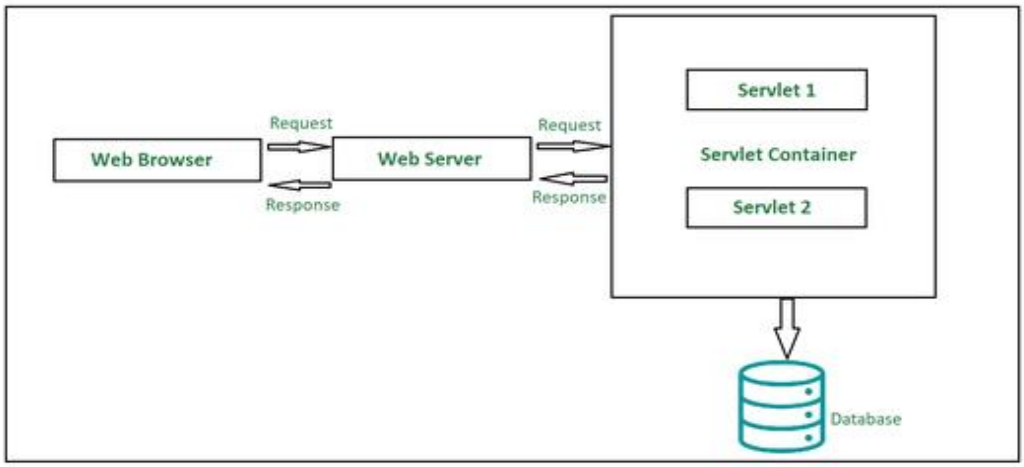
INDUSTRIAL ASSISMENT -6

Introduction To Servlets :-

Java is a general-purpose, object-oriented programming language developed by Sun Microsystems in the early 1990s. It is used for developing a wide variety of applications, from large-scale enterprise systems to small-scale embedded devices. Java is platform independent, meaning it can run on any operating system. It is also highly secure, making it a popular choice for web applications. Servlets are Java programs that run on a web server and handle requests from web browsers. Servlets are used to create dynamic web content, such as IITML pages or XML documents. They can also be used to access databases and perform other server-side tasks. Servlets are written in Java and use the Java Servlet API, which provides methods for interacting with the web server and handling requests from browsers Servlet basics include understanding how to create a servlet, how to compile it, and how to deploy it. Additionally, basic servlet programming requires knowledge of the Java Servlet API and the structure of a servlet, as well as the basics of HTML and XML. More advanced servlet programming involves customizing servlets to perform specific tasks. such as validating user input or accessing databases.

Servlets Architecture



- Read the explicit data sent by the clients (browsers) This includes an ITTML form on a Web page or it could also come from an applet or a custom HTTP client program.

- Read the implicit HTTP request data sent by the clients (browsers). This includes cookies, media types and compression schemes the browser understands, and so forth

- Process the data and generate the results. This process may require talking to a database, executing an RMI or CORBA call, invoking a Web service, or computing the response directly.

- Send the explicit data (ie, the document) to the clients (browsers). This document can be sent in a variety of formats, including text (HTML or XMIJ binary (GIF images), Excel, etc

- Send the implicit HTTP response to the clients (browsers). This includes telling the browsers or other clients what type of document is being returned (eg. HTML), setting cookies and caching parameters, and other such tasks.

Servlet Types

There are two main servlet types, generic and HTTP:

Generic servlets

Extend javax.servlet.GenericServlet.

Are protocol independent. They contain no inherent HTTP support or any other transport protocol.

HTTP servlets

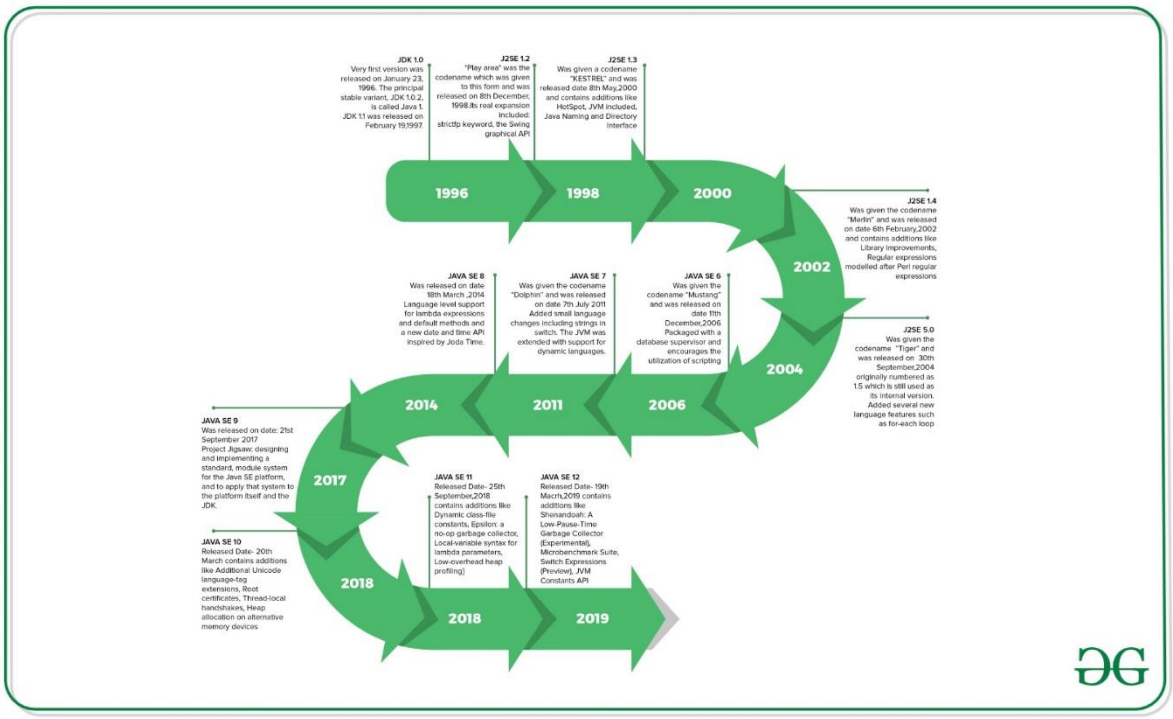
Extend javax.servlet.HttpServlet.

Have built-in HTTP protocol support and are more useful in a Sun Java System Web Server environment.

Introduction To Java:-

Java is a programming language and computing platform first released by Sun Microsystems in 1995. It is the underlying technology that powers state-of-the- art programs including utilities, games, and business applications. Java runs on a variety of platforms, such as Windows, Mac OS, and the various versions of

UNIX This means that programs written in Java have a wide range of applications and can be run on almost any computer. Java is a versatile, reliable. and secure programming language that is used to create a variety of applications. It is an object-oriented language, which means that it can be used to create a program that can interact with other programs and respond to user input Java is also platform-independent, so programs written in Java can be run on any platform without having to be recompiled



Java Architecture:-

Java is an open-source language, which means that anyone can view and modify its code. The Java architecture consists of several layers. At the bottom is the Java Runtime Environment (JRE), which provides the basic platform for running Java programs. Above the JRE is the Java Virtual Machine (JVM). which is responsible for interpreting and executing Java code Above the JVM is the Java Application Programming Interface (API), which is a library of pre- defined classes and methods that provide a wide range of functions and capabilities. Finally, the Java Development Kit (JDK) is a set of development tools that are used to create Java programs.

Java tasks

Java tasks can include anything from coding to software debugging, to web development, to database administration and beyond. Specific tasks vary depending on the job, but may include writing code, creating user interfaces, testing and debugging programs, developing databases, developing algorithms and data structures, designing websites, creating web services, developing mobile applications, and more

Why servlet is used in Java?

A Servlets are used in Java to create dynamic web applications Servlets are Java classes that are used to process client requests and generate dynamic web content. They are used to create web applications that can respond to user requests and generate dynamic content based on the user's input Servlets are also used to create web services, which are applications that can be accessed over the internet.

Advantages of a Java Servlet

Servlet is faster than CGI as it doesn't involve the creation of a new process for every new request received Servlets, as written in Java, are platform- independent Removes the overhead of creating a new process for each request as Servlet doesn't run in a separate process. There is only a single instance that handles all requests concurrently. This also saves the memory and allows a Servlet to easily manage the client state. It is a server-side component, so Servlet inherits the security provided by the Web server. The API designed for Java Servlet automatically acquires the advantages of the Java platforms such as platform-independent and portability. In addition, it obviously can use the wide range of APIs created on Java platforms such as JDBC to access the database. Many Web servers that are suitable for personal use or low-traffic websites are offered for free or alextremely cheap costs eg. Java servlet. However, the majority of commercial-grade Web servers are rather expensive, with the not able exception of Apache, which is free,

Java Disadvantages:

1. Java has high memory and processing requirements.

2. Java programs take longer to run than other programming languages.

3. Java does not support multiple inheritances.

4. Java does not have the ability to directly access hardware.

Servlet Disadvantages:

1.Servlets are not suitable for applications with long-running requests.

2. They are resource intensive and require more memory than other web technologies.

3. They are difficult to debug and troubleshoot.

4. They are not as user-friendly as other web technologies such as ASP.NET or PHP