JAVA SERVLET

-java objects that are intended to be the server in a client-server kind of communication.

- assigned in the request of a client by responding to requests

- is host in “servlet container” that provides the environment in which the servlet runs, as well as controls the “servlet lifecycle.

* Servlet lifecycle
* instantiation → constructor call

- creates an instance of the servlet to service client requests.

-invoked implicitly by the servlet container when servlet is called upon to

service a request by the client and no other instance are present.

* Initialization → init ( ) method

- the method is only called once, when the servlet is created it is called.

- the servlet is created when the user call a URL request.

- when a user calls a servlet, a single instance of each servlet is created.

* Request handling → service ( ) method

- is considered as the main method for the task to be done.

- the servlet container calls the method to handle request from client.

- destruction → destroy ( ) method

- invoked before the servlet instance is ‘unloaded’

A Java servlet processes or stores a Java class in Java EE that conforms to the Java Servlet API,a standard for implementing Java classes that respond to requests. Servlets could in principle communicate over any client–server protocol, but they are most often used with the HTTP protocol. Thus "servlet" is often used as shorthand for "HTTP servlet". Thus, a software developer may use a servlet to add dynamic content to a web server using the Java platform. The generated content is commonly HTML, but may be other data such as XML. Servlets can maintain state in session variables across many server transactions by using HTTP cookies, or URL rewriting.

A servlet is an [object](https://en.wikipedia.org/wiki/Object_(computer_science)) that receives a request and generates a response based on that request. The basic Servlet package defines Java objects to represent servlet requests and responses, as well as objects to reflect the servlet's configuration parameters and execution environment. The package javaxServlet defines [HTTP](https://en.wikipedia.org/wiki/HTTP)-specific subclasses of the generic servlet elements, including session management objects that track multiple requests and responses between the web server and a client. Servlets may be packaged in a [WAR file](https://en.wikipedia.org/wiki/WAR_file_format_(Sun)) as a [web application](https://en.wikipedia.org/wiki/Web_application).

What is a Servlet?

-Servlet is a technology i.e. used to create web application.

-Servlet is an API that provides many interfaces and classes including documentations.

-Servlet is an interface that must be implemented for creating any servlet.

-Servlet is a class that extend the capabilities of the servers and respond to the incoming request. It can respond to any type of requests.

-Servlet is a web component that is deployed on the server to create dynamic web page.

Advantage of servlet

2. **Better performance:** because it creates a thread for each request not process.
4. **Portability:** because it uses java language.
6. **Robust:** Servlets are managed by JVM so we don't need to worry about memory leak, garbage collection etc.
8. **Secure:** because it uses java language.