**How to create servlet project in eclipse:**

File->New->DynamicWeb Project->Next->Next->check Generate web.xml deployment descriptor. Now project is ready

Runtime-> it is a server you choose any server in your project what you installed

**Important folder in project:**

Web Content: where we have web.xml file

Java Resources: where we have src file

**Why we Use Servlet?**

To save the data in database to fetch the data from the database and

**First Demo Program:**

Right click on project and create index.html file

<body>

<form action="add">

Enter your name:<input type="text" name="num1"/><br>

Enter your password:<input type="text" name="num2"/><br>

<input type="submit">

</form>

</body>

**Create a Servlet class:**

Right click on project and create simple class.

public class AddServlet extends HttpServlet {

public void service(HttpServletRequest request, HttpServletResponse response) {int a=Integer.parseInt(request.getParameter("num1"));

int b=Integer.parseInt(request.getParameter("num2"));

int sum=a+b;

System.out.println(sum);

//to display data on the web page

PrintWriter printWriter = response.getWriter();

printWriter.print(sum);}}

**Configure web.xml file:(deployment descriptor)**

Open web.xml file

Note: first remove everything

<?xml version="1.0" encoding="UTF-8"?>

<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://xmlns.jcp.org/xml/ns/javaee" xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee http://xmlns.jcp.org/xml/ns/javaee/web-app\_4\_0.xsd" id="WebApp\_ID" version="4.0">

<servlet>

<servlet-name>abc</servlet-name>

<servlet-class>com.servlet.AddServlet</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>abc</servlet-name>

<url-pattern>/add</url-pattern>

</servlet-mapping>

</web-app>

**Get and Post Methods:**

Note: if you are not mentioned anything in form by default it will take get method

Above we made service method instead of that we will make doPost() method and in form we will pass method="post". That’s how we can make get() and post(() methods.

**Request Dispatcher Calling a Servlet from Servlet:**

Note: When we want to send the data from one servlet to another servlet then we will use **Session Management.**

//sending data from one servlet to another servlet or calling one servlet from another servlet

public void doPost(HttpServletRequest request, HttpServletResponse response) throws IOException, ServletException {

int a = Integer.parseInt(request.getParameter("num1"));

int b = Integer.parseInt(request.getParameter("num2"));

int sum = a + b;

request.setAttribute("sum", sum);

RequestDispatcher dispatcher = request.getRequestDispatcher("sq");

dispatcher.forward(request, response);

}

//Recieving data from another servlet here

public void doPost(HttpServletRequest request, HttpServletResponse response) throws IOException {

int k = (int) request.getAttribute("sum");

//squaring the value

k=k\*k;

PrintWriter printWriter = response.getWriter();

printWriter.println("The square of number is="+k);

}

**sendRedirect URL Rewriting Theory:**

Note: Here we have to write the redirect code to send the data from one servlet to another servlet.

Response.sendRedirect("sq?k="+k);

Note: When we use **sendRedirect** then at the reciever side we have to use request.getParameter("");

**Http Session Cookie:**

HttpSession is an interface and for this interface object is given by tomcat itself

**What is Cookie:**

A **cookie** is a small piece of information that is persisted between the multiple client requests.

A cookie has a name, a single value, and optional attributes such as a comment, path and domain qualifiers, a maximum age, and a version number.

**Example:**

Suppose you went a shop and give them money 100 rupees and you take 50 rupees sasta wala biryani .But shoapkeeper will say I don’t have change then you will say keep it when someone will give you money then return me .But after some time when u will ask your money then he will deny no I don’t know who are you. For that they should give you some token. Same here for cookies also.

**Cookie:**

Cookie is a class

**Servlet Config and Servlet Context:**

**Servlet Context:**

Servlet context is an object which is used to share with multiple servlet classes

If we have multiple servlet which will share the same value then go for servlet context because it is recommended.

It is used to fetch the data from web.xml

User will initialize the data inside web.xml file by using

<context-param>

<param-name>name</param-name>

<param-value>masood</param-value>

</context-param>

**Java Code:**

public void doGet(HttpServletRequest request, HttpServletResponse response) throws IOException {

PrintWriter printWriter = response.getWriter();

printWriter.print("hi");

ServletContext context = getServletContext();

String ctx = context.getInitParameter("name");

printWriter.print(ctx);}

**ServletConfig:**

If we have different value for different servlet then we have to go for Servlet Config.

**Servlet Annotation Configuration:**

Why we use Annotation?

To avoid the xml configuration we use annotation

**@WebServlet("/sq")**

The above annotation will configure the servlet classes

**Why JSP (Java Server Pages)?**

To avoid writing html code in java code we will go for jsp

**How JSP Translated into Servlets?**

It is nothing but html tags but inside html tags we can't call java code. For calling java code inside html tag, we will go for jsp so jsp has some tags where we can call java codes. **<% %> (Scriptlet Tag)**

**Different Types of Jsp tags:**

<%@page import="java.util" %> directive

< %! Int value = 1; %> decleration

<% jb%> scriptlet

<%=sum%> Expression

**What all things we have to do to create Servlet classes?**

First we need to create the class and extend that class with HttpServlet class and create doPost or doGet methods and pass two parameter HttpRequest and HttpResponse.

**Exception Handling in JSP:**

Suppose we have twojsp pages one is home.jsp and another is error.jsp

**Home.jsp**

<%@ page errorPage="error.jsp" %>

<body>

<%

int k = 9/0;

%>

</body>

**Error.jsp**

<%@ page isErrorPage="true"%>

<body>

<%= exception.getMessage() %>

<body>

**JDBC in JSP:**

Follow 6 step of JDBC Connection.

String url=JDBC:mysql//localhost:3306/dbname;

String username="root";

String password="password";

Class.forName("com.mysql.jdbc.Driver");

Connection connection=DriverManager.getConnection(url,username,password);

Note: above code is just a connection with mysql database:

**How to Fetch the data from database:**

String sql="select \* from student where id = 2";

Statement statement = connection.createStatement();

ResultSet resultSet = statement.executeQuery(sql);

resultSet.next();

**How to display the data on jsp page:**

<%= resultSet.getString(1) %>

<%= resultSet.getString(2) %>

<%= resultSet.getString(3) %>

Note: we have to right the jdbc connection code inside striplet <% %>