Autocomplete Feature using AJAX

Learning Objective -

To Develop an AJAX program that implements the Autocomplete feature for filling in the country names as shown using Servlet for server side scripting and MySQL database to store the countries names.

Programs -

index.html :

```html
<!DOCTYPE html>
<html>
<head>
 <meta charset="utf-8">
 <title>Autocomplete</title>
 <link rel="stylesheet" type="text/css" href="style.css">
</head>
<body>
 <div>
  <h1>Autocomplete Country Search</h1>
  <hr>
  <label for="country">Country : </label>
  <input type="text" name="country" list="countrylist"
onkeyup="listCountries(this.value)">
  <datalist id="countrylist">
  </datalist>
 </div>

 <script>
  function listCountries(input)
  {
```

```
    if(input === "")
      return;
    xmlhttp = new XMLHttpRequest();
    xmlhttp.onreadystatechange = function()
    {
      if (this.readyState == 4 && this.status == 200)
      {
        document.getElementById("countrylist").innerHTML = this.responseText;
      }
    }
    xmlhttp.open("GET", "/a6/search?inp="+input);
      xmlhttp.send();
  }
 </script>
</body>
</html>
```

---

style.css:

```css
* {
        font-family: Tahoma, Arial, sans-serif;
}

body {
        background-image:
url('https://external-content.duckduckgo.com/iu/?u=http%3A%2F%2Ffc07.deviantart.
net%2Ffs71%2Fi%2F2013%2F238%2Fc%2F9%2Fminimalistic_world_map_by_schub3rt
-d6jtorn.jpg&f=1&nofb=1');
}

div {
        text-align: center;
        margin: auto;
        width: 30%;
}

h1 {
        font-size: 1.75rem;
        font-weight: bolder;
```

```css
        color: whitesmoke;
}

hr {
        margin: 0;
        margin-bottom: 30px;
}

label {
        color: whitesmoke;
}
```

---

web.xml:

```xml
<web-app>
        <servlet>
                <servlet-name>CountrySearch</servlet-name>
                <servlet-class>CountrySearch</servlet-class>
        </servlet>

        <servlet-mapping>
                <servlet-name>CountrySearch</servlet-name>
                <url-pattern>/search</url-pattern>
        </servlet-mapping>

        <welcome-file-list>
                <welcome-file>index.html</welcome-file>
        </welcome-file-list>
</web-app>
```

CountrySearch.java :

```java
import javax.servlet.http.*;
import javax.servlet.*;
import java.io.*;
import java.util.*;

import java.sql.*;
```

```java
public class CountrySearch extends HttpServlet{
  public void doGet(HttpServletRequest req, HttpServletResponse res)
  throws ServletException,IOException
   {
     res.setContentType("text/html");
     PrintWriter pw=res.getWriter();

     String inp = req.getParameter("inp");

     try {
      final String url = "jdbc:mysql://localhost:3306/world";
      final String user = "root";
      final String password = "vanathi21";

      Connection con = DriverManager.getConnection(url, user, password);

      Statement stmt = con.createStatement();
      String sql;
      sql = "select * from countries WHERE SUBSTRING(name, 1, "+inp.length()+") =
\""+inp+"\"";
      ResultSet rs = stmt.executeQuery(sql);

      while(rs.next())
      {
       String country = rs.getString("name");
        pw.println("<option>"+country+"</option>");
      }
     stmt.close();
     con.close();

    }
    catch (Exception e){
      pw.println("Error occured"+e);
      e.printStackTrace();
    }
    pw.close();

  }
}
```
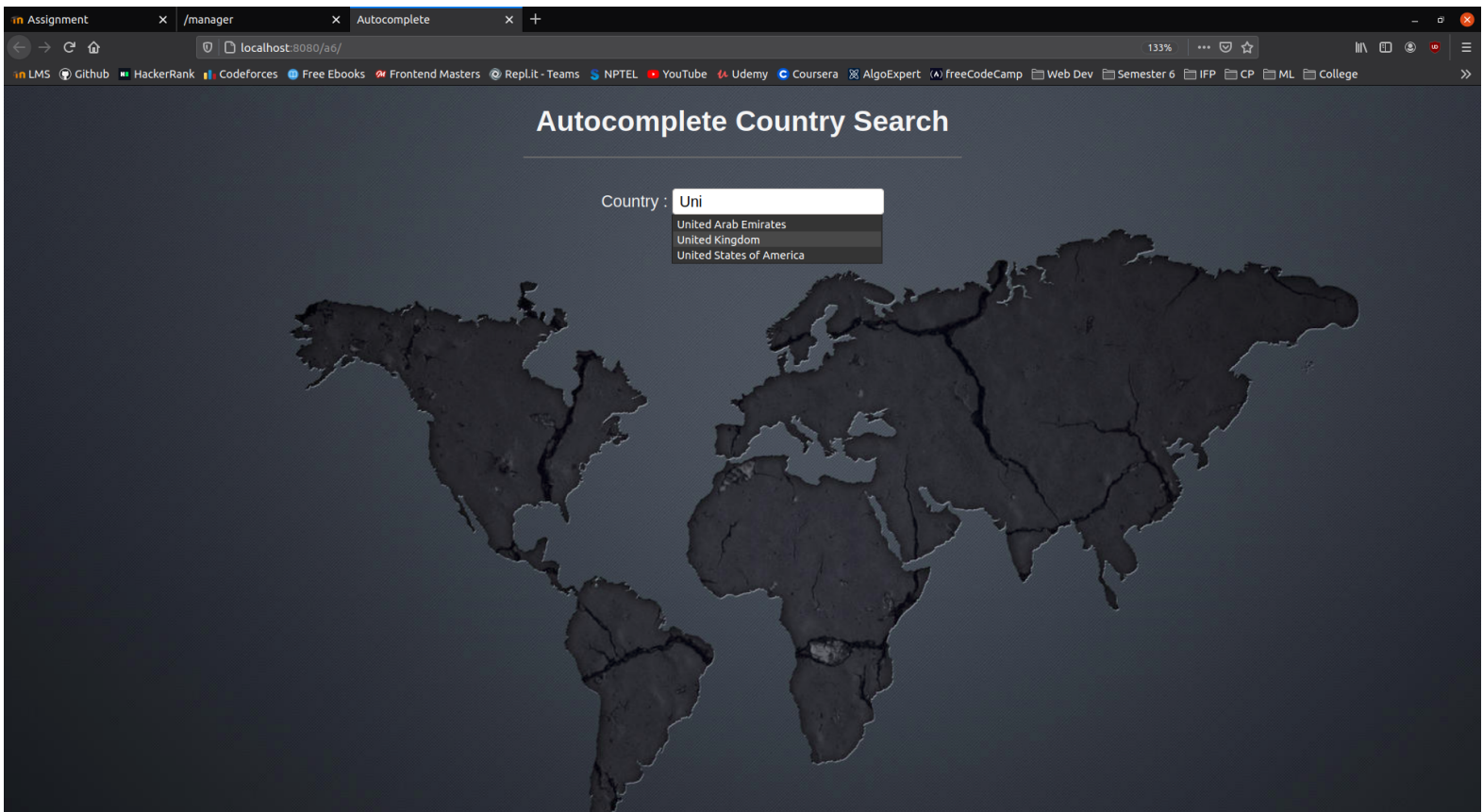
OUTPUT -

Learning Outcomes -

1. I successfully designed the autocomplete feature for entering country names in an input field. I learnt what a <datalist> tag is and how to use it.
2. I learnt what AJAX is and how to use the XMLHttpRequest object. I was able to send a GET request with the input substring as a query parameter to the servlet.
3. I also successfully created a connection to the database and was able to retrieve the country names starting with the input substring from it.
4. I was also able to display the response returned by the server on the same page after readyState = 4 and status = 200 (i.e. the response is ready).
5. Overall, it was a good learning experience about AJAX.