**ASSIGNMENT NO. 5**

**TITLE**

JSP, Servlet and MySQL (Backend)

**OBJECTIVES**

1. Understand about basic concepts of html, CSS

2. Understand the basic functionalities of JSP

3. Having the knowledge of SQL query to create the database

**PROBLEM STATEMENTS**

Design and Build Student Login Page using JSP, Servlet and MySQL.

**OUTCOMES**

*Students will be able to,*

1. Develop a dynamic webpage using JSP, HTML and Servlet.

2. Write a server side java application called Servlet to catch the data sent from client, process it and store it on database (MySQL).

3. Write a server side java application called JSP to catch form-data sent from client and store it on database (MySQL).

**SOFTWARE NEEDED**

1. Any Operating System

2. JDK 7or later

3. Editors; Netbeans/Eclipse

4. Web browser

5. Tomcat 7 or later

**THEORY - CONCEPT**

**Java Server Pages (JSP):** It is a server side programming technology that is used to create dynamic web-based applications. JSP have right to use the complete Java APIs, including the

JDBC API to access the databases.

It is a technology that helps software developers to create dynamic web pages based on HTML,

XML and other document types. It was released in 1999 by Sun Microsystems. It is just like a

PHP and ASP, but it uses the Java programming language.

A JSP element is a type of java servlet that is designed to accomplish the role of a user interface for a java web application. Web developers write JSPs as text files that combine HTML or

XHTML code, XML elements, and rooted JSP actions and commands.

Using JSP, you can collect input from users through webpage forms, current records from a database or another source and create web pages dynamically.

JSP tags can be used for different purposes, such as retrieving information from a database or registering user preferences, accessing JavaBeans components, passing control between pages, and sharing information between requests, pages etc.

**Why we need JSP?**

JSP is used for the design of dynamic web page and servlet is used to code the logic that is present i.e. in the MVC (Model-View-Controller) architecture, the servlet is the controller and the JSP is the view.

**Architecture of JSP**

1. The request / response part of a JSP is defined in below architecture

2. The client initiated request for a JSP file using browser

3. Webs server (i.e, JSP Engine) invokes the JSP file and interpret the JSP file produce a java code. The created java code will be a Servlet.

4. Once Servlet is created, JSP engine compiles the servlet. Compilation errors will be detected in this phase.

5. Now servlet class is loaded by the container and executes it.

6. Engine sends the response back to the client.

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**Figure: Architecture of JSP**

**Syntax of JSP:**

JSP declarations is used to declare variables and methods as shown below,

<% text %>

Following is the simple and first example for JSP:

//Hello.jsp

<html>

<head>

<title> JSP File</title>

</head>

<body>

<%

out.println("Welcome to JSP Class");

%>

</body>

</html>

**Output:**

Welcome to JSP Class

**Servlet:**

A Servlet is a server side program and written in Java. Servlet is a web component that is deployed on the server for creating the dynamic web pages. A Java servlet is a Java program that extends the capabilities of a server. Although servlets can respond to any types of requests, they most commonly execute applications hosted on Web servers.



**Figure: Functions of Servlet**

**MySQL:** MySQL is a freely available open source Relational Database Management System

(RDBMS). It uses the Structured Query Language (SQL).

SQL is the most popular language for adding, accessing and managing data in a database. It is most noted for its quick processing, proven reliability, ease and flexibility of use. MySQL is an essential part of almost every open source PHP application. Good examples for PHP & MySQLbased scripts are WordPress, Joomla, Magento and Drupal.

**DESIGN / EXECUTION STEPS**

Following steps are used to Create and Execute web applications,

1. Design html and jsp files with an extension of .html and .jsp

2. Write database connection page using servlet.

3. Set MySQL username, password and database name in database connection page

4. Start the Tomcat Server with port number

5. Open the browser and type localhost:8084

**CONCLUSION / ANALYSIS**

Hence, we have performed the dynamic web application using JSP, Servlet and MySQL.

**ORAL QUESTIONS**

1. What is JSP?

2. What is Servlet?

3. What is the purpose of MySQL?

4. What is database?

5. What is the syntax of JSP?

6. How do we connect JSP file to database?