Q1.> What is a Servlet ? Explain How a servlet is processed.

ANS.

. A servlet is a Java programming Language class to extend the capabilities of servers that host applications accessed by means of a Request response programming Model.

. Although servlets can respond to any type of request, they are commonly used to extend the Application hosted by the Web servers.

– Processing Servlets:–

1. The client send the request to the web server.
2. The Web Server receives the request.
3. The Web-server passes the request to the corresponding servlet.
4. The servlet processes the request and generates the response in the form of output.
5. The servlet sends the response back to the Web server.
6. The Web server sends the response back to the client and the client browser displays it on the screen.

The Java servlet Life-Cycle includes three stages right from its start to end until the Garbage Collector clears is,

It includes:–

① init() : The germinating stage of any Java servlet.

② service() :–

. The service() method is the heart of the life cycle of a Java servlet. Right after the servlet intialization, it encounters the service request from

the client end.

③ destroy():-
. Like the init() method, the destroy() method is also called only once at the end of (Life-Cycle.)

Q2) Why Session Management is required in Servlet.

Ans. . Session Management is crucial in servlets because HTTP is a stateless protocol, meaning each request made to a server is independent and does not retain any information ~~about~~ about previous request.
. The following are the reasons why session Management is required:-

(1.) Maintaining the User States:-
. Since HTTP doesn't retain any information about user interaction, session Management allows you to maintain the user's state across multiple request.

(2.) User Authentication:-
To Authenticate users, session Management can store login credentials or tokens securely after the user logs in ensuring they remain authenticated while navigating different pages.

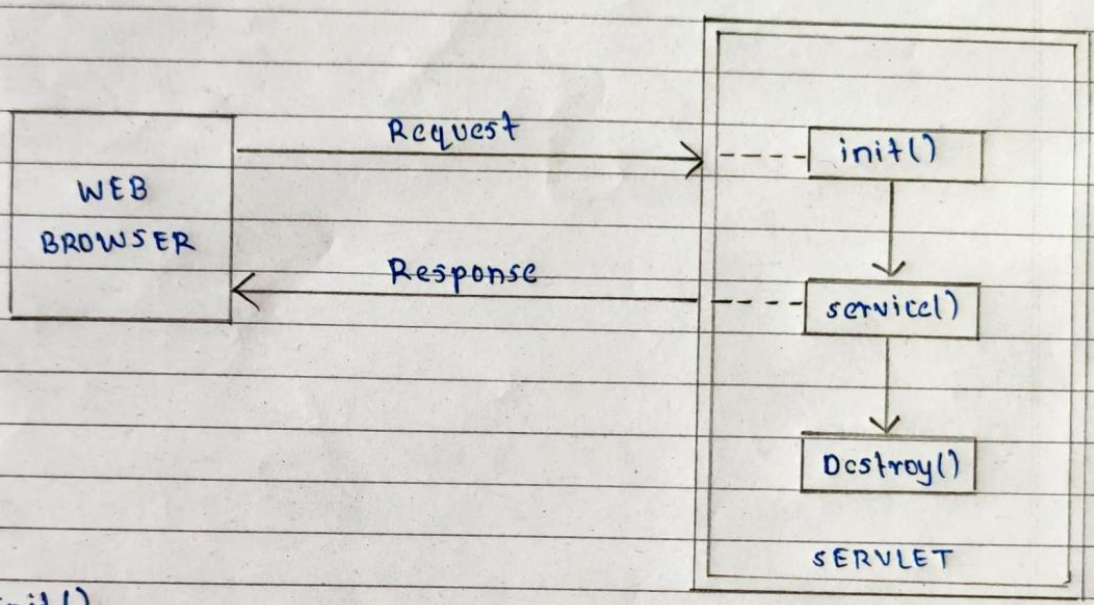
(3.) Personalization:-
. Session Management enables personalized experience by storing user preferences.

(4.) Security:-
Security Management helps secure user interaction by associating requests with a unique session IP,

which can help prevent unathorized acess or session hijacking when properly implemented.

Q3.) Explain the Servlet Lifecycle.

ANS.



1. Init()

- The server basically invokes the init() method of servlet. This method is called only when the servlet is loaded in the memory for the First Time.

2. service()

- Server can invoke the service for particular HTTP request using service() method. The servlet can then read the data provided by the HTTP Request with the help of the service() Method.

3. destroy()

Finally the server unloads the servlet from the Memory using the Destroy Method.