

Web Java servlets

Catarina Oliveira

DCT DEPARTAMENTO DE CIÊNCIA
E TECNOLOGIA

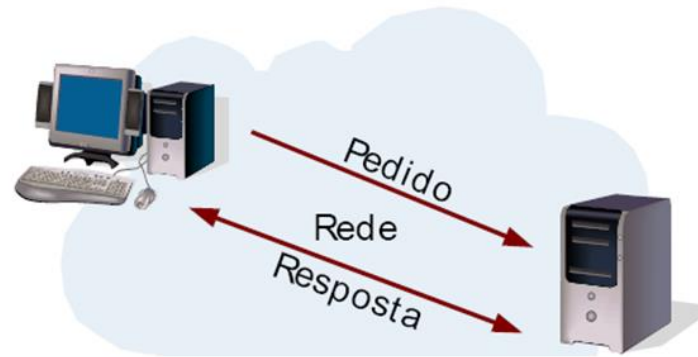
How Servlets work

(1) Client

Sends HTTP request to server

(3) Client

Receives response and displays it



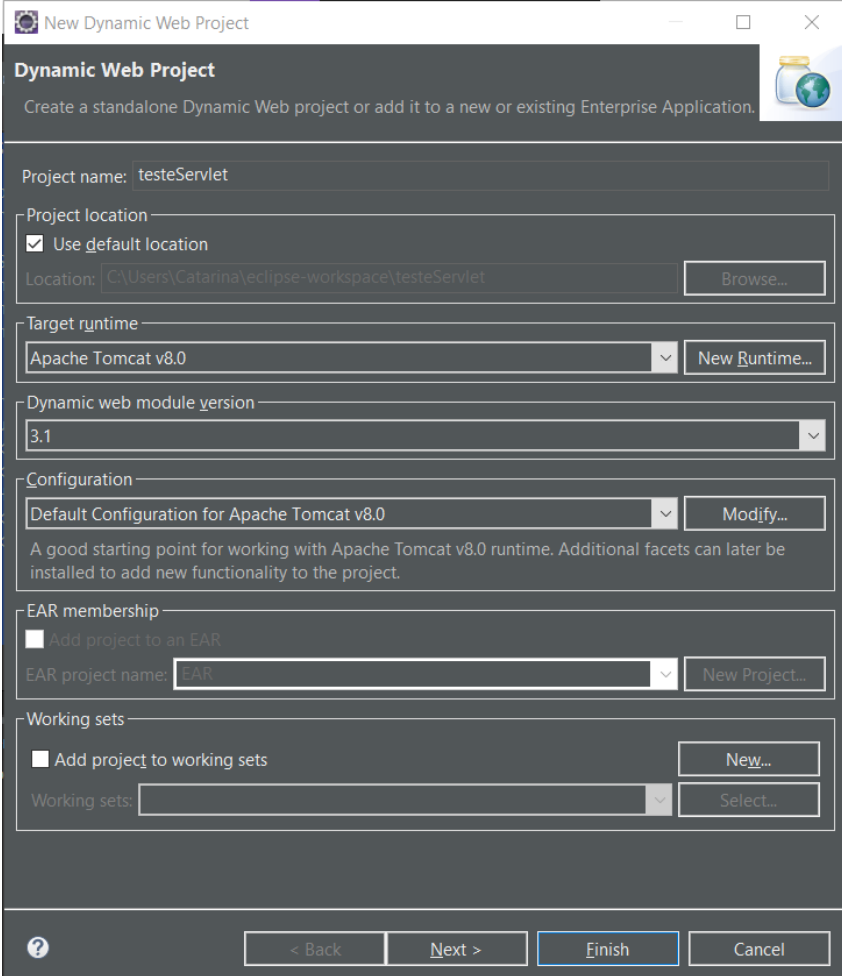
(2) Servlet

Receives the request, treats it and sends response to the client

Creation

On Eclipse:

1. File > New
2. Web > Dynamic Web Project
3. Insert name
4. Choose target runtime
5. Choose Dynamic web module version
6. Finish



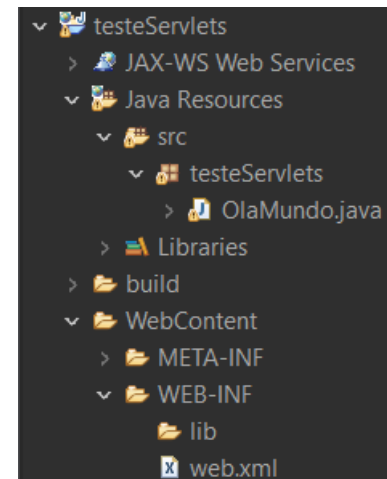
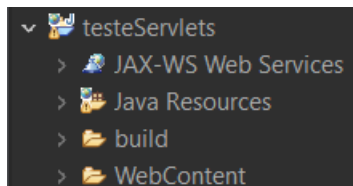
The screenshot shows the 'New Dynamic Web Project' dialog box in Eclipse. The dialog has a title bar with the Eclipse logo and the text 'New Dynamic Web Project'. Below the title bar, there's a section titled 'Dynamic Web Project' with a subtitle 'Create a standalone Dynamic Web project or add it to a new or existing Enterprise Application.' and a small icon of a globe and a server.

The main content area is divided into several sections:

- Project name:** A text field containing 'testeServlet'.
- Project location:** A section with a checkbox 'Use default location' which is checked. Below it, a text field shows the location 'C:\Users\Catarina\workspace\testeServlet' and a 'Browse...' button.
- Target runtime:** A dropdown menu showing 'Apache Tomcat v8.0' and a 'New Runtime...' button.
- Dynamic web module version:** A dropdown menu showing '3.1'.
- Configuration:** A dropdown menu showing 'Default Configuration for Apache Tomcat v8.0' and a 'Modify...' button. Below this, there is a descriptive text: 'A good starting point for working with Apache Tomcat v8.0 runtime. Additional facets can later be installed to add new functionality to the project.'
- EAR membership:** A section with a checkbox 'Add project to an EAR' which is unchecked. Below it, a text field shows 'EAR' and a 'New Project...' button.
- Working sets:** A section with a checkbox 'Add project to working sets' which is unchecked. Below it, a text field is empty and a 'Select...' button is present.

At the bottom of the dialog, there are four buttons: '?', '< Back', 'Next >', and 'Finish' (which is highlighted in blue). A 'Cancel' button is also present on the far right.

Project structure



Servlet structure (example 0)

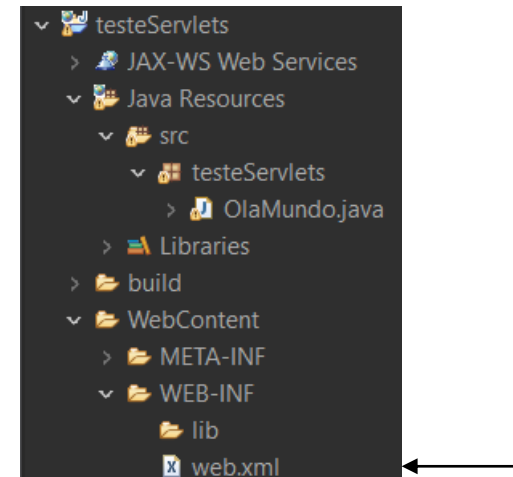
File OlaMundo.java

```
1 package testeServlets;
2
3 import java.io.IOException;
4 import java.io.PrintWriter;
5
6 import javax.servlet.ServletException;
7 import javax.servlet.http.HttpServlet;
8 import javax.servlet.http.HttpServletRequest;
9 import javax.servlet.http.HttpServletResponse;
10
11 public class OlaMundo extends HttpServlet {
12     protected void service (HttpServletRequest request,HttpServletResponse response) throws ServletException, IOException {
13         PrintWriter out = response.getWriter();
14         out.println("<html>");
15         out.println("<body>");
16         out.println("Hello World");
17         out.println("</body>");
18         out.println("</html>");
19     }
20 }
```



Servlet mapping (example 0)

File web.xml



```

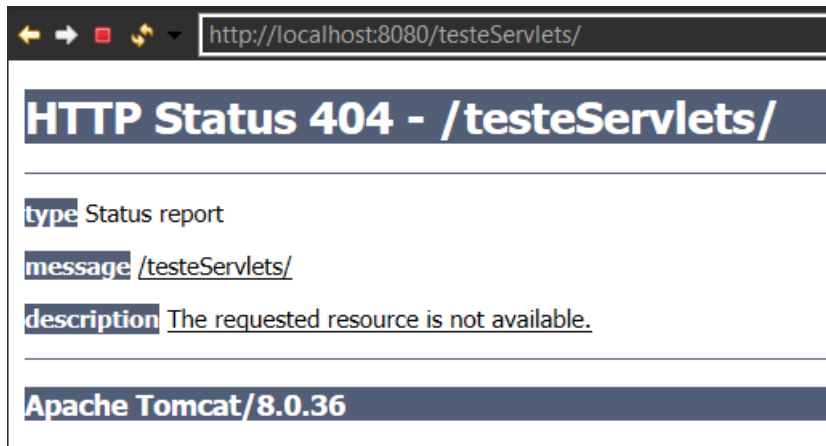
1  <?xml version="1.0" encoding="ISO-8859-1"?>
2
3  <!DOCTYPE web-app
4      PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application 2.3//EN"
5      "http://java.sun.com/dtd/web-app_2_3.dtd">
6
7  <web-app>
8      <servlet>
9          <servlet-name>olaServlet</servlet-name>
10         <servlet-class>testeServlets.OlaMundo</servlet-class>
11     </servlet>
12     <servlet-mapping>
13         <servlet-name>olaServlet</servlet-name>
14         <url-pattern>/olaMundo</url-pattern>
15     </servlet-mapping>
16 </web-app>

```

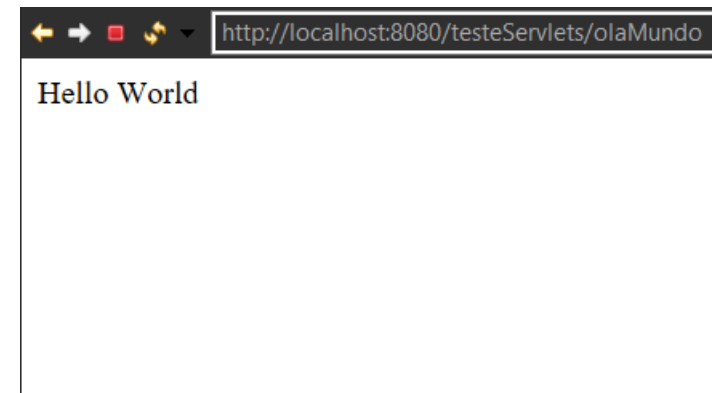
Running (example 0)

1. Right-click the project
2. Run > Run on Server
3. Finish

On eclipse:



Changing the URL to <http://localhost:8080/testeServlets/olaMundo>:



(available in any browser)

Example 1

```

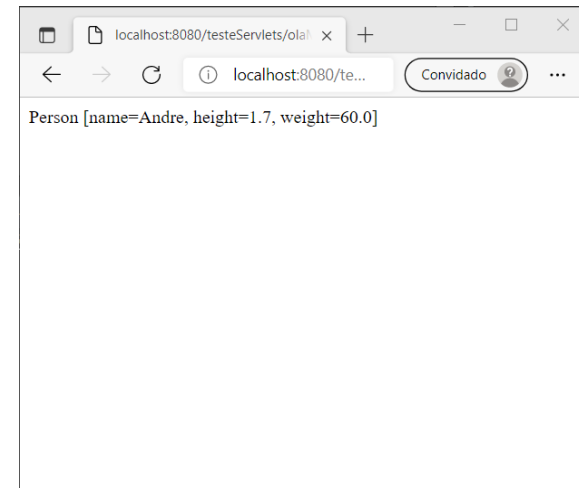
1 public class Person {
2     private String name;
3     private double height;
4     private double weight;
5
6     public Person(String name, double height, double weight) {
7         super();
8         this.name = name;
9         this.height = height;
10        this.weight = weight;
11    }
12
13    public double imc() {
14        return weight/(height*height);
15    }
16
17    @Override
18    public String toString() {
19        return "Person [name=" + name + ", height=" + height + ", weight=" + weight + "]";
20    }
21
22    public String getName() {
23        return name;
24    }
25
26    public void setName(String name) {
27        this.name = name;
28    }
29
30    public double getHeight() {
31        return height;
32    }
33
34    public void setHeight(double height) {
35        this.height = height;
36    }
37
38    public double getWeight() {
39        return weight;
40    }
41
42    public void setWeight(double weight) {
43        this.weight = weight;
44    }
45 }

```

```

1 public class OlaMundo extends HttpServlet {
2     protected void service (HttpServletRequest request,HttpServletResponse response)
3         throws ServletException, IOException {
4
5         Person p = new Person("Andre", 1.70, 60);
6
7         PrintWriter out = response.getWriter();
8         out.println("<html>");
9         out.println("<body>");
10        out.println(p);
11        out.println("</body>");
12        out.println("</html>");
13    }
14 }

```

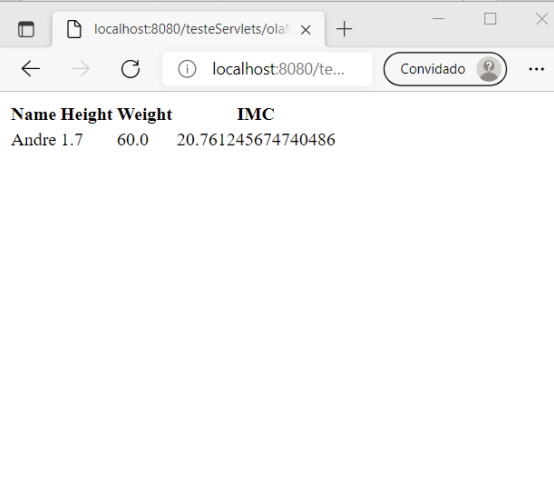


Example 2

```

1 public class OlaMundo extends HttpServlet {
2     protected void service (HttpServletRequest request,HttpServletResponse response)
3         throws ServletException, IOException {
4
5         Person p = new Person("Andre", 1.70, 60);
6
7         PrintWriter out = response.getWriter();
8         out.println("<html>");
9         out.println("<body>");
10        out.println("<table>");
11        out.println("<tr><th>Name</th><th>Height</th><th>Weight</th><th>IMC</th></tr>");
12        out.print("<tr>");
13        out.print("<td>" + p.getName() + "</td>");
14        out.print("<td>" + p.getHeight() + "</td>");
15        out.print("<td>" + p.getWeight() + "</td>");
16        out.print("<td>" + p.imc() + "</td>");
17        out.print("</tr>");
18        out.println("</table>");
19        out.println("</body>");
20        out.println("</html>");
21    }
22 }

```



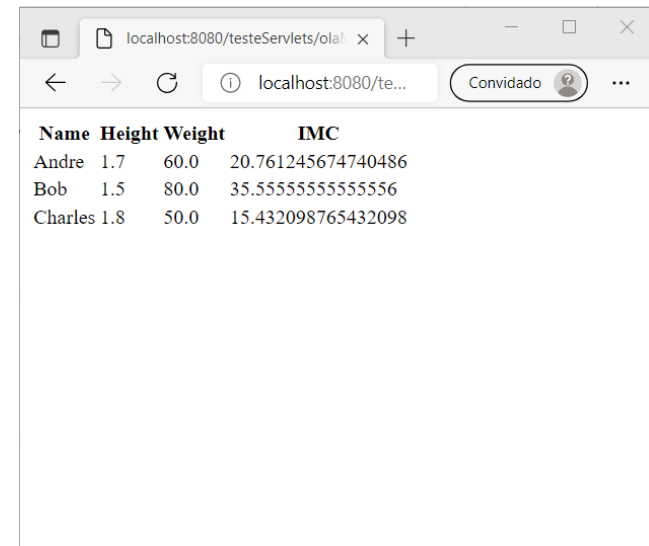
Name	Height	Weight	IMC
Andre	1.7	60.0	20.761245674740486

Example 3

```

1 public class OlaMundo extends HttpServlet {
2     protected void service (HttpServletRequest request,HttpServletResponse response)
3         throws ServletException, IOException {
4
5         ArrayList<Person> persons = new ArrayList<Person>();
6         persons.add(new Person("Andre", 1.70, 60));
7         persons.add(new Person("Bob", 1.50, 80));
8         persons.add(new Person("Charles", 1.80, 50));
9
10        PrintWriter out = response.getWriter();
11        out.println("<html>");
12        out.println("<head>");
13        out.println("</head>");
14        out.println("<body>");
15        out.println("<table>");
16        out.println("<tr><th>Name</th><th>Height</th><th>Weight</th><th>IMC</th></tr>");
17        for(Person p: persons) {
18            out.print("<tr>");
19            out.print("<td>" + p.getName() + "</td>");
20            out.print("<td>" + p.getHeight() + "</td>");
21            out.print("<td>" + p.getWeight() + "</td>");
22            out.print("<td>" + p.imc() + "</td>");
23            out.println("</tr>");
24        }
25        out.println("</table>");
26        out.println("</body>");
27        out.println("</html>");
28    }
29 }

```



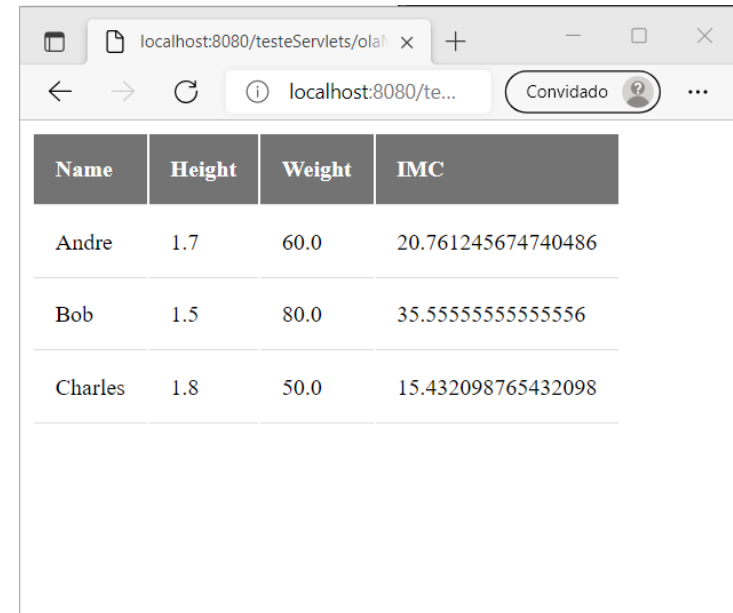
Name	Height	Weight	IMC
Andre	1.7	60.0	20.761245674740486
Bob	1.5	80.0	35.555555555555556
Charles	1.8	50.0	15.432098765432098

Example 4

```

1 public class OlaMundo extends HttpServlet {
2     protected void service (HttpServletRequest request, HttpServletResponse response)
3         throws ServletException, IOException {
4
5         ArrayList<Person> persons = new ArrayList<Person>();
6         persons.add(new Person("Andre", 1.70, 60));
7         persons.add(new Person("Bob", 1.50, 80));
8         persons.add(new Person("Charles", 1.80, 50));
9
10        PrintWriter out = response.getWriter();
11        out.println("<html>");
12        out.println("<head>");
13        out.println("<link rel='stylesheet' href='css/style.css'>");
14        out.println("</head>");
15        out.println("<body>");
16        out.println("<table>");
17        out.println("<tr><th>Name</th><th>Height</th><th>Weight</th><th>IMC</th></tr>");
18        for(Person p: persons) {
19            out.print("<tr>");
20            out.print("<td>" + p.getName() + "</td>");
21            out.print("<td>" + p.getHeight() + "</td>");
22            out.print("<td>" + p.getWeight() + "</td>");
23            out.print("<td>" + p.imc() + "</td>");
24            out.println("</tr>");
25        }
26        out.println("</table>");
27        out.println("</body>");
28        out.println("</html>");
29    }
30 }

```



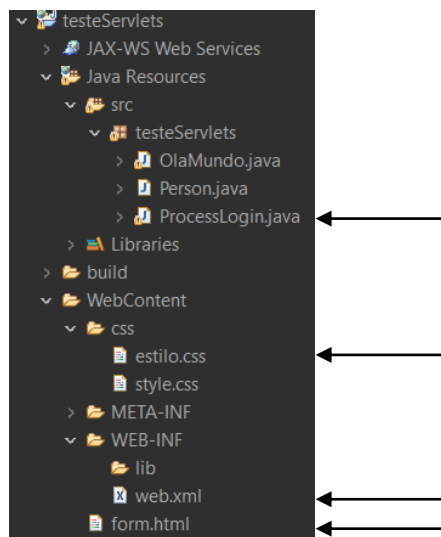
Name	Height	Weight	IMC
Andre	1.7	60.0	20.761245674740486
Bob	1.5	80.0	35.555555555555556
Charles	1.8	50.0	15.432098765432098

```

1 th {
2     background-color: #737373;
3     color: white;
4 }
5
6 th, td {
7     padding: 15px;
8     text-align: left;
9     border-bottom: 1px solid #ddd;
10 }

```

Example 5



```

1  p, legend, label {
2      font-style: italic;
3  }
4
5  input[type=email] {
6      height: 20px;
7  }
8
9  input[type=password] {
10     height: 20px;
11 }
12
13 button {
14     height: 30px;
15     color: white;
16     font-style: italic;
17     font-weight: bold;
18     border-radius: 12px;
19 }
20
21 button[type=submit] {
22     background-color: #1f5709;
23 }

```

```

1  public class ProcessLogin extends HttpServlet {
2      protected void service (HttpServletRequest request, HttpServletResponse response)
3          throws ServletException, IOException {
4
5      response.setContentType("text/html");
6      PrintWriter out = response.getWriter();
7
8      String email = request.getParameter("email");
9      String passwd = request.getParameter("password");
10
11     out.println("<html>");
12     out.println("<head>");
13     out.println("<link rel='stylesheet' href='css/style.css'>");
14     out.println("</head>");
15     out.println("<body>");
16     out.println("<b>=== Tentativa de login ===</b><br>");
17     out.println("<b>Email:</b> " + email + "<br>");
18     out.println("<b>Password:</b> " + passwd + "<br>");
19     out.println("</body>");
20     out.println("</html>");
21     out.close();
22 }

```

```

1  <html>
2      <head>
3          <title>Login</title>
4          <link rel="stylesheet" href="css/estilo.css">
5      </head>
6      <body>
7          <p> Introduzir dados de login </p>
8          <form action="processLogin" method="post">
9              <fieldset>
10                 <legend>Dados Pessoais:</legend>
11                 <label>Email:</label><br>
12                 <input name="email" type="email"><br>
13                 <label>Password:</label><br>
14                 <input name="password" type="password"><br>
15                 <button type="submit">Login</button>
16             </fieldset>
17         </form>
18     </body>
19 </html>

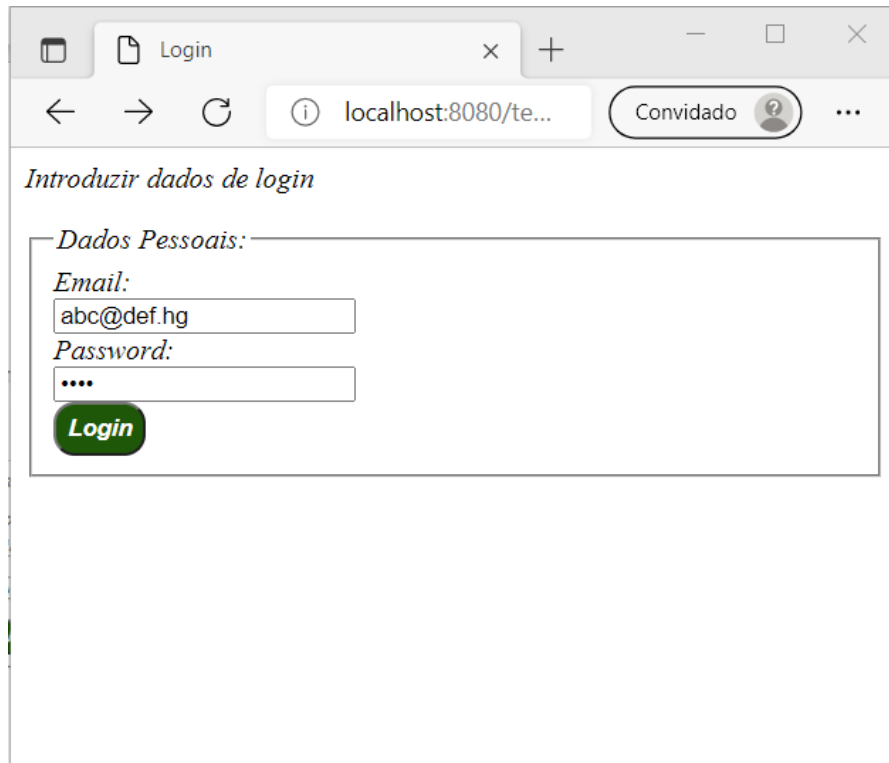
```

```

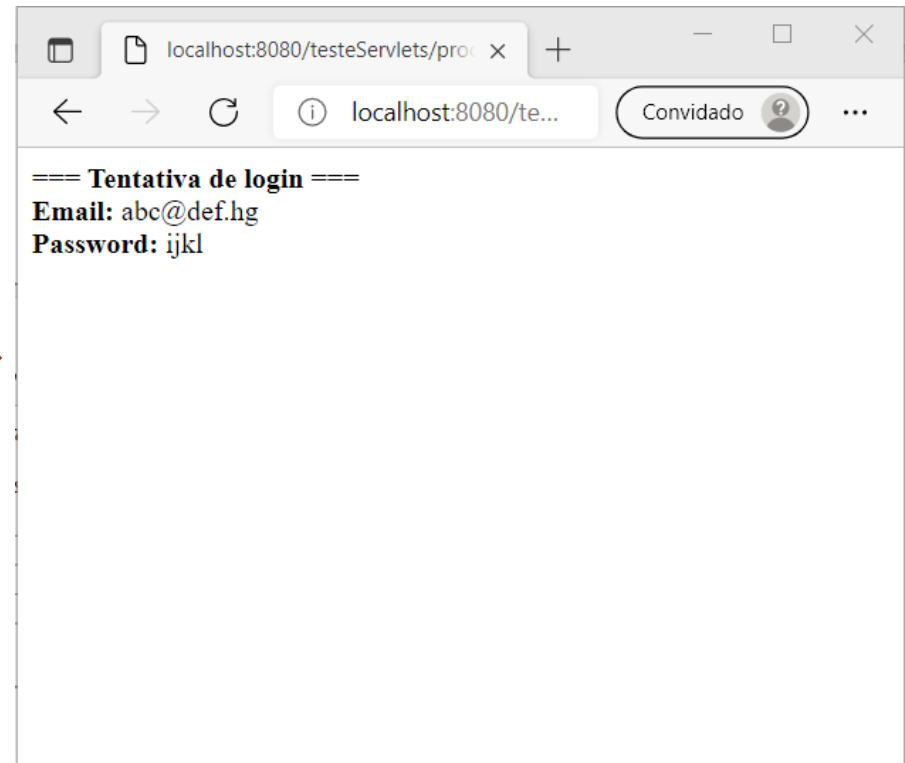
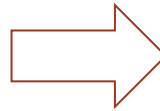
1  <?xml version="1.0" encoding="ISO-8859-1"?>
2
3  <!DOCTYPE web-app
4      PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application 2.3//EN"
5      "http://java.sun.com/dtd/web-app_2_3.dtd">
6
7  <web-app>
8      <servlet>
9          <servlet-name>loginServlet</servlet-name>
10         <servlet-class>testeServlets.ProcessLogin</servlet-class>
11     </servlet>
12     <servlet-mapping>
13         <servlet-name>loginServlet</servlet-name>
14         <url-pattern>/processLogin</url-pattern>
15     </servlet-mapping>
16 </web-app>

```

Example 5



A screenshot of a web browser window with the title "Login". The address bar shows "localhost:8080/te...". The page content includes the heading "Introduzir dados de login" and a section titled "Dados Pessoais:". Below this, there are two input fields: "Email:" with the value "abc@def.hg" and "Password:" with masked characters "....". A green "Login" button is positioned below the password field.



A screenshot of a web browser window showing the result of a login attempt. The address bar shows "localhost:8080/testeServlets/proc...". The page content displays "=== Tentativa de login ===", "Email: abc@def.hg", and "Password: ijkl".



UNIVERSIDADE
PORTUCALENSE

Do conhecimento à prática.