
UCS 1611 - Internet Programming Lab

Exercise 6: Autocomplete feature using Ajax

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Learning objective:

To develop an AJAX program that implements the Autocomplete feature for filling country names.

Code

index.html

```
<html>
  <head>
    <link rel="stylesheet" href="style.css">
  </head>
  <body>

    <div align=center style="padding-top: 15%;">
      <h1>Country Database</h1>
      <form autocomplete="off">
        <div class="autocomplete" style="width:300px;">
          <input type="text" id="country" list="countries" onkeyup="getCountry()" placeholder="Search for country name" />
          <datalist id = "countries" >
        </div>
        <input type="submit" onclick="wiki_redirect(event)">
      </form>
    </div>

    <script>
      function fetch(country)
      {
        var request = new XMLHttpRequest();
        var URL = "country?country="+country;
        request.onreadystatechange = function()
        {
```

```

        if(this.readyState == 4 && this.status == 200)
        {
            var val = request.responseText;
            console.log(val)
            document.getElementById("countries").innerHTML = val;
        }
    };
    request.open('GET', URL, true);
    request.send();
}

function getCountry()
{
    var country = document.getElementById("country").value;
    fetch(country);
}

function wiki_redirect(event)
{
    event.preventDefault()
    var c = document.getElementById("country").value
    window.location.replace("https://en.wikipedia.org/wiki/"+c)
}
</script>

</body>

</html>

```

style.css

```

* {
    box-sizing: border-box;
}

body
{
    font-family: 'Source Sans Pro', sans-serif;
    font-size: 100%;
    background: url(bg.jpg)no-repeat center top;
    background-size: cover;
    background-position: center;
}

h1
{
    font-size: 4vw;
    margin: 3.5vw 0vw 2vw;
    font-weight: 300;
}

```

```
    color: #fff;
    text-shadow: 3px 3px 3px #1d1d1d;
    letter-spacing: 5px;
    text-align: center;
    font-family: 'Source Sans Pro', sans-serif;
}

/*the container must be positioned relative:*/
.autocomplete {
    position: relative;
    display: inline-block;
}

input {
    border: 1px solid transparent;
    background-color: #f1f1f1;
    padding: 10px;
    font-size: 16px;
}

input[type=text] {
    background-color: #f1f1f1;
    width: 100%;
}

input[type=submit] {
    background-color: DodgerBlue;
    color: #fff;
    cursor: pointer;
}

.autocomplete-items {
    position: absolute;
    border: 1px solid #d4d4d4;
    border-bottom: none;
    border-top: none;
    z-index: 99;
    /*position the autocomplete items to be the same width as the container:*/
    top: 100%;
    left: 0;
    right: 0;
}

.autocomplete-items div {
    padding: 10px;
    cursor: pointer;
    background-color: #fff;
    border-bottom: 1px solid #d4d4d4;
}
```

```

}

/*when hovering an item:*/
.autocomplete-items div:hover {
    background-color: #e9e9e9;
}

/*when navigating through the items using the arrow keys:*/
.autocomplete-active {
    background-color: DodgerBlue !important;
    color: #ffffff;
}

```

country.java

```

import java.io.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;
import java.sql.*;
import java.util.*;

//javac -d WEB-INF/classes country.java
public class country extends HttpServlet
{
    public void doGet(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException
    {
        String JDBC_DRIVER = "com.mysql.jdbc.Driver";
        String DB_URL= "jdbc:mysql://localhost:3306/autocomplete";

        String USER ="root";
        String PASS="mysql";

        try
        {
            response.setContentType("text/html");
            PrintWriter pw = response.getWriter();
            Connection conn = DriverManager.getConnection(DB_URL,USER,PASS);

            String country_name = request.getParameter("country");

            String search = "SELECT `country_name` FROM `countries` WHERE `country_n
ame` like '"+country_name+"%' ";
            Statement stmt = conn.createStatement();

            ResultSet rs = stmt.executeQuery(search);

            while(rs.next())

```

```
{
    String country = rs.getString("country_name");
    pw.println("<option name='"+country+"'>" + country + "</option>");
}
}
catch(Exception E)
{
    E.printStackTrace();
}
}
```

web.xml

```
<web-app>
    <servlet>
        <servlet-name>country</servlet-name>
        <servlet-class>country</servlet-class>
    </servlet>

    <servlet-mapping>
        <servlet-name>country</servlet-name>
        <url-pattern>/country</url-pattern>
    </servlet-mapping>
</web-app>
```

OUTPUTS:

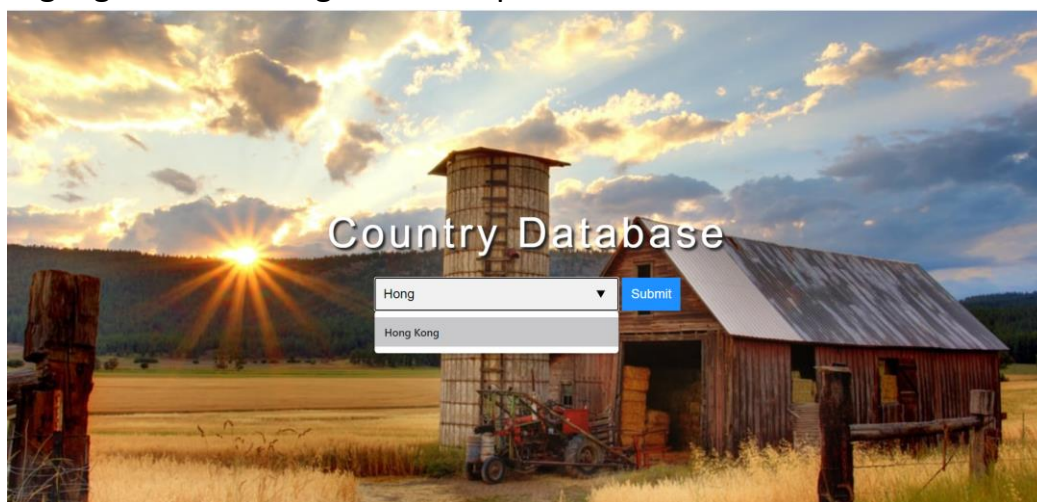
When the user types the first letter:



When subsequent letters are typed:



Highlight on hovering over the options:



On submission the corresponding Wikipedia page of the country is rendered:



Country Database



WIKIPEDIA
The Free Encyclopedia

- Main page
- Contents
- Current events
- Random article
- About Wikipedia
- Contact us
- Donate

Contribute

- Help
- Learn to edit
- Community portal
- Recent changes
- Upload file

Tools

- What links here
- Related changes
- Special pages
- Permanent link
- Page information
- Cite this page

ArticleTalk

ReadView sourceView history

Hong Kong

From Wikipedia, the free encyclopedia

"HK" redirects here. For other uses, see Hong Kong (disambiguation) and HK (disambiguation).

Hong Kong (Chinese: 香港, Cantonese: [hɔ̌ŋ kɔ̌ŋ] [ⓘ] [ⓘ]), officially the **Hong Kong Special Administrative Region of the People's Republic of China (HKSAR)** (simplified Chinese: 中华人民共和国香港特别行政区; traditional Chinese: 中華人民共和國香港特別行政區), is a metropolitan area and special administrative region of the People's Republic of China on the eastern Pearl River Delta of the South China Sea. With over 7.5 million residents of various nationalities^[d] in a 1,104-square-kilometre (426 sq mi) territory, Hong Kong is one of the most densely populated places in the world.

Hong Kong became a colony of the British Empire after the Qing Empire ceded Hong Kong Island at the end of the First Opium War in 1842.^[16] The colony expanded to the Kowloon Peninsula in 1860 after the Second Opium War and was further extended when Britain obtained a 99-year lease of the New Territories in 1898.^{[17][18]} The whole territory was transferred to China in 1997.^[19] As a special administrative region, Hong Kong maintains separate governing and economic systems from that of mainland China under the principle of "one country, two systems".^{[20][e]}

Originally a sparsely populated area of farming and fishing villages,^[16] the territory has become one of the world's most significant financial centres and commercial ports.^[21] It is the world's tenth-largest exporter and ninth-largest importer.^{[22][23]} Hong Kong has a major capitalist service economy characterised by low taxation and free trade, and its currency, the Hong Kong dollar, is the eighth most traded currency in the world.^[24] Hong Kong is home to the second-highest number of billionaires of any city in the world,^[25] the highest number of billionaires of any city in Asia, and the largest concentration of ultra high-net-worth individuals of any city in the world.^{[26][27]} Although the city has one of the highest per capita incomes per se,^[f] severe income inequality exists, as well as a growing housing affordability and

Hong Kong

香港

Special administrative region

Hong Kong Special Administrative Region of the People's Republic of China

Chinese: 中華人民共和國香港特別行政區

Cantonese: Jāng'wāi Yáhn-máhn

Yale: Gwóng'wáigwók Hēunggóng

Romanization: Dáukwáit Hānggíngkíuk

Flag

Emblem

Coordinates: 22°18′N 114°12′E

MySQL Database:

MySQL 8.0 Command Line Client

```
mysql>
mysql> SELECT * FROM countries;
```

id	country_name
1	Afghanistan
2	Aland Islands
3	Albania
4	Algeria
5	American Samoa
6	Andorra
7	Angola
8	Anguilla
9	Antarctica
10	Antigua and Barbuda
11	Argentina
12	Armenia
13	Aruba
14	Australia
15	Austria
16	Azerbaijan
17	Bahamas
18	Bahrain
19	Bangladesh
20	Barbados

LEARNING OUTCOME:

- Understood that the XMLHttpRequest object can be used to exchange data with a server behind the scenes and thus we can update parts of a web page, without reloading the whole page.
- Learnt how to use Ajax technique to invoke back end servlet, get the response from servlet and modify the user interface accordingly.
- Understood that servlets are used to process a request of Ajax to the server, manage state for the client, access data resources, and generate the XML for the response.
- Learnt to write query for relational data, and parse result using SQL actions.
- Understood how to dynamically retrieve data from SQL and render the country names as the user types in each character.
- Understood the importance of dynamic making web pages using Ajax as they well-formed and user friendly.