

Explain the 4 parts of lifecycle of servlet

The lifecycle of a servlet consists of **four main parts**:

1. Loading and Instantiation

- The servlet container loads the servlet class into memory when a request is received or during server startup (based on configuration).
- It creates an instance of the servlet class using the no-argument constructor.
- This instance is created only once during the servlet's lifecycle.

2. Initialization (`init()` method)

- After the servlet instance is created, the container calls the `init()` method once.
- This method initializes the servlet, such as setting up resources like database connections.
- It prepares the servlet to handle client requests.

3. Request Handling (`service()` method)

- For every client request, the container invokes the `service()` method of the servlet.
- The `service()` method processes the request and generates a response.
- It dispatches requests to more specific methods like `doGet()`, `doPost()`, etc., depending on the type of HTTP request.
- This method can be called multiple times during the servlet's lifecycle as many requests come in.

4. Destruction (`destroy()` method)

- When the servlet is about to be removed from service (such as on server shutdown or undeployment), the container calls the `destroy()` method.
- This method is called once and is used for cleanup activities like releasing resources and closing connections.
- After this, the servlet instance becomes eligible for garbage collection.

Summary Table:

Lifecycle Part	Description	Method Called	Number of Calls
Loading & Instantiation	Load servlet class and create instance	No explicit method	Once
Initialization	Set up resources and prepare servlet for requests	init()	Once
Request Handling	Process each client request and generate response	service()	Multiple
Destruction	Clean up resources before removal	destroy()	Once

This lifecycle ensures that a servlet is efficiently loaded, initialized once, handles multiple requests, and finally cleans up resources properly. ^{[1] [2] [3] [4] [5]}

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1. <https://www.geeksforgeeks.org/java/life-cycle-of-a-servlet/>
2. <https://www.shikhadeep.com.np/2022/01/discuss-life-cycle-of-servlet-explain.html>
3. <https://www.startertutorials.com/ajwt/life-cycle-servlet.html>
4. <https://www.scaler.com/topics/servlet-life-cycle/>
5. <https://www.almabetter.com/bytes/articles/servlet-life-cycle>
6. <https://www.tutorialspoint.com/servlets/servlets-life-cycle.htm>
7. <https://www.simplilearn.com/tutorials/java-tutorial/java-servlets>
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