Experiment#			
Date		Student ID	
		Student Name	

18. Implementation of Servlets.

Aim/Objective: To understand the concept of servlets in Java and implement them in a web application.

Description: The student will understand the concepts of servlets, which are Java classes used to extend the functionality of web servers and handle client requests.

Pre-Requisites: Classes, Objects, Java Servlet API, Understanding of HTTP protocol and web development concepts.

Tools: Eclipse IDE for Enterprise Java and Web Developers, Apache Tomcat - Web Server, Java Servlet APIs.

Pre-Lab:

1) Explanation of what a servlet is and how it differs from other Java classes. What are the main advantages of using servlets in web development?

A servlet is a jaa class that extends web server capabilities to handle HTTP requests and deliver dynamic content. unlike standard java classes, servlets run on a server and support client server interactions.

2) Write a servlet application code to print the current date and time.

```
Public class DataTimeserverlet extends
              Httpservlet {
Protected void doget (HttpservletRequest request,
  HttpservletResponse response)
          throws ServletException, IOException {
        response.set contentType ("text/html");
      PrintWriter out = respone.getwriter();
       out.Println ("<html><body>");
        out.Println ("<h1>Current Data 4 Time:"+
                 new Date() + "</h1>");
         out.Println ("</body></html>");
              Out.close();
        }}
```

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In-Lab:

1) You are developing a voter eligibility checker web application. The application should accept the user's age and name through a form submission and display a message indicating whether the user is eligible for voting or not. In this scenario, implement a servlet called "VoterEligibilityServlet" that handles the form submission and displays the eligibility message based on the user's age. If the age is 18 or above, display a message like "Hello [name], you are eligible to vote!" Otherwise, display a message like "Hello [name], you are not eligible to vote yet." Ensure proper validation and error handling for invalid input

Procedure/Program:

```
import javax.servlet.httpseveletRequests.
 import javax . servlet .httpServletResponse;

 Public Class Voter EligibityServlet extends
       HttpServlet {
Protected void dopost (HttpServletRequest,
      HttpServletResponse response)
        throws servletException, IOException
                                          {
```

```
response.setContentType("text/html");
Printwriter out=response.getwriter();
String name=request.getParameter("name");
String agestr=request.getparameter("age");
try {
int age=Integer.parallel(age str);
   if(age >=18) {
 out.Println("<h1>Hello"+name+"+you are
     eligible to vote!</h1>");

   }else {
 out.Println("<h1>Hello "+name+"you are
     not eligible to vote yet.</h1>
     }
   }catch (NumberFormatException e){
out.Println("<h1>Invalid age input-please
     enter a valid number</h1>");
     }
     out.close();
    }
  }
```

✓ **Data and Results:**

The Server captures users input (name and age), checks eligibity for voting, and display's a message based on age critria

✓ **Analysis and Inferences:**

This application effectively validates age input 4 provides feedbacks, ensuring User-friendly interaction by handling both valid 4 invalid entries

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VIVA-VOCE Questions (In-Lab):

1) What is a servlet? How does it relate to web development?

A servlet a java class extendy web server functionality to handle HTTP requests, allowing ~~dy~~ dynamic content generation for web application.

2) How does a servlet handle client requests and generate responses?

A servlet client requests, process them (usually in the doGet and doPost methods), and sends back response, typically in HTML format

3) How can servlets handle user input data submitted through an HTML form?

Servlets retreive from data via request.getParameter() to access user input fields submitted through HTML forms.

4) What is the role of a servlet in a web application

Servlets serve as the backbone for server-side processing in java web application, managing client requests and generating dynamic content.

5) What are the steps involved in configuring and deploying a servlet in a web application

Define the servlet web.xml or use annotations, complile the code, and deploy it in a server (eg: Tomcat) to make it accessible on the web.

Post-Lab:

1) Write a code demonstrating the usage of request and response objects in a servlet. Use a scenario where you need to retrieve user input from a form and display a customized response based on that input the entered data on the web page.

Procedure/Program:

```
Public Class welcomeservlet extends Httpservlet{
Protected void dopost (HttpservletRequest request,
    Httpservlet Response response)
        throws servlet Exception, IO Exception{
  response. set ContentType (" text/html");
  Printwriter out = response. getwriter ();
  String name = request. getparameter ("name");
  String agestr=request. get Parameter ("age");
    Out. Println ("<html><body>");
    out. Println ("<h1>welome, "+ name +"!</h1>");
     out. Println ("<p> your age is:"+age str
                 +"</p>");
      Out. Println ("</body></html>");
         Out. close();

     }}
```

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✓ **Data and Results:**

The servlet captures name 4 age from user input and display a persnalized message with his information.

✓ **Analysis and Inferences:**

The demonstrates how servlets handle from data and dynamically generate html responses, enhancing user interactivity in web applications.

Evaluator Remark (if Any):	**Marks Secured: _____out of 50**
	Signature of the Evaluator with Date

Evaluator MUST ask Viva-voce prior to signing and posting marks for each experiment.