Ajax- Search Products

Tutorial – 5, Ajax Auto Complete Search feature

CSP 595 – Enterprise Web Application

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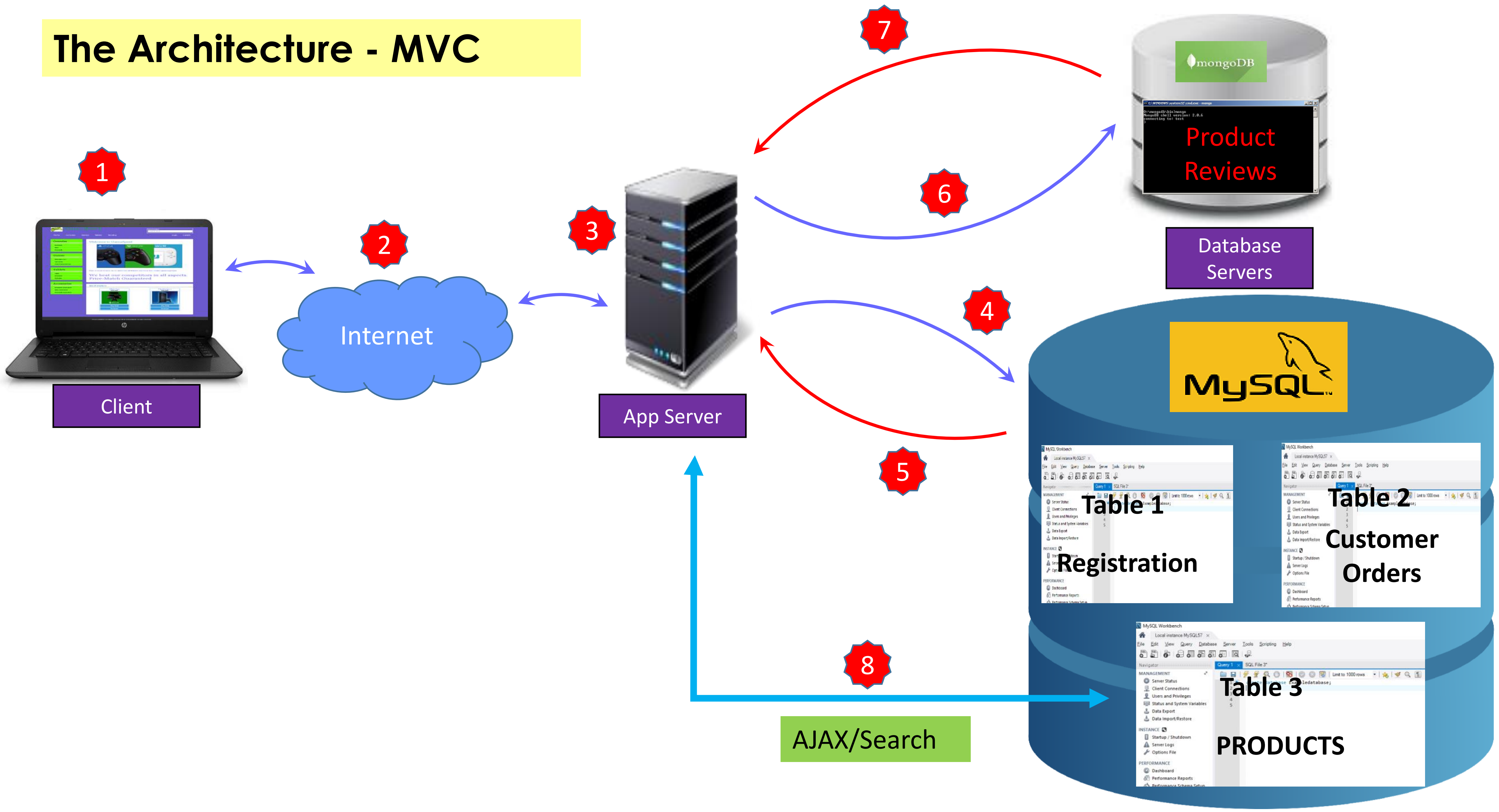
The Architecture - MVC

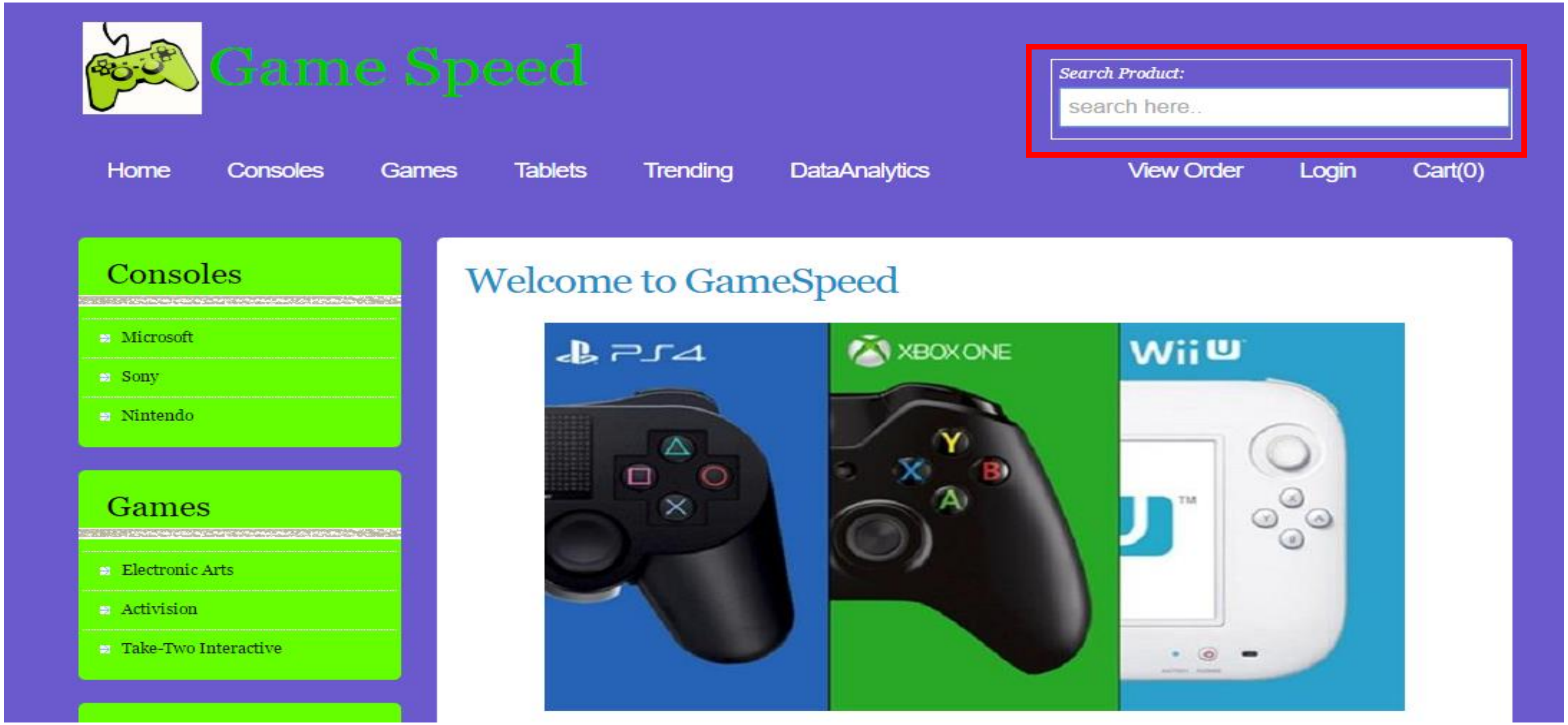


Introduction:

- ❖ **JavaScript** is the programming language of HTML and the Web.
- ❖ JavaScript is one of the 3 languages all web developers must learn:
    1. HTML to define the content of web pages
    2. CSS to specify the layout of web pages
    3. **JavaScript to program the behavior of web pages**
- ❖ To Learn More on JavaScript, visit: http://www.w3schools.com/js/default.asp

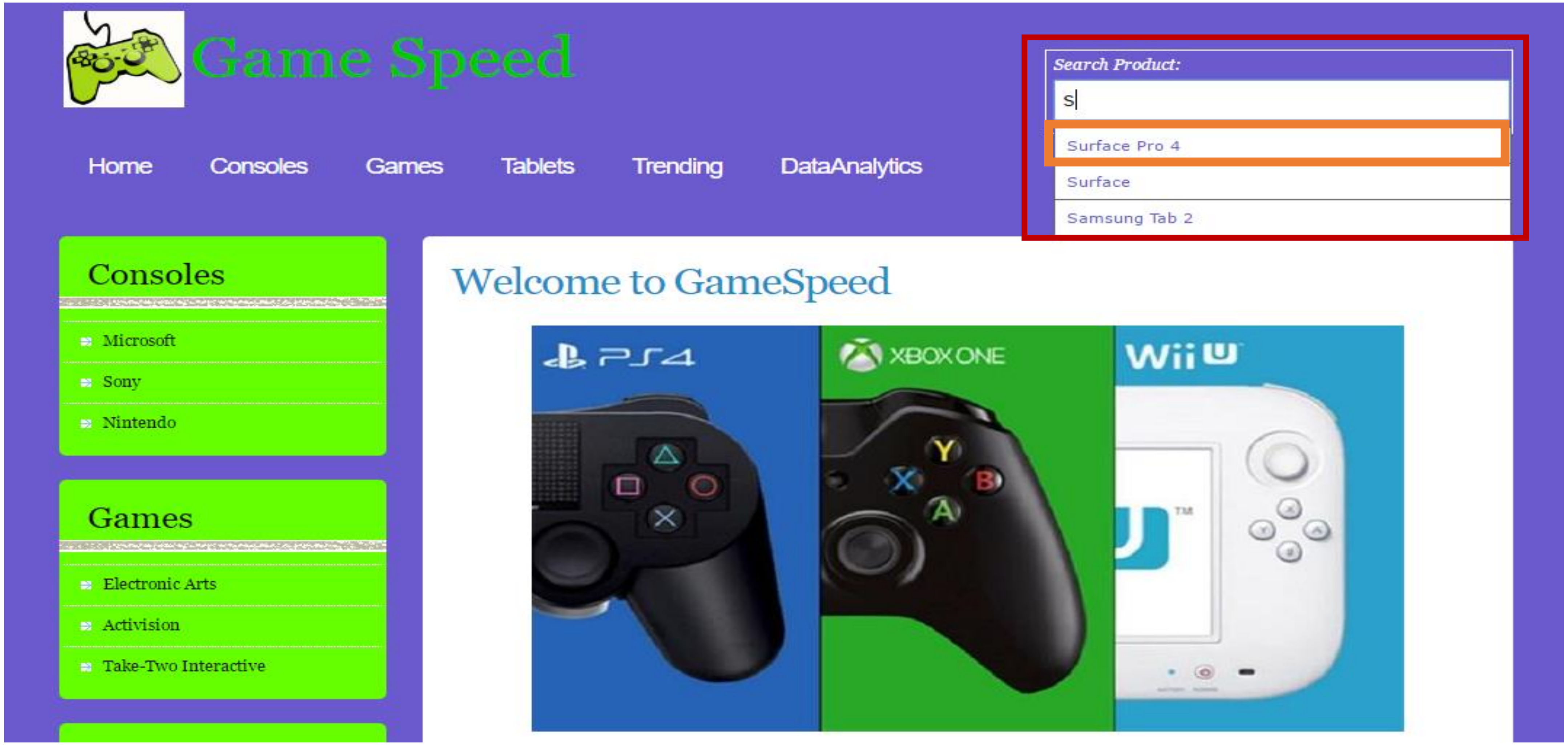
- ➢ **AJAX : Asynchronous JavaScript And XML.**
- ➢ AJAX allows **web pages to be updated asynchronously by exchanging data with a web server behind the scenes**.
- • Advantages: Updates a web page without reloading the page , Request data from a server - after the page has loaded, Receive data from a server - after the page has loaded, Sends data to a server - in the background
- ➢ To Learn More on AJAX, visit: http://www.w3schools.com/xml/ajax_intro.asp

Sample Example For Search Box



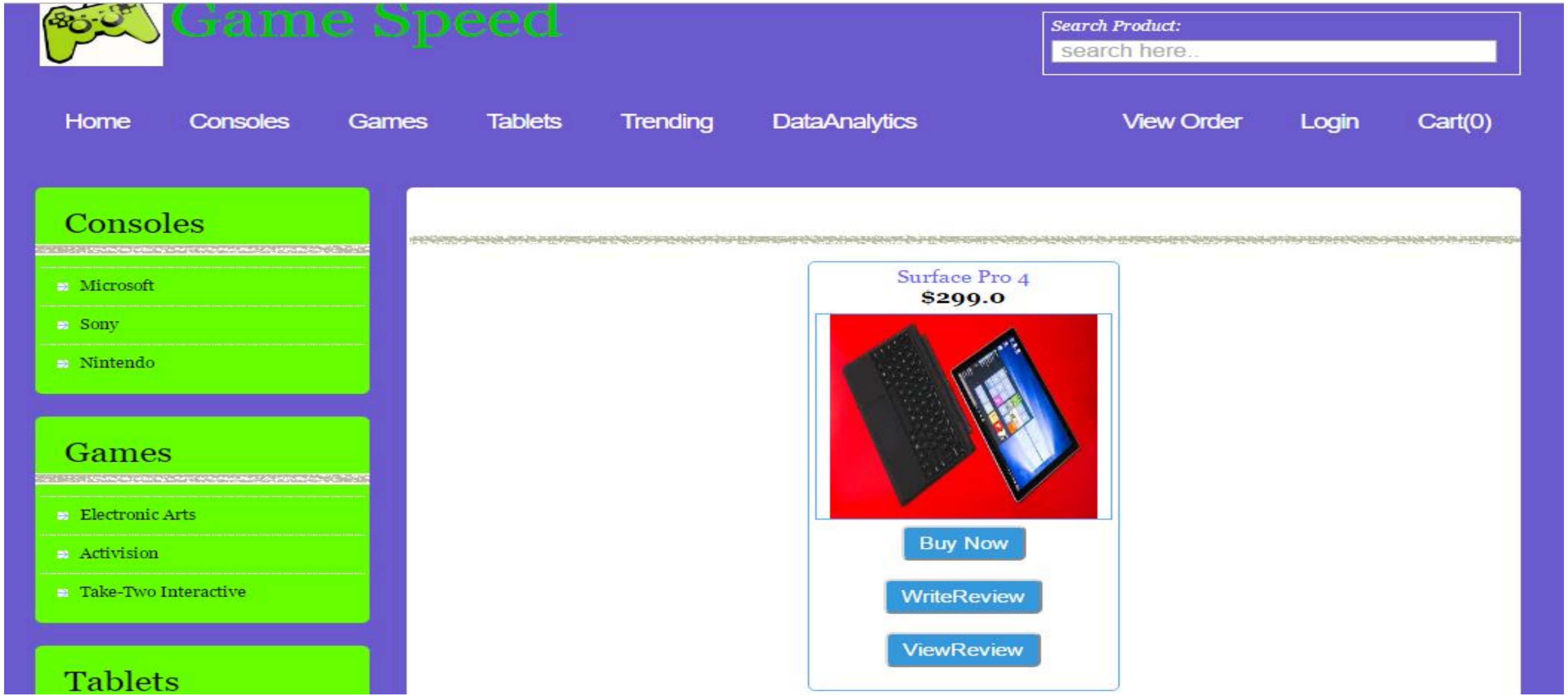
Search Product Functionality

- After entering letter in the search box all the products starting with that letter should be displayed.
- In the Below Example , Customer enters the letter ‘S’ and the Suggestions from product are shown , From the suggestions list user clicks the Surface Pro 4.



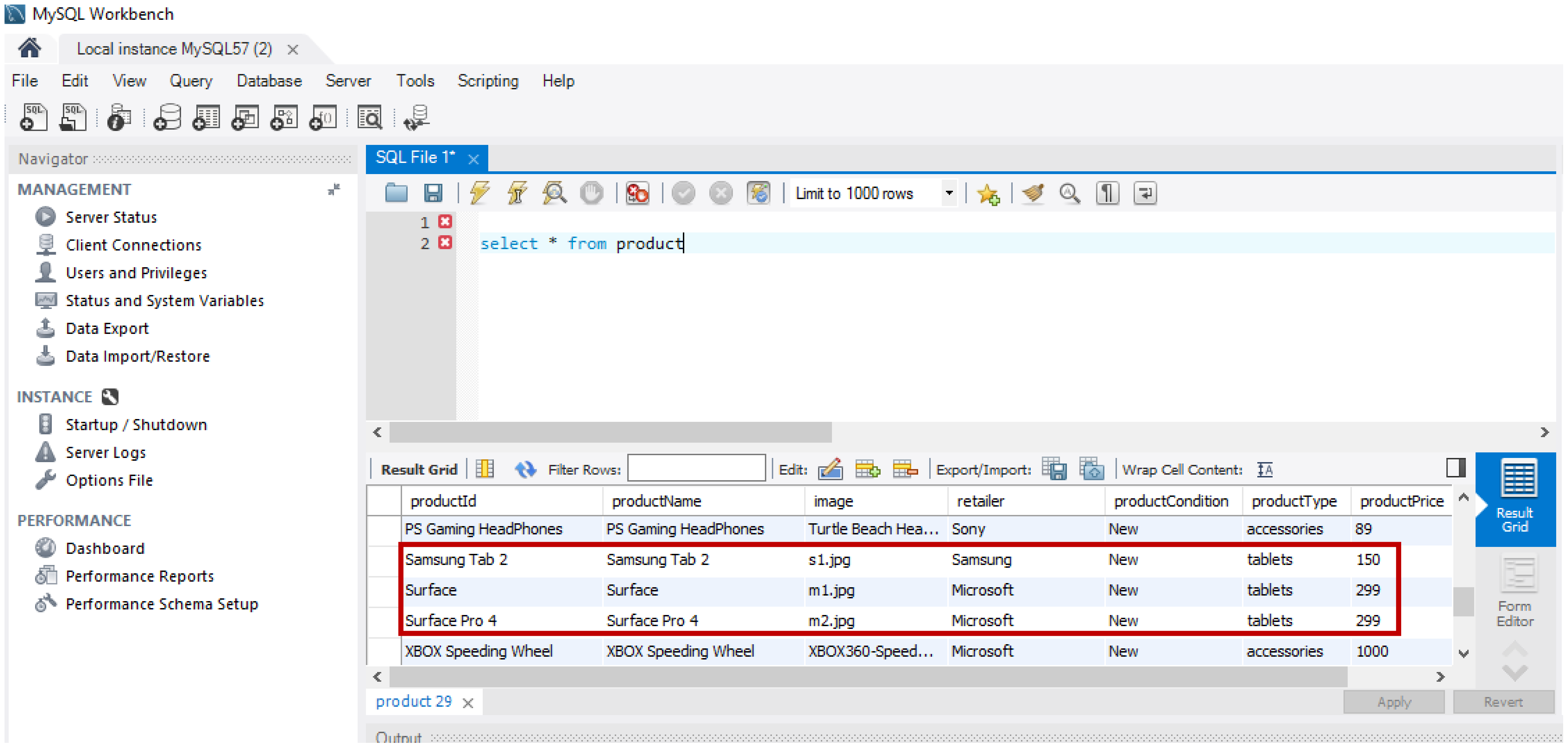
View Product

On clicking a particular product displayed in search box, Page should be redirected to display that product detail



Products Database

- All the products details are stored in product table in MySQL.
- Products Stored can be checked by executing select Query in database using MySQL workbench.

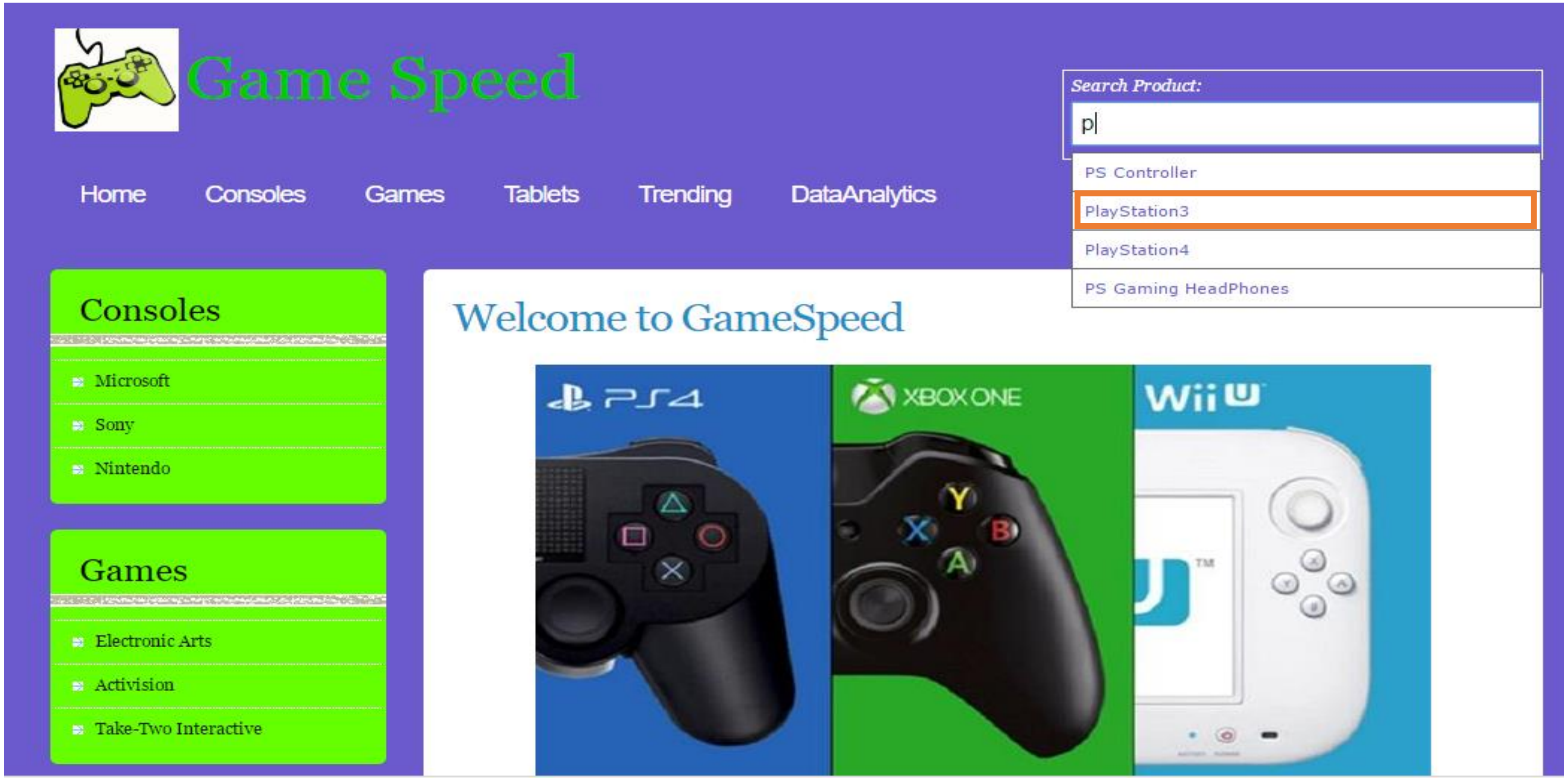


```
select * from product
```

productId	productName	image	retailer	productCondition	productType	productPrice
PS Gaming HeadPhones	PS Gaming HeadPhones	Turtle Beach Hea...	Sony	New	accessories	89
Samsung Tab 2	Samsung Tab 2	s1.jpg	Samsung	New	tablets	150
Surface	Surface	m1.jpg	Microsoft	New	tablets	299
Surface Pro 4	Surface Pro 4	m2.jpg	Microsoft	New	tablets	299
XBOX Speeding Wheel	XBOX Speeding Wheel	XBOX360-Speed...	Microsoft	New	accessories	1000

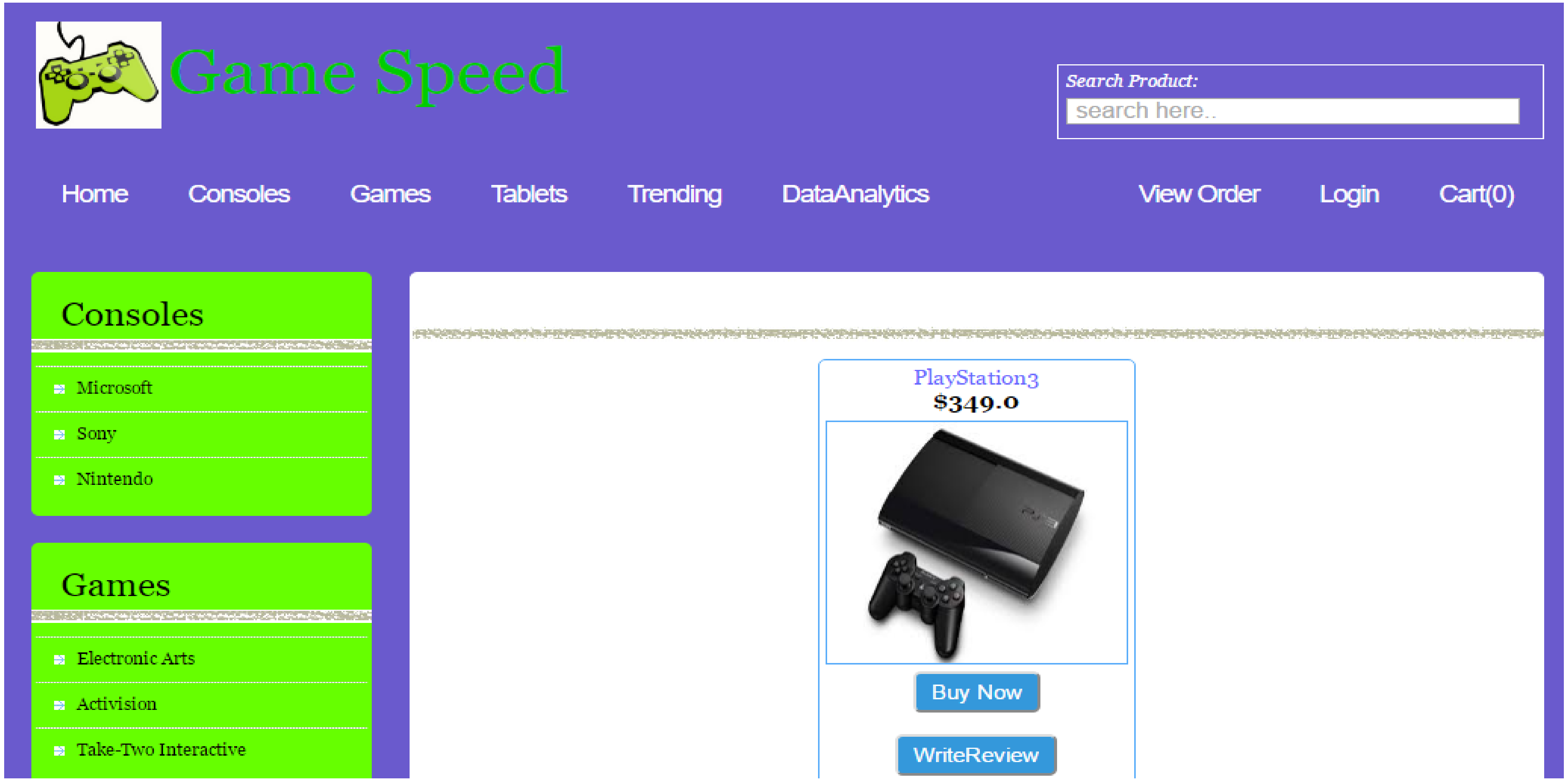
One more search entry for search box

- After entering letter in the search box all the products starting with that letter will be displayed.
- In the Below Example , Customer enters the letter ‘p’ and the Suggestions from products are shown , From the suggestion list customer clicks the PlayStation 3.



View Product

On clicking a particular product displayed in search box, Page should be redirected to display that product detail



Adding Search Box in html

```
<body onload="init()">
     <script type="text/javascript" src="javascript.js"></script>
               <div name="autofillform">
                       <input type="text" name="searchId" value="" class="input" id=" searchId"
                                                   onkeyup="doCompletion()"
                         placeholder="search here.." style="padding: 5px; font-size: 16px;" />
                         <div id="auto-row">
                               <table id="complete-table" class="gridtable" style="position: absolute; width:
                               315px;"></table>
                          </div>
               </div>
</body>
```

Include the javascript file in html

Call the Javascript function to process the search text

JavaScript for Search

```
function init() {
    completeField = document.getElementById(“searchId ");
    completeTable = document.getElementById("complete-table");
    autoRow = document.getElementById("auto-row");
}
function doCompletion() {
   var url = "autocomplete?action=complete&searchId =" + escape(searchId.value);
   req = initRequest();
   req.open("GET", url, true);
   req.onreadystatechange = callback;
}
function initRequest() {
   if (window.XMLHttpRequest) {
      if (navigator.userAgent.indexOf('MSIE') != -1) {
         isIE = true;
      }
      return new XMLHttpRequest();
   } else if (window.ActiveXObject) {
      isIE = true;
      return new ActiveXObject("Microsoft.XMLHTTP");
   }
}
```

init() function
Getting fields from html in javascript

We are sending searchId as parameter that is the text we entered in search box

Direct the webpage to autocomplete servlet

Creat Javascript Activex Object

```
function appendProduct(productName,productId) {
    var row;
    var cell;
    var linkElement;

    if (isIE) {
        completeTable.style.display = 'block';
        row = completeTable.insertRow(completeTable.rows.length);
        cell = row.insertCell(0);
    } else {
        completeTable.style.display = 'table';
        row = document.createElement("tr");
        cell = document.createElement("td");
        row.appendChild(cell);
        completeTable.appendChild(row);
    }
    cell.className = "popupCell";
    linkElement = document.createElement("a");
    linkElement.className = "popupItem";
    linkElement.setAttribute("href", "autocomplete?action=lookup&searchId=" + productId);
    linkElement.appendChild(document.createTextNode(productName));
    cell.appendChild(linkElement);
}
```

This function appends the products starting with searchId to web page

Append all products in table row and display them below the search box

```
function parseMessages(responseXML) {
    // no matches returned
    if (responseXML == null) {
        return false;
    } else {
        var products = responseXML.getElementsByTagName("products")[0];
        if (products.childNodes.length > 0) {
            completeTable.setAttribute("bordercolor", "black");
            completeTable.setAttribute("border", "1");

            for (loop = 0; loop < products.childNodes.length; loop++) {
                var product = products.childNodes[loop];
                var productName = product.getElementsByTagName("productName")[0];
                var productId = product.getElementsByTagName("id")[0];
                appendProduct(productName.childNodes[0].nodeValue,
                    productId.childNodes[0].nodeValue);
            }
        }
    }
}
```

Get the products obtained as response from auto complete servlet

Pass the product id and product name to appendProduct() function

```
function callback() {
   clearTable();
   if (req.readyState == 4) {
      if (req.status == 200) {
         parseMessages(req.responseXML);
      }
   }
}

function clearTable() {
   if (completeTable.getElementsByTagName("tr").length > 0) {
      completeTable.style.display = 'none';
      for (loop = completeTable.childNodes.length -1; loop >= 0 ; loop--) {
         completeTable.removeChild(completeTable.childNodes[loop]);
      }
   }
}
```

Parse the values given by auto complete servlet on response callback

Clears the table below search box and removes all products from it

Auto Complete Servlet Code

```
try
{
        StringBuffer sb = new StringBuffer();
        boolean namesAdded = false;
         if (action.equals("complete"))
        {
            if (!searchId.equals(""))
            {   AjaxUtility a=new AjaxUtility();
                sb=a.readdata(searchId);
                if(sb!=null || !sb.equals(""))
                {
                namesAdded=true;
                }
                if (namesAdded)
                {
                response.setContentType("text/xml");
                response.getWriter().write("<products>" + sb.toString() + "</products >");
                }
        }
 }
```

Calling AjaxUtility class readData() Function to get products starting with searchId

Sending the string buffer as response in xml format

Ajax Utility Function- getData()

getData() function used to get the products from database and store in hashmap

```
public static HashMap<String,Product> getData()
{               HashMap<String,Product> hm=new HashMap<String,Product>();
                try
                {               getConnection();
                                Statement stmt=conn.createStatement();
                                String selectCustomerQuery="select * from  product";
                                ResultSet rs = stmt.executeQuery(selectCustomerQuery);
                                while(rs.next())
                                {
                                   Product p = new Product(rs.getString("productId"), rs.getString("productName"));
                                                        hm.put(rs.getString("productId"), p);
                                }
                 }
                                return hm;
 }
```

Iterate through result set to get each product record

Get the data from table and store in hashmap

Ajax Utility Function- readData()

readData() function used to get the products starting with letter typed from hashmap into string buffer

```
public  StringBuffer readdata(String searchId)
{
       HashMap<String,Product> data;
                    data=getData();
        Iterator it = data.entrySet().iterator();
        while (it.hasNext())
        {
               Map.Entry pi = (Map.Entry)it.next();
               Product p=(Product)pi.getValue();
               if (p.getName().toLowerCase().startsWith(searchId))
               {
                     sb.append("<product>");
                     sb.append("<id>" + p.getId() + "</id>");
                    sb.append("<productName>" + p.getName() + "</ productName >");
                    sb.append("</ product >");
               }
       }
         return sb;
}
```

Calling get data function to get the product data into hashmap

Check if hashmap contains any product starting with letter stored in searchId

Append the product details in xml tag format

Questions ??