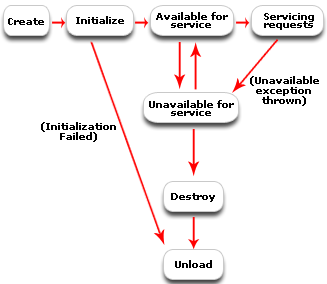


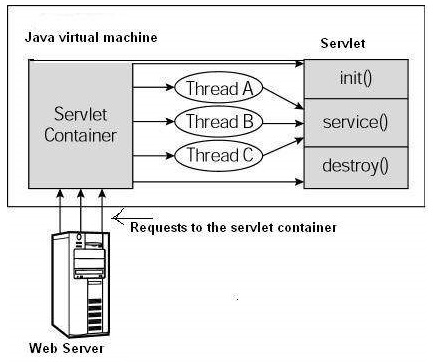
We can convert a normal Java class to servlet and then that java class will be able to **handle Http request coming from browser**.

There are many interfaces and classes in the Servlet API such as Servlet, GenericServlet, HttpServlet, ServletRequest, ServletResponse and more.

**Servlet Lifecycle**

A servlet life cycle can be defined as the entire process from its creation till the destruction. The following are the paths followed by a servlet.

* The servlet is initialized by calling the **init()** method.
* The servlet calls **service()** method to process a client's request.
* The servlet is terminated by calling the **destroy()** method.
* Finally, servlet is garbage collected by the garbage collector of the JVM.
* 
* First the HTTP requests coming to the server are delegated to the servlet container.
* The servlet container loads the servlet before invoking the service() method.
* Then the servlet container handles multiple requests by spawning multiple threads, each thread executing the service() method of a single instance of the servlet.



**HTTP Methods**

|  |  |
| --- | --- |
| 1 | **GET**  The GET method is used to retrieve information from the given server using a given URI. Requests using GET should only retrieve data and should have no other effect on the data. |
| 2 | **HEAD**  Same as GET, but transfers the status line and header section only.  The HTTP HEAD request is identical to the GET request except that the server must not return the message body in the response. Requests using the HTTP HEAD method should only retrieve data (server must not change its state). If you want to change data on the server than use POST, PUT, PATCH, DELETE methods  The HTTP HEAD request may be executed before loading a large resource, to check resource size, validity, accessibility, and recent modification. (would be indicated by Content-Length/Last-Modified headers). |
| 3 | **POST**  A POST request is used to send data to the server, for example, customer information, file upload, etc. using HTML forms. |
| 4 | **PUT**  Replaces all current representations of the target resource with the uploaded content. |
| 5 | **DELETE**  Removes all current representations of the target resource given by a URI.  The DELETE method is defined as idempotent, which means that multiple identical DELETE requests should have the same effect as a single request. |
| 6 | **PATCH**  Same as PUT method but it does partial update |

**HTTP Protocol – Helps to send data from client(browser) to Server over internet**

**One Http request consist of:**

**-Http Header**

**-Http Body**

**Code Example**





**http get request - Data from browser goes to server in HTTP url parameters**

[/employeeapp/SaveServlet?name=test&password=xyz&email=abc@g.com&country=US](about:blank)

**http post request – Data from browser goes to server in HTTP body**

/employeeapp/SaveServlet

name=test

password=xyz

[email=abc@g.com](mailto:email=abc@g.com)

country=US



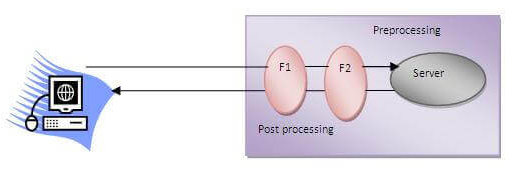




# Servlet Filter

A **filter** is an object that is invoked at the preprocessing and post processing of a request.

It is mainly used to perform filtering tasks such as conversion, logging, compression, encryption and decryption, input validation etc.



For creating any filter, you must implement the Filter interface. Filter interface provides the life cycle methods for a filter.

|  |  |
| --- | --- |
| **Method** | **Description** |
| public void init(FilterConfig config) | init() method is invoked only once.  It is used to initialize the filter. |
| public void doFilter(HttpServletRequest request,HttpServletResponse response, FilterChain chain) | doFilter() method is invoked every time when  user request to any resource,  to which the filter is  mapped.It is used to perform filtering tasks. |
| public void destroy() | This is invoked only once when filter is taken  out of the service. |

