

Dt : 1/12/2023

***imp**

RequestDispatcher:

=>RequestDispatcher is an interface from javax.servlet package and which is used to perform the following Servlet-Communications:

(i)Servlet to Servlet Communication

(ii)Servlet to HTML Communication

(iii)Servlet to JSP Communication

=>Servlet-Communications are categorized into two types:

(a)forward communication

(b)include communication

(a)forward communication:

=>In forward Communication process,ServletProgram1 will take the request and forwards the request to ServletProgram2,in this process the response is generated from ServletProgram2.

=>This ServletProgram2 can be replace with HTML file or JSP file.

=>we use forward() method from 'RequestDispatcher' to perform forward communication process.

Method Signature of forward():

**public abstract void forward(javax.servlet.ServletRequest,
javax.servlet.ServletResponse) throws javax.servlet.ServletException,**

java.io.IOException;

Diagram:

(b)include communication:

=>In include communication process,the ServletProgram1 will take the request and generate response,but the response is included with the response of ServletProgram2.

=>This ServletProgram2 can be replaced with HTML file or JSP file.

=>we use include() method from 'RequestDispatcher' to perform include Communication process.

Method Signature of include():

**public abstract void include(javax.servlet.ServletRequest,
javax.servlet.ServletResponse) throws javax.servlet.ServletException,
java.io.IOException;**

Diagram:

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===

=>we use getRequestDispatcher() method from 'ServletRequest' to create implementation object for 'RequestDispatcher' interface.

Method Signature of `getRequestDispatcher()`;

`public abstract javax.servlet.RequestDispatcher`

`getRequestDispatcher(java.lang.String);`

syntax:

`RequestDispatcher rd = req.getRequestDispatcher("Servlet-url/HTML/JSP");`

`rd.forward(req,res);`

`rd.include(req,res);`

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Ex-Application:(Demonstrating RequestDispatcher)

Layout:

`input.html`

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
  <form action="choice" method="post">
    Enter the Value:<input type="text" name="val"><br>
    <input type="submit" value="Factorial" name="s1">
    <input type="submit" value="Prime" name="s1">
  </form>
```

```
</body>  
</html>
```

ChoiceServlet.java

```
package test;
```

```
import java.io.*;
```

```
import javax.servlet.*;
```

```
import javax.servlet.annotation.*;
```

```
@SuppressWarnings("serial")
```

```
@WebServlet("/choice")
```

```
public class ChoiceServlet extends GenericServlet
```

```
{
```

```
    @Override
```

```
    public void service(ServletRequest req, ServletResponse res) throws
```

```
    ServletException, IOException {
```

```
        String s1 = req.getParameter("s1");
```

```
        if(s1.equals("Factorial")) {
```

```
            RequestDispatcher rd =
```

```
                req.getRequestDispatcher("xyz");
```

```
            rd.forward(req, res);
```

```
        }else {
```

```
            RequestDispatcher rd =
```

```
                req.getRequestDispatcher("pqr");
```

```
        rd.forward(req, res);
    }
}
}
```

FactorialServlet.java

```
package test;

import java.io.*;
import javax.servlet.*;
import javax.servlet.annotation.*;

@SuppressWarnings("serial")
@WebServlet("/xyz")

public class FactorialServlet extends GenericServlet{

    @Override

    public void service(ServletRequest req,ServletResponse res)throws
        ServletException,IOException{

        PrintWriter pw = res.getWriter();

        res.setContentType("text/html");

        int n = Integer.parseInt(req.getParameter("val"));

        int fact=1;

        for(int i=n;i>=1;i--)

        {

            fact=fact*i;

        }

    }
}
```

```

    }

    pw.println("Factorial : "+fact+"<br>");

    RequestDispatcher rd =

        req.getRequestDispatcher("input.html");

    rd.include(req, res);

}

}

PrimeServlet.java

package test;

import java.io.*;

import javax.servlet.*;

import javax.servlet.annotation.*;

@SuppressWarnings("serial")

@WebServlet("/pqr")

public class PrimeServlet extends GenericServlet{

    @Override

    public void service(ServletRequest req,ServletResponse res)throws

    ServletException,IOException{

        PrintWriter pw = res.getWriter();

        res.setContentType("text/html");

        int n = Integer.parseInt(req.getParameter("val"));

        int count=0;

```

```

        for(int i=1;i<=n;i++)
        {
            if(n%i==0)
            {
                count++;
            }
        }

        if(count==2) pw.println("Prime Number..<br>");
        else pw.println("Not Prime Number...<br>");

        RequestDispatcher rd =
            req.getRequestDispatcher("input.html");

        rd.include(req, res);
    }
}

```

web.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<web-app>
    <welcome-file-list>
        <welcome-file>input.html</welcome-file>
    </welcome-file-list>
</web-app>

```

=====

Assignment:

Construct Servlet Application to perform the following operations

Add,Sub,Mul,Div,ModDiv,Greater,Smaller

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