Page Layout and CSS

Tutorial – 1, HTML, CSS, Servlets and JSP

HTML:

- HTML is a markup language used to define the content of a web page
- The contents are described using HTML tags
- There are different kind of tags to describe different elements of a web page such as headings, paragraphs, images, tables, form etc.
- A html document is saved with '.html' extension
- Create a new text file, type in the following code and save it with a name (Eg. firstPage.html)
- Double click on the newly created file, this should open a new web page on your default browser

```
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

HTML Elements:

- HTML elements begin with a start tag and ends with an end tag

```
<tagname>content</tagname>
```

- The browser renders everything that is within the start and the end tags
- HTML is a forgiving language, it does not generate any error if you misplace any of the tags or do any other mistakes

HTML General Structure:

- A typical HTML file is based on the following structure
- There are 2 distinct parts
  - Head – Head comprises of a title element which describes the title of the page
  - Body – The body is usually composed of many elements with the intention of showing relevant information to the user

```
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

- To learn more on HTML, visit: http://www.w3schools.com/html/html_intro.asp

Difference between HTML & HTML 5:

- HTML 1.0 - 4.0 were basically to design the layout of static content such as text and images
- HTML 5.0 aims more at cross platform application development. It has got support for including 2D, 3D graphics, playing audio and video
- Following are a few features of HTML 5;
  - New elements: article, aside, audio, bdi, canvas, command, data, datalist, details, embed, figcaption, figure, footer, header, hgroup, keygen, mark, meter, nav, output, progress, rp, rt, ruby, section, source, summary, time, track, video, wbr
  - Deprecated elements: A few older tags will be dropped altogether Eg. acronym, applet, basefont, big, center, dir, font, frame, frameset, isindex, noframes, strike, tt
  - Clear syntax and backward compatibility: Unlike Html 4.0 you don't have to write a longer doctype declaration. You just need to write <!DOCTYPE html> and that's all. It is also designed to be backward compatible.

CSS:

- CSS, Cascading Style Sheet is used to design the HTML elements
- HTML defines the content of the web page, CSS is used to design the style of the web page
- There are 3 common ways to include CSS in the HTML page;
  - Inline CSS – Style is defined within the HTML element
  - Embedded CSS – The style is defined with in the head section of the HTML page
  - External CSS – The CSS is stored in an external file and the reference is given in the head section of the HTML page

- To learn more on CSS, visit: http://www.w3schools.com/css/css_intro.asp

CSS – Inline CSS:

- The inline CSS is included within the HTML element
- Syntax:

```
< HTML tag style = "Style Attribute"> </ HTML tag>
```

- Following is an example of inline CSS, here the ‘h1’ heading element is given some style

```
<h1 style="color:blue;margin-left:30px;">This is a heading.</h1>
```

CSS – Embedded CSS:

- In Embedded CSS, the style is included in the head section of the HTML file.
- Syntax:

```
<html>
    <head>
    <style>
        All the style logic is defined here
    </style>
    </head>
    <body>
    </body>
</html>
```

- The style logic is incorporated inside the <style> tag. The <style> tag is within the head section

CSS – Embedded CSS:

- Following is an example of Embedded CSS, here the style is defined in the head section of the html page

```
<head>
<style>
body {
    background-color: linen;
}

h1 {
    color: maroon;
    margin-left: 40px;
}
</style>
</head>
```

CSS – External CSS:

- Here the CSS styles are written in an external file and is included in the HTML page as a link in the head section
- Create a new file and write the style logic, save that file with a name and '.css' extension
- Include the location of the file in the 'href' as highlighted below

```
<html>
    <head>
    <link rel = "stylesheet" type = "text/css" href = "location_of_css_file">
    </head>
    <body>
    </body>
</html>
```

CSS – External CSS:

- Create a new file and enter the following, save it as ‘mystyle.css’

```
body {
    background-color: lightblue;
}

h1 {
    color: navy;
    margin-left: 20px;
}
```

- To include this in the html file, enter the following;

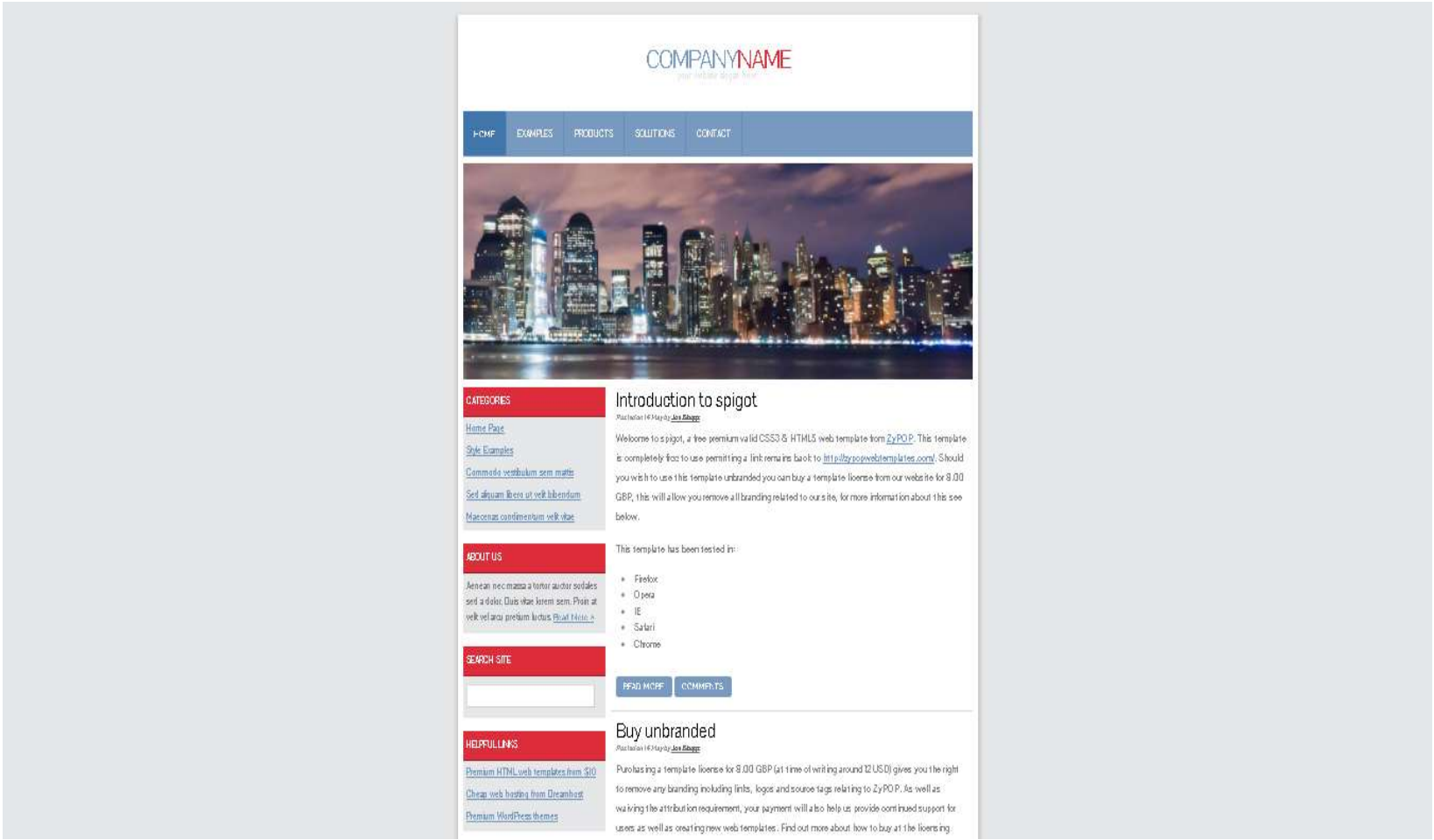
```
<head>
<link rel="stylesheet" type="text/css" href="mystyle.css">
</head>
```

Servlets and JSPs:

- HTML and CSS together can produce only static web pages, pages that you can see but not interact with
- Technologies such as Servlets, JSP, JavaScript, provide the dynamic aspect to the web page
- Servlet is a Java program that can be used to collect the input from through web page forms, display records from a database or another source and thus provide a means for the user to interact with the web page
- JSP is a technology to create dynamic web page
- JSP has got some advantages over Servlets, it is easier to write and maintain JSP than Servlets
- A typical JSP file can contain both the HTML tags and Java logic

Let’s See some Examples of CSS Templates

Template 1 :


COMPANYNAME
HOME
EXAMPLES
PRODUCTS
SOLUTIONS
CONTACT
CATEGORIES
Home Page
Style Examples
Commodo vestibulum sem mattis
Sed aliquam libero ut velit bibendum
Maecenas condimentum velit vitae
ABOUT US
SEARCH SITE
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Premium HTML web templates from $10
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Premium WordPress themes
Introduction to spigot
Welcome to spigot, a free premium valid CSS3 & HTML5 web template from ZyPOP.
This template has been tested in:
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Opera
IE
Safari
Chrome
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COMMENTS
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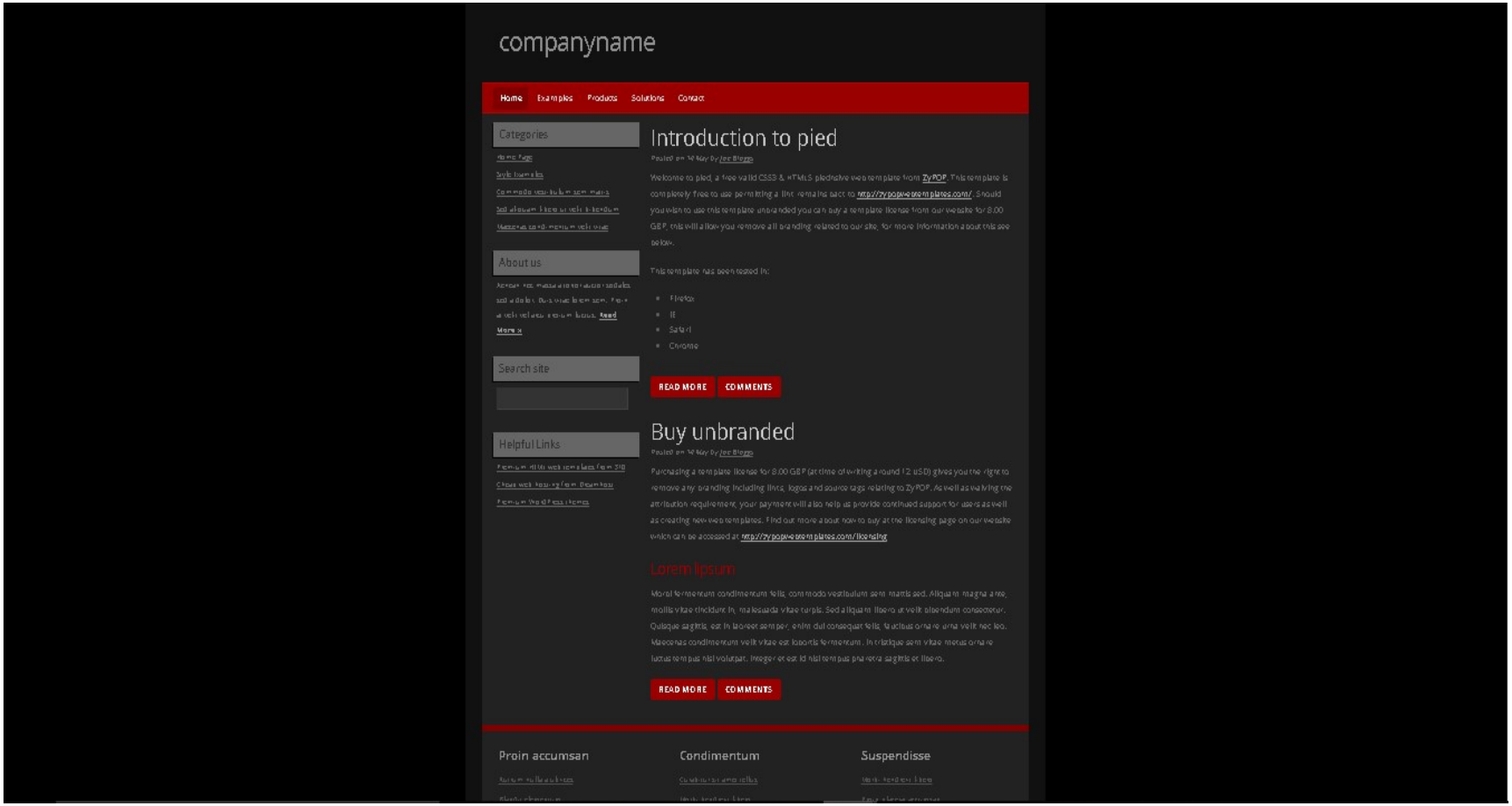
Purchasing a template license for 8.00 GBP (at time of writing around 12 USD) gives you the right to remove any branding including links, logos and source tags relating to ZyPOP.

Template 2 :


COMPANY NAME
BUSINESS SOLUTIONS
OUR SOLUTIONS MAKES YOUR BUSINESS BETTER!
HOME
ABOUT
F.A.Q.
COTNACT
HOME
OUR SERVICES
WHY US!
REFERENCES
F.A.Q.
CONTACT
WELCOME DEAR FRIEND
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed sed turpis in quam lacinia pulvinar. Aliquam arcu nisl, aliquam eget tincidunt ut, consequat sed nibh. Nunc aliquet ligula in libero lacinia consectetur. Nam semper mi eu dui porta quis hendrerit risus rutrum. In in urna orci, non scelerisque risus.
Curabitur nec nunc nec arcu venenatis malesuada a in quam. Vivamus dignissim tempor neque, non semper eros dictum ac. Donec tristique tristique massa in auctor. Vestibulum vel ipsum commodo leo molestie fermentum non nec ligula. Mauris in gravida nisl. Phasellus nisl orci, vulputate ut placerat vel, sagittis sed enim.
Quisque tempus nibh nec quam bibendum venenatis. Cras fermentum lobortis bibendum. Cras id mattis nibh. Sed eget neque eros, in ultrices metus. Sed interdum lobortis erat, ultrices sagittis odio accumsan ut. Donec luctus risus sed turpis gravida nec mattis risus venenatis. Suspendisse quis augue et nulla eleifend viverra. Aenean risus sem, pretium in pulvinar vitae, molestie at leo.
In in urna orci, non scelerisque risus. Curabitur nec nunc nec arcu venenatis malesuada a in quam. Vivamus dignissim tempor neque, non semper eros dictum ac. Donec tristique tristique massa in auctor. Vestibulum vel ipsum commodo leo molestie fermentum non nec ligula. Mauris in gravida nisl. Phasellus nisl orci, vulputate ut placerat vel, sagittis sed enim. Quisque tempus nibh nec quam bibendum venenatis.
Cras fermentum lobortis bibendum. Cras id mattis nibh. Sed eget neque eros, in ultrices metus. Sed interdum lobortis erat, ultrices sagittis odio accumsan ut. Donec luctus risus sed turpis gravida nec mattis risus venenatis. Suspendisse quis augue et nulla eleifend viverra. Aenean risus sem, pretium in pulvinar vitae, molestie at leo.
In in urna orci, non scelerisque risus. Curabitur nec nunc nec arcu venenatis malesuada a in quam. Vivamus dignissim tempor neque, non semper eros dictum ac. Donec tristique tristique massa in auctor. Vestibulum vel ipsum commodo leo molestie fermentum non nec ligula. Mauris in gravida nisl. Phasellus nisl orci, vulputate ut placerat vel, sagittis sed enim. Quisque tempus nibh nec quam bibendum venenatis.
COPYRIGHT (C) 2010 "YOUR SITE". DESIGN BY merkkleding online

Template 3 :


companyname
Home
Examples
Products
Solutions
Contact
Categories
About us
Search site
Helpful Links
Introduction to pied
Welcome to pied, a free valid CSS3 & HTML5 pixel-driven web template from ZyPOP. This template is completely free to use permitting a link remains back to http://zypopwebtemplates.com/. Should you wish to use this template unbranded you can buy a template license from our website for 8.00 GBP, this will allow you remove all branding related to our site, for more information about this see below.
This template has been tested in:
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Chrome
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Lorem ipsum
READ MORE
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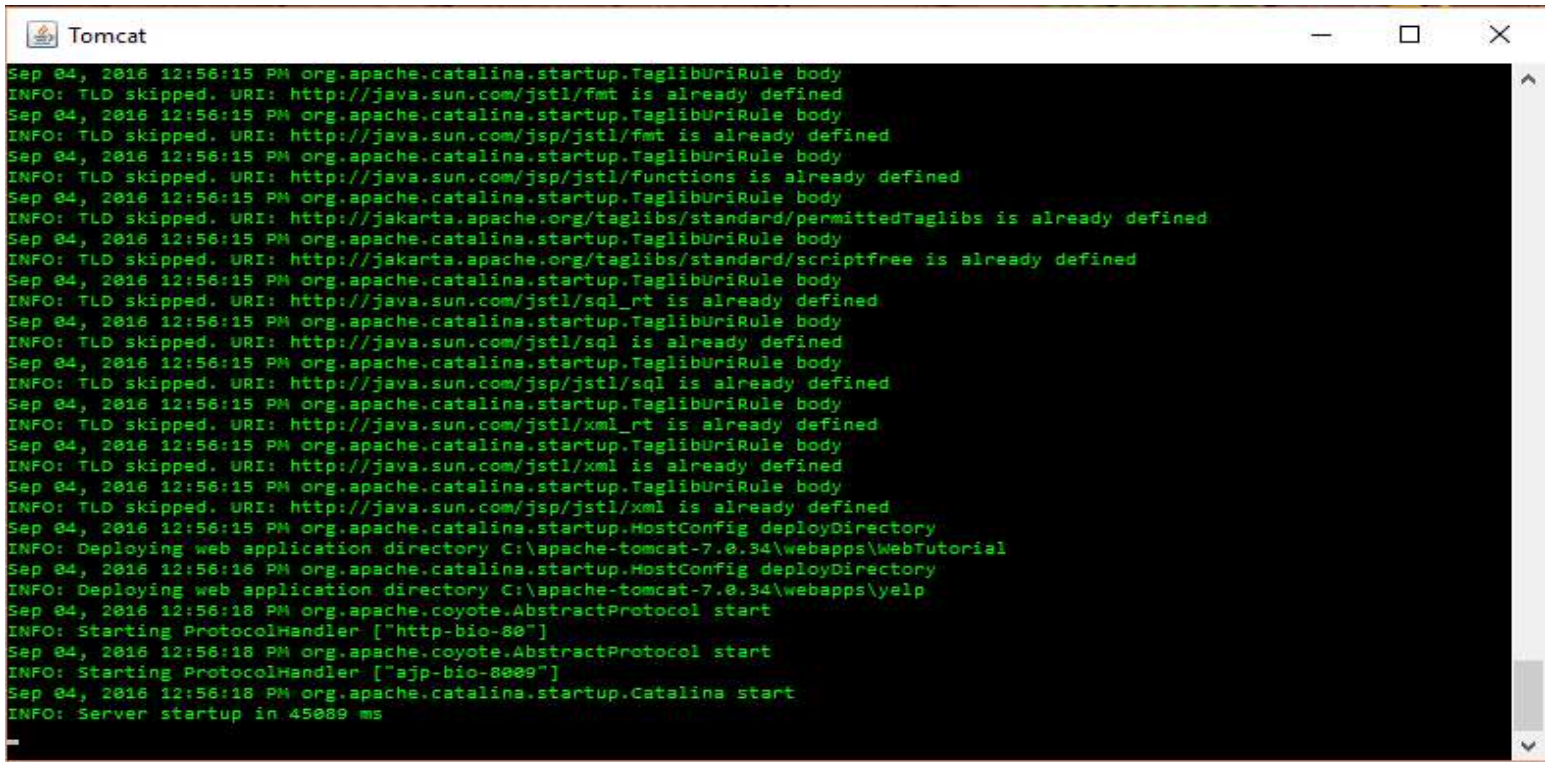
Condimentum
Suspendisse

Example:

- Before we begin, make sure that Apache Tomcat are running



Web Application Home Page:

- welcome-file-list in web.xml : The **welcome-file-list** element of **web-app**, is used to define a list of welcome files. A **welcome file** is the file that is invoked automatically by the server, if you don't specify any file name.

By default server looks for the welcome file in following order:

1. welcome-file-list in web.xml
2. index.html
3. index.htm
4. index.jsp

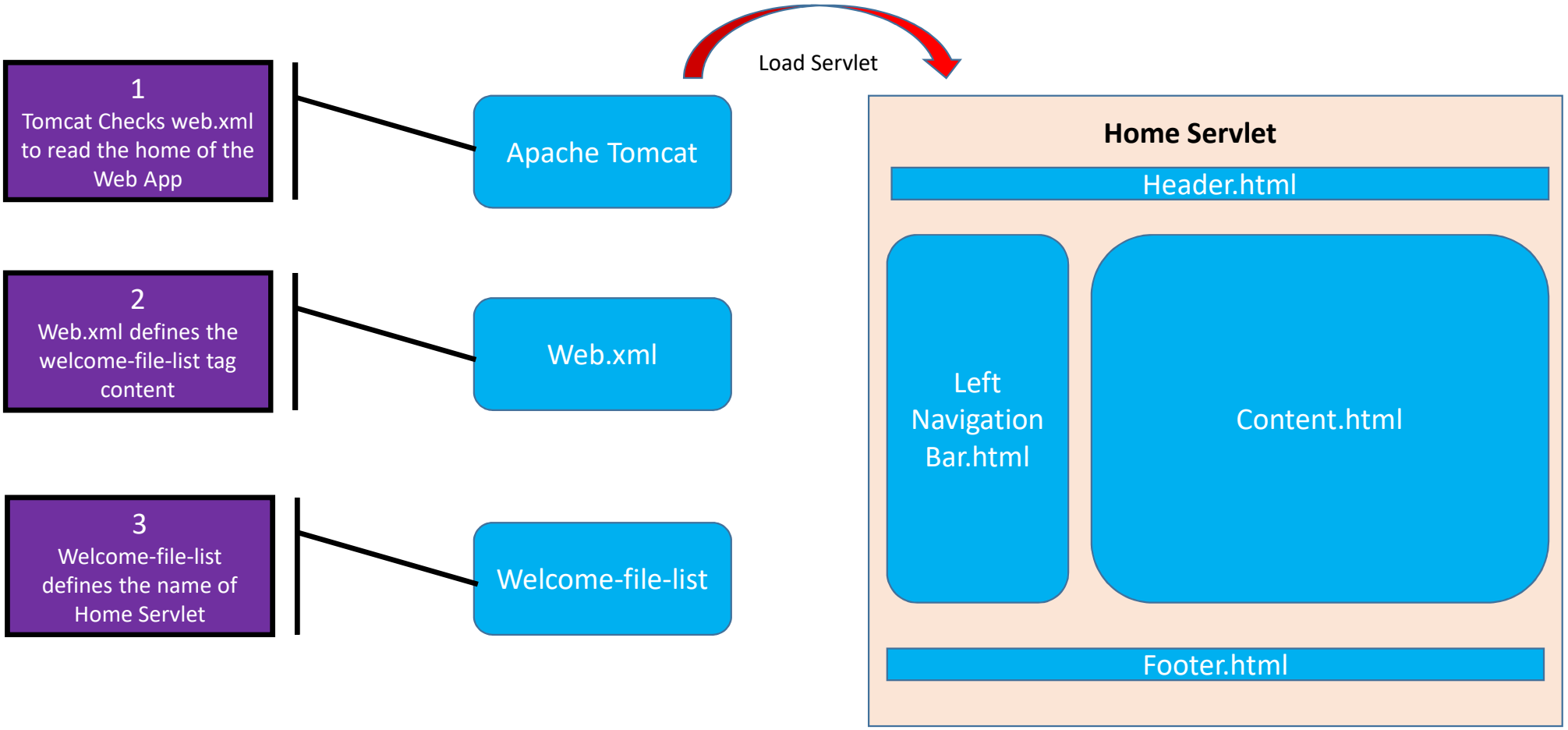
If none of these files are found, server renders 404 error.

- To learn more on welcome-file-list, visit: http://www.javatpoint.com/welcome-file-list

How Apache Tomcat loads web App Homepage ?

- **Home** servlet is added in **welcome-file-list** of **web.xml**.
- We have 4 Important HTML pages in our Game Speed Web Application.
- **Header.html** - >It Contains Game Speed Application Logo, Search Box and Top Navigation Bar.
- **Footer.html**->It Contains Copyright Information of the Game Speed Application.
- **LeftNavigationBar.html** -> It contains Different Product Categories available in Game Speed Application (Consoles, Games, Tablets, Accessories).
- **Content.html** -> It Contains Products Available in Game Speed Application, you have the options of Buying and reviewing Product.
- These html pages are printed using the **utilities** function in the **Home** Servlet.

How Apache tomcat loads the web App Homepage (Diagram) :



Home Servlet:

```
public class Home extends HttpServlet {
        protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
                response.setContentType("text/html");
                PrintWriter pw = response.getWriter();

                Utilities utility = new Utilities(request,pw);
                 utility.printHtml("Header.html");
                 utility.printHtml("LeftNavigationBar.html");
                 utility.printHtml("Content.html");
                 utility.printHtml("Footer.html");

        }

}
```

Left NavigationBar.html :

```
<div id="sidebar">
   <ul>
      <li>
         <h2>Consoles</h2>
         <ul>
            <li id="first"><a href="ConsoleList?maker=microsoft">Microsoft</a>
            </li>
            <li><a href="ConsoleList?maker=sony">Sony</a></li>
            <li><a href="ConsoleList?maker=nintendo">Nintendo</a></li>
         </ul>
      </li>
      <li>
         <h2>Games</h2>
         <ul>
            <li id="first"><a href="GamesList?maker=electronicArts">Electronic
                  Arts</a></li>
            <li><a href="GamesList?maker=activision">Activision</a></li>
            <li><a href="GamesList?maker=take1wointeractive">Take-Two
                  Interactive</a></li>
         </ul>
      </li>
      <li>
....
   </ul>
</div>
```

For Consoles, ConsoleList servlet is Invoked with variable maker which is assigned a value “sony” ,when the user clicks Sony from the Left Navigation Bar.

For Games, GamesList servlet is Invoked with variable maker which is assigned the value “Activision”, when the user clicks Activision from the Left Navigation Bar.

The href attribute specifies the URL of the page the link goes to.

ConsoleList Servlet :

```
public class ConsoleList extends HttpServlet {
        ...
                PrintWriter pw = response.getWriter();
                String name = null;
                String CategoryName = request.getParameter("maker");
                HashMap<String, Console> hm = new HashMap<String, Console>();
                if(CategoryName==null){
                        ...
                if(CategoryName.equals("sony")){
                                hm.putAll(ConsoleHashMap.sony);
                                name = ConsoleHashMap.string_sony;
                        }
                        else if(CategoryName.equals("nintendo")){
                                hm.putAll(ConsoleHashMap.nintendo);
                                name = ConsoleHashMap.string_nintendo; }
                }
        …
```

CategoryName gets the value stored in “maker” variable, With value of CategoryName the servlet checks whether it belongs to sony, Nintendo or Microsoft and then shows the consoles belonging to requested console Manufacturers.

Content.html :

```
<div id="content">

....

    <div class="post">
        <div class="entry">
            <table id="bestseller">
                <tr>
                    <td><div id="shop_item">
                            <h3>XBox One</h3>
                            <strong>399.99$</strong>
                            <ul>
                                <li id="item"><img src="images/consoles/xbox1.jpg" alt="" />
                                </li>
                                <li><a class="btnreview" href="#">Buy Now</a></li>
                                <!--<li><a class="btnbuy"
                                    href="AccessoryList?maker=microsoft&console=xboxone">View
                                        Accessories</a></li>-->
                                <li><a class="btnreview" href="#">Reviews</a></li>
                            </ul>
                        </div>
                    </td>
                </tr>
            </table>
        </div>
    </div>
</div>
....
```

Utilities Servlet:

```
public class Utilities extends HttpServlet{

...

    public void printHtml(String file) {
        String result = HtmlToString(file);
        if (file == "Header.html") {
            if (session.getAttribute("username")!=null){
                String username = session.getAttribute("username").toString();
                username = Character.toUpperCase(username.charAt(0)) + username.substring(1);
                result = result
                        + "<li><a>Hello, "+username+"</a></li>"
                        + "<li><a href='Account'>Account</a></li>"
                        + "<li><a href='Logout'>Logout</a></li>";
            }
            else
                result = result + "<li><a href='Login'>Login</a></li>";
            result = result
                    + "<li><a href='Cart'>Cart("+CartCount()+")</a></li></ul></div></div><div id='page'>";
            pw.print(result);
        } else
            pw.print(result);
    }

...


}
```

Registration Servlet : How Customer Accounts are Stored in Hash Map ?

```
public class Registration extends HttpServlet {
        String username = request.getParameter("username");
        String password = request.getParameter("password");
    ...
        HashMap<String, User> hm=new HashMap<String, User>();
            try
            {
    FileInputStream fileInputStream = new FileInputStream(new File(TOMCAT_HOME+"\\webapps\\GameSpeedServletCSSwithSAXTutorial\\UserDetails.txt"));
     ObjectInputStream objectInputStream = new ObjectInputStream(fileInputStream);

             hm= (HashMap)objectInputStream.readObject();
            }
            if(hm.containsKey(username))
            { error_msg = "Username already exist as " + usertype;}
            else{
                User user = new User(username,password,usertype);
                hm.put(username, user);

        FileOutputStream fileOutputStream = new FileOutputStream(TOMCAT_HOME+"\\webapps\\GameSpeedServletCSSwithSAXTutorial\\UserDetails.txt");
        ObjectOutputStream objectOutputStream = new ObjectOutputStream(fileOutputStream);
        objectOutputStream.writeObject(hm);
            objectOutputStream.flush();
            objectOutputStream.close();
            fileOutputStream.close();


        }
        displayRegistration(request, response, pw, true);
        ...
    }
```

Utilities Servlet : How customer orders are stored in hash map ?

```
public void storePayment(int orderId,String orderName,double orderPrice,String userAddress,String creditCardNo){

HashMap<Integer, ArrayList<OrderPayment>> orderPayments= new HashMap<Integer, ArrayList<OrderPayment>>();
		try
		{
		FileInputStream fileInputStream = new FileInputStream(new File(TOMCAT_HOME+"\\webapps\\GameSpeedServletCSSwithSAXTutorial\\PaymentDetails.txt"));
		ObjectInputStream objectInputStream = new ObjectInputStream(fileInputStream);

		orderPayments = (HashMap)objectInputStream.readObject();
		}
		if(!orderPayments.containsKey(orderId)){
			ArrayList<OrderPayment> arr = new ArrayList<OrderPayment>();
			orderPayments.put(orderId, arr);
		}
	ArrayList<OrderPayment> listOrderPayment = orderPayments.get(orderId);
	OrderPayment orderpayment = new OrderPayment(orderId,username(),orderName,orderPrice,userAddress,creditCardNo);
			listOrderPayment.add(orderpayment);
		try
		{
		FileOutputStream fileOutputStream = new FileOutputStream(new File(TOMCAT_HOME+"\\webapps\\GameSpeedServletCSSwithSAXTutorial\\PaymentDetails.txt"));
	ObjectOutputStream objectOutputStream = new ObjectOutputStream(fileOutputStream);
	objectOutputStream.writeObject(orderPayments);
		objectOutputStream.flush();
		objectOutputStream.close();
		fileOutputStream.close();
		}

		...
	}
```

SaxParserDataStore Servlet:

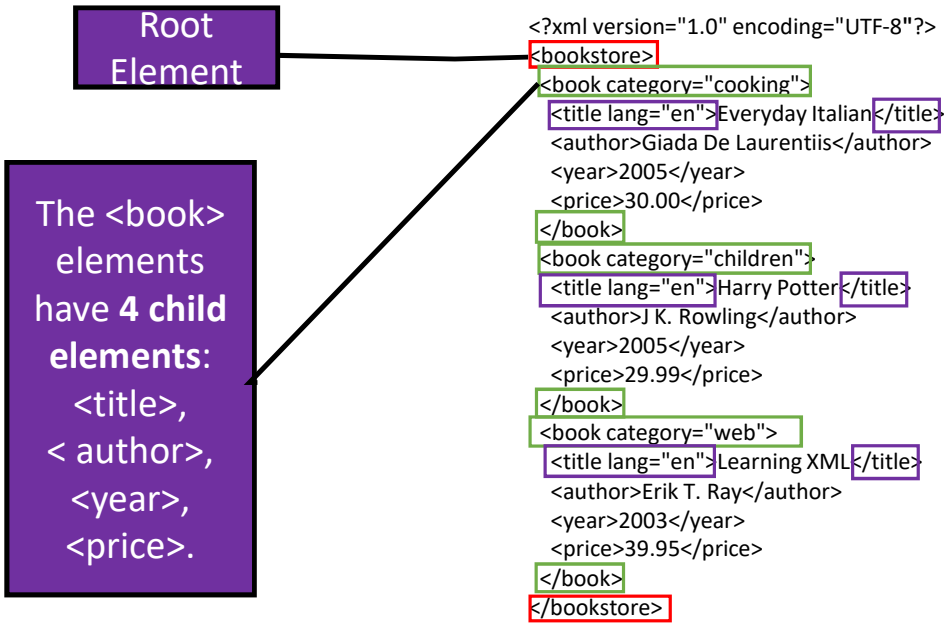
```
public class SaxParserDataStore  extends DefaultHandler {
    …
    Console console;
     Game game;
    Tablet tablet;
    Accessory accessory;
    static HashMap<String,Console> consoles;
    static HashMap<String,Game> games;
    static HashMap<String,Tablet> tablets;
    static HashMap<String,Accessory> accessories;
                    public SaxParserDataStore(String consoleXmlFileName) {
                     this.consoleXmlFileName = consoleXmlFileName;
                     consoles = new HashMap<String, Console>();
                    games=new  HashMap<String, Game>();
                    tablets=new HashMap<String, Tablet>();
                    accessories=new HashMap<String, Accessory>();
                    accessoryHashMap=new HashMap<String,String>();
                    parseDocument();
    } …  }
```

What is XML?

•XML stands for EXtensible Markup Language.
•XML was designed to store and transport data.
•XML was designed to be self-descriptive.
•XML is used in many aspects of web development.
•XML is often used to separate data from presentation.
•To Learn More on How to Use XML , Visit : http://www.w3schools.com/xml/xml_usedfor.asp

XML Document :

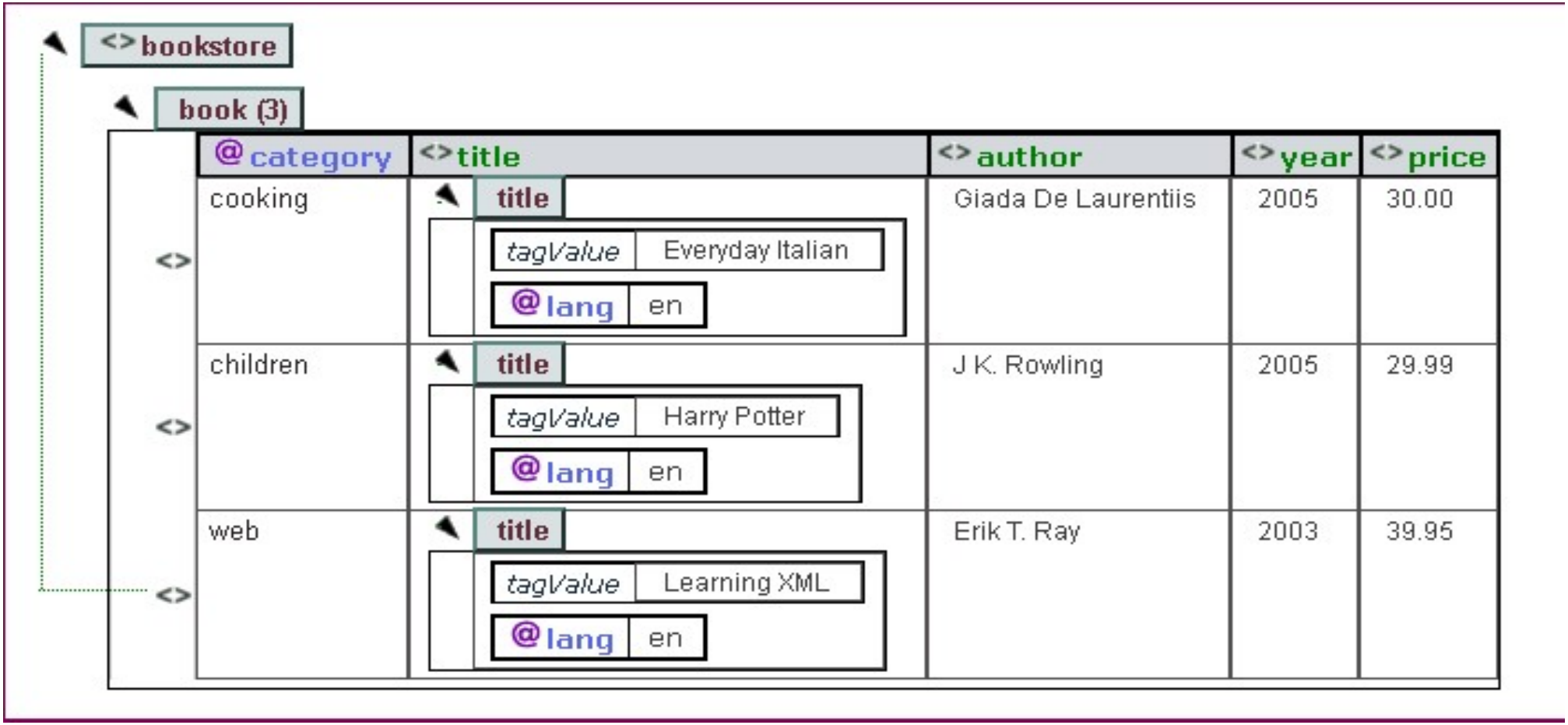
- XML documents form a tree structure that starts at "the root" and branches to "the leaves".



XML Tree Structure:

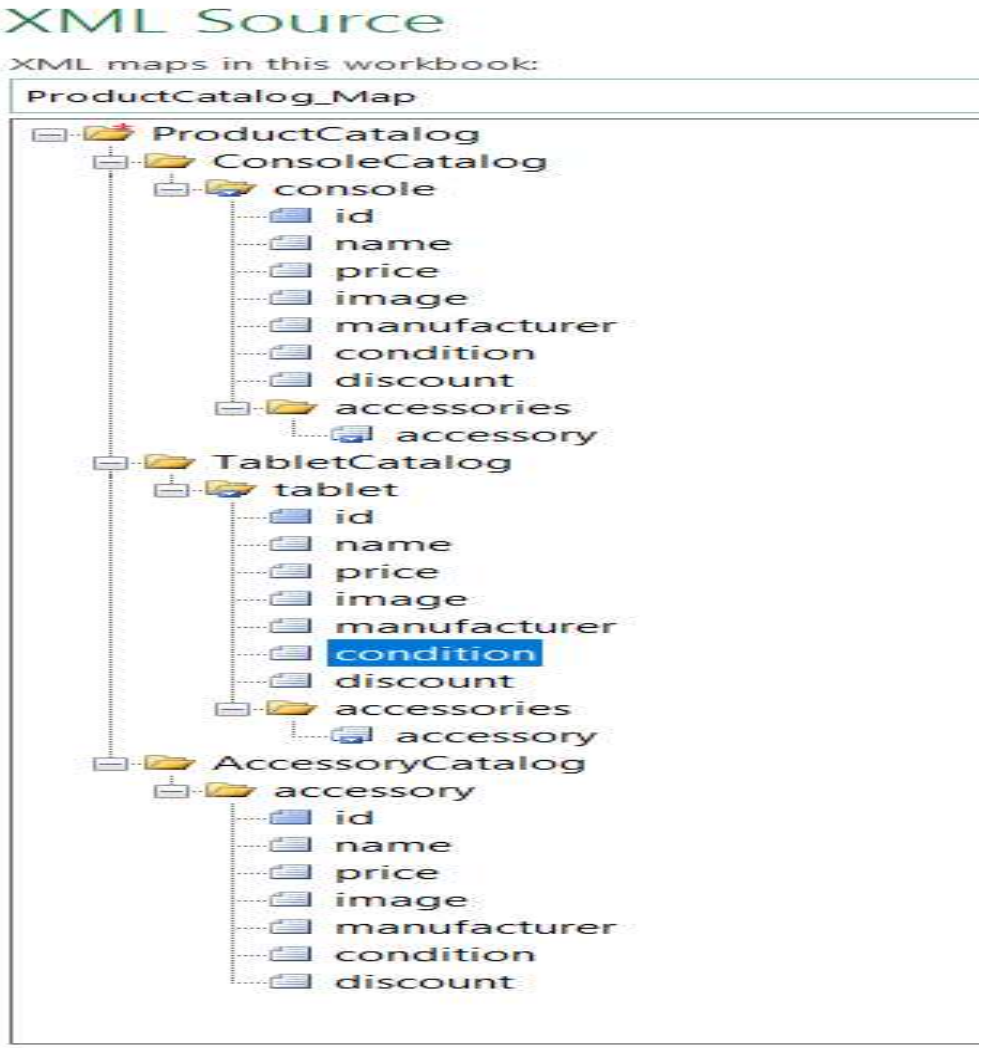
An XML tree starts at a **root element** and branches from the root to **child elements**.

Let us Seen an Example of XML Tree Structure of XML Shown Before :



To Learn More about XML Tree , Visit: http://www.w3schools.com/xml/xml_tree.asp

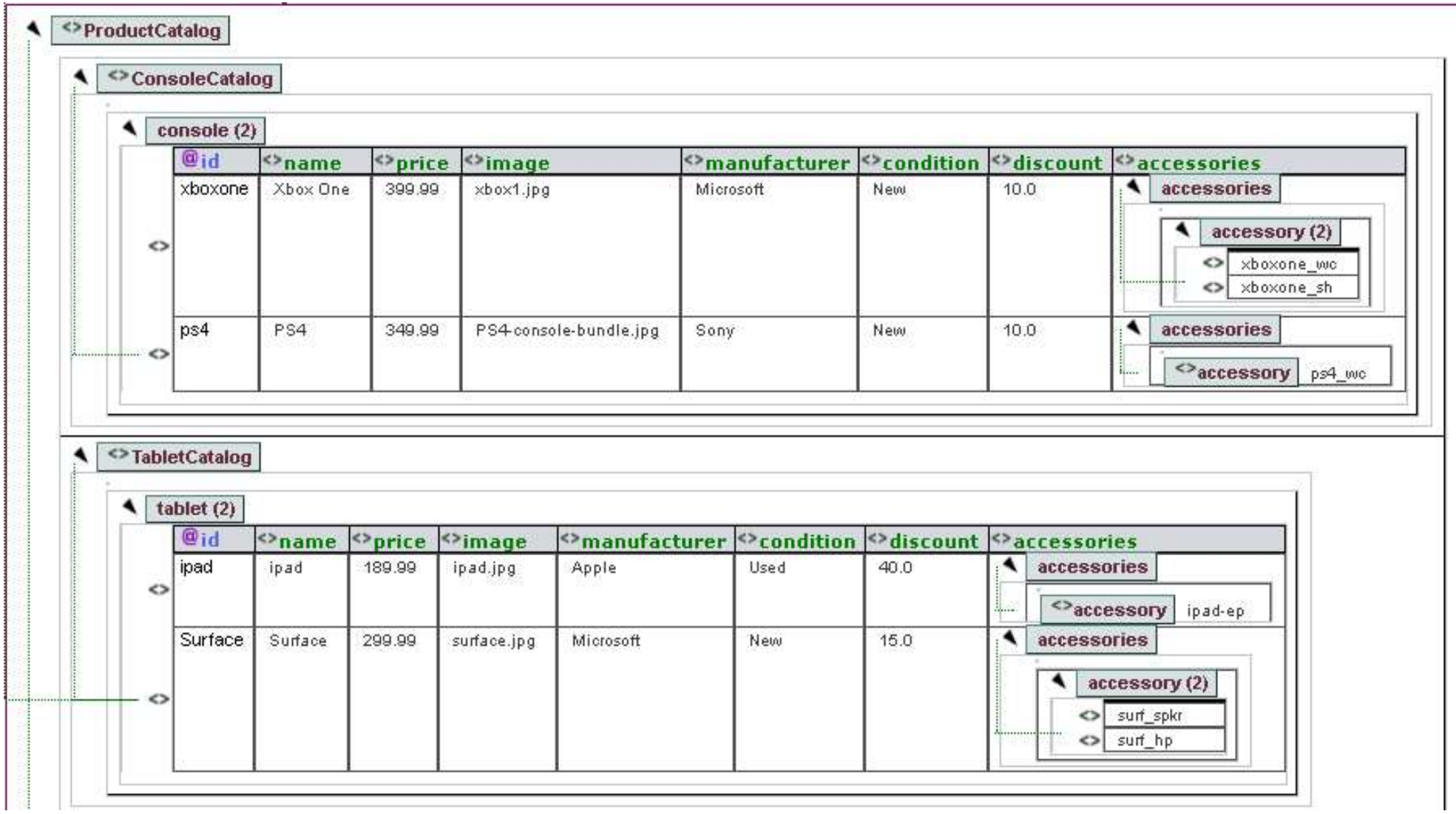
XML Structure for ProductCatalog.xml :



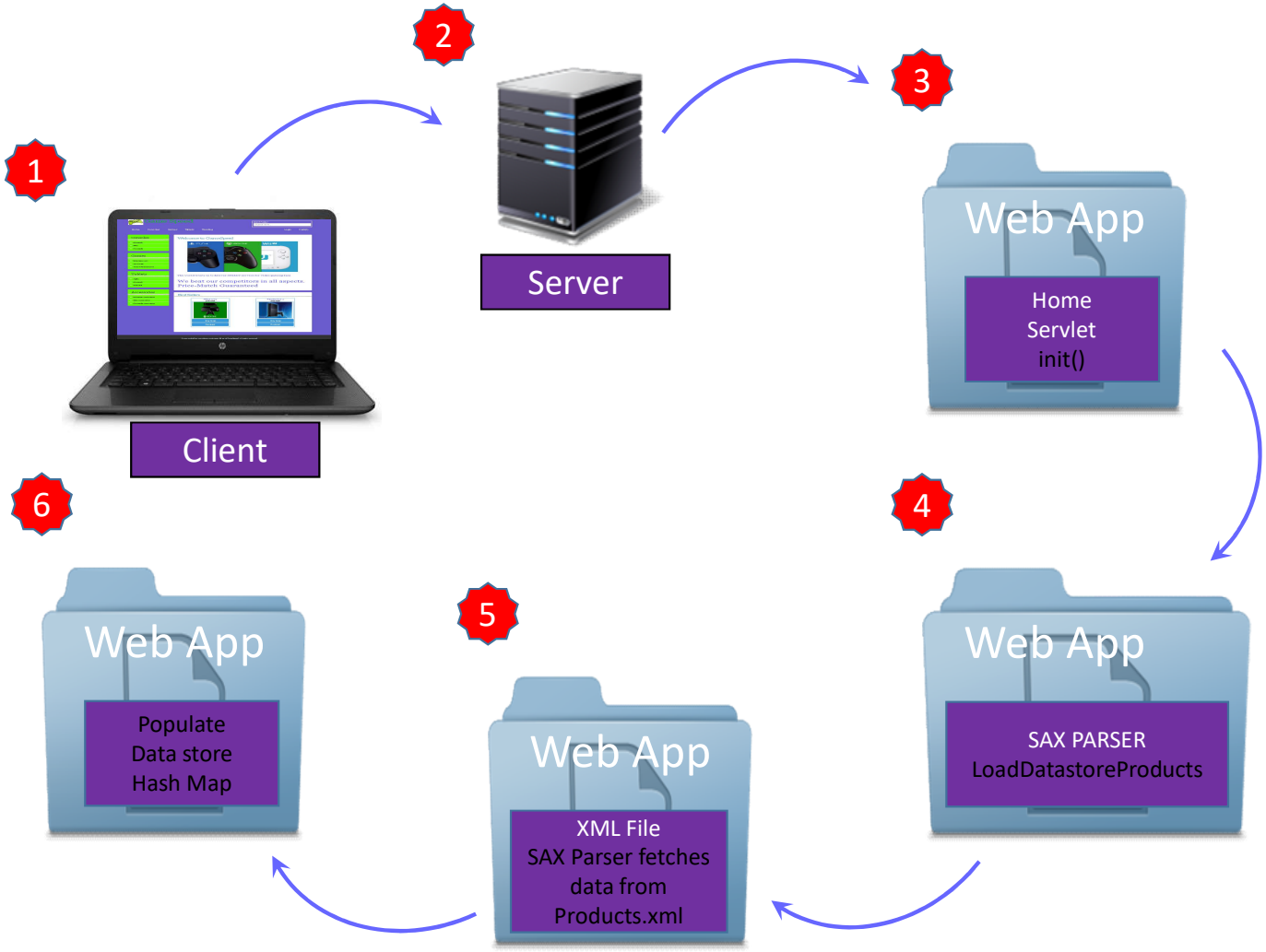
ProductCatalog.xml :

```
<ProductCatalog>

<ConsoleCatalog>

  <console id="xboxone">
    <name>Xbox One</name>
    <price>399.99</price>
    <image>xbox1.jpg</image>
    <manufacturer>Microsoft</manufacturer>
    <condition>New</condition>
    <discount>10.0</discount>
    <accessories>
      <accessory>xboxone_wc</accessory>
      <accessory>xboxone_sh</accessory>
    </accessories>
  </console>
  <console id="ps4">
    <name>PS4</name>
    <price>349.99</price>
    <image>PS4-console-bundle.jpg</image>
    <manufacturer>Sony</manufacturer>
    <condition>New</condition>
    <discount>10.0</discount>
    <accessories>
      <accessory>ps4_wc</accessory>
    </accessories>
  </console>

</ConsoleCatalog>
```

XML Document Tree Structure for ProductCatalog.xml :

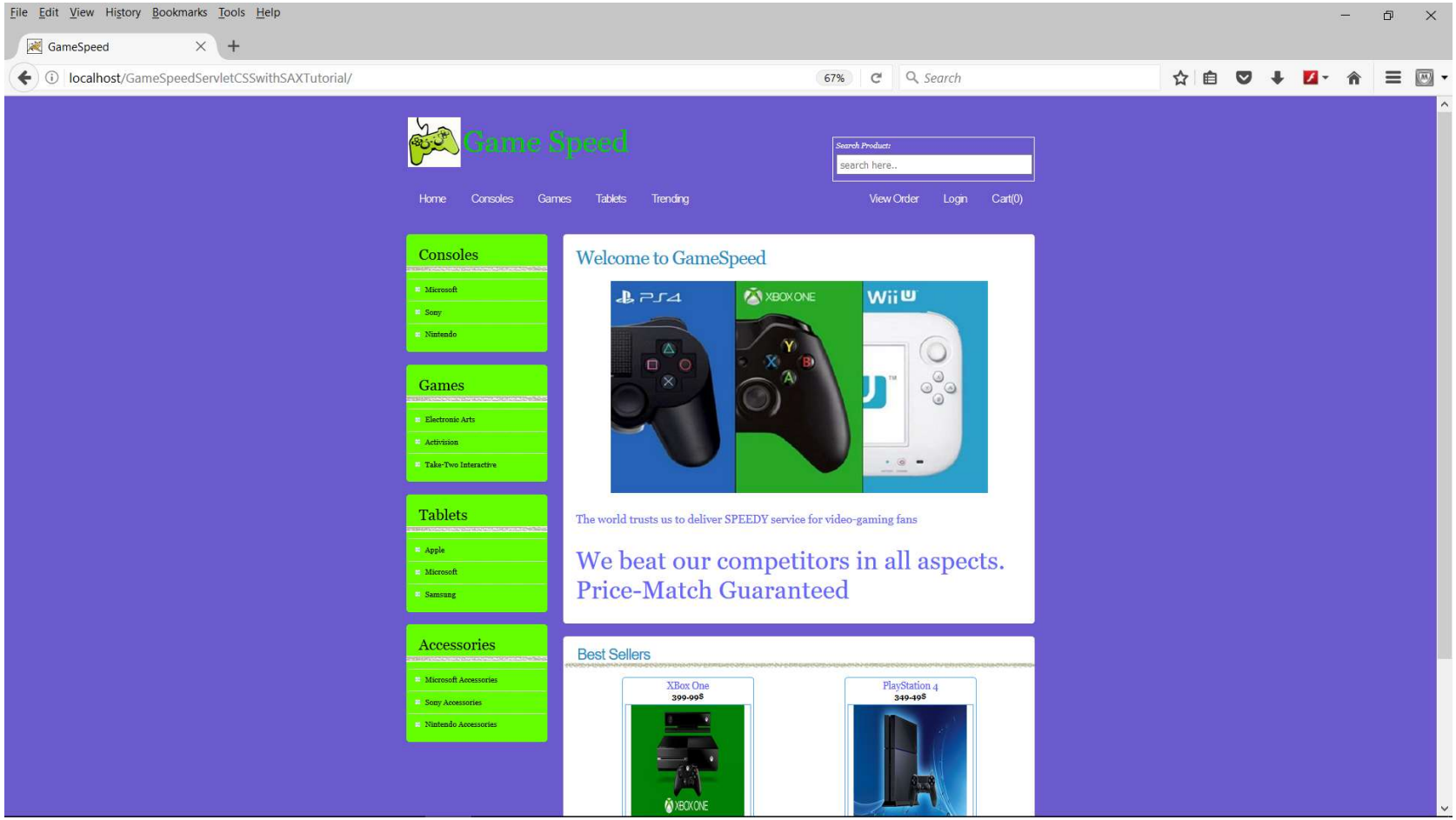


How Product Data Gets Populated:

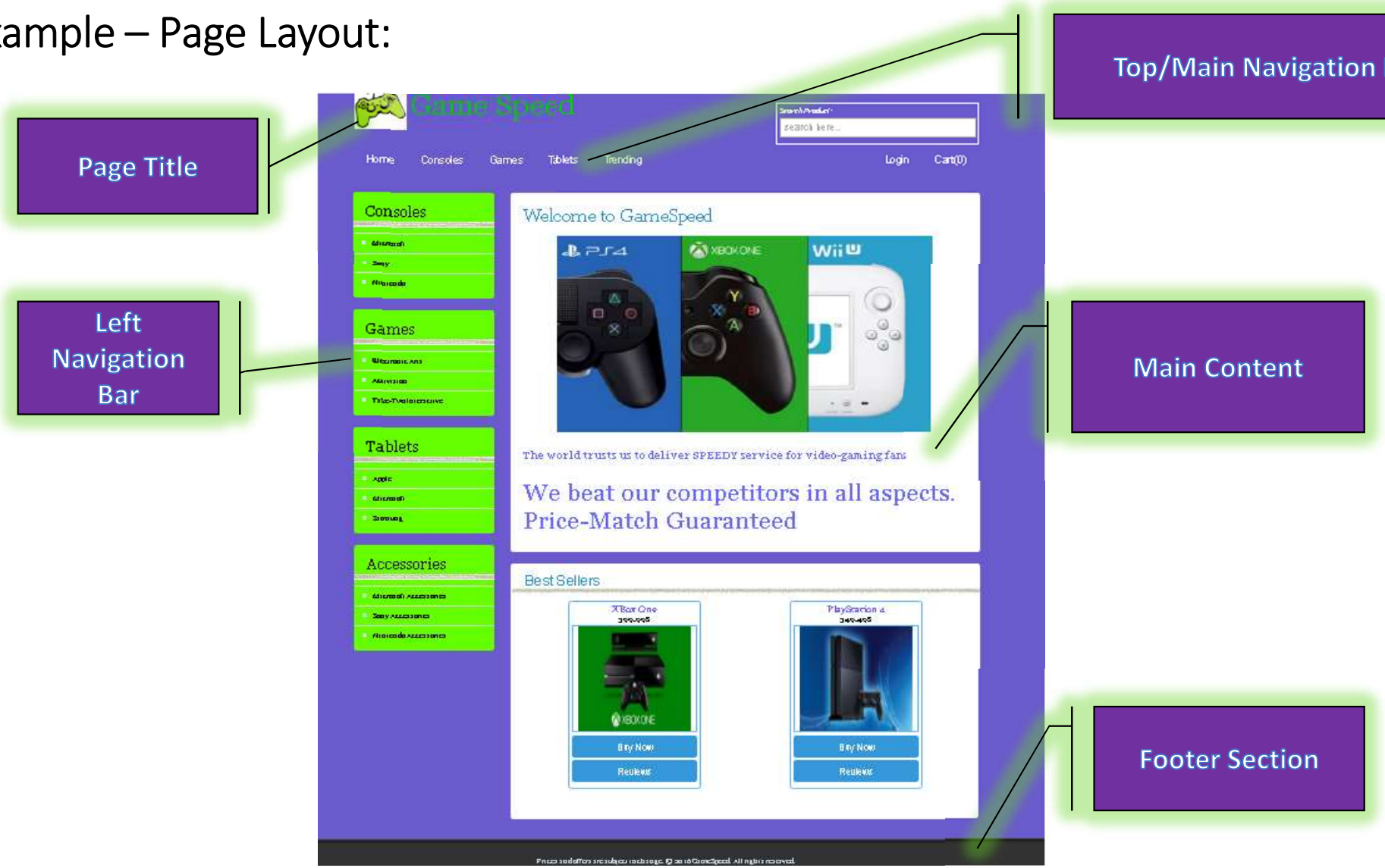


Example – Startup Page:

- Open your browser and type in http://localhost/GameSpeedServletCSSwithSAXTutorial/

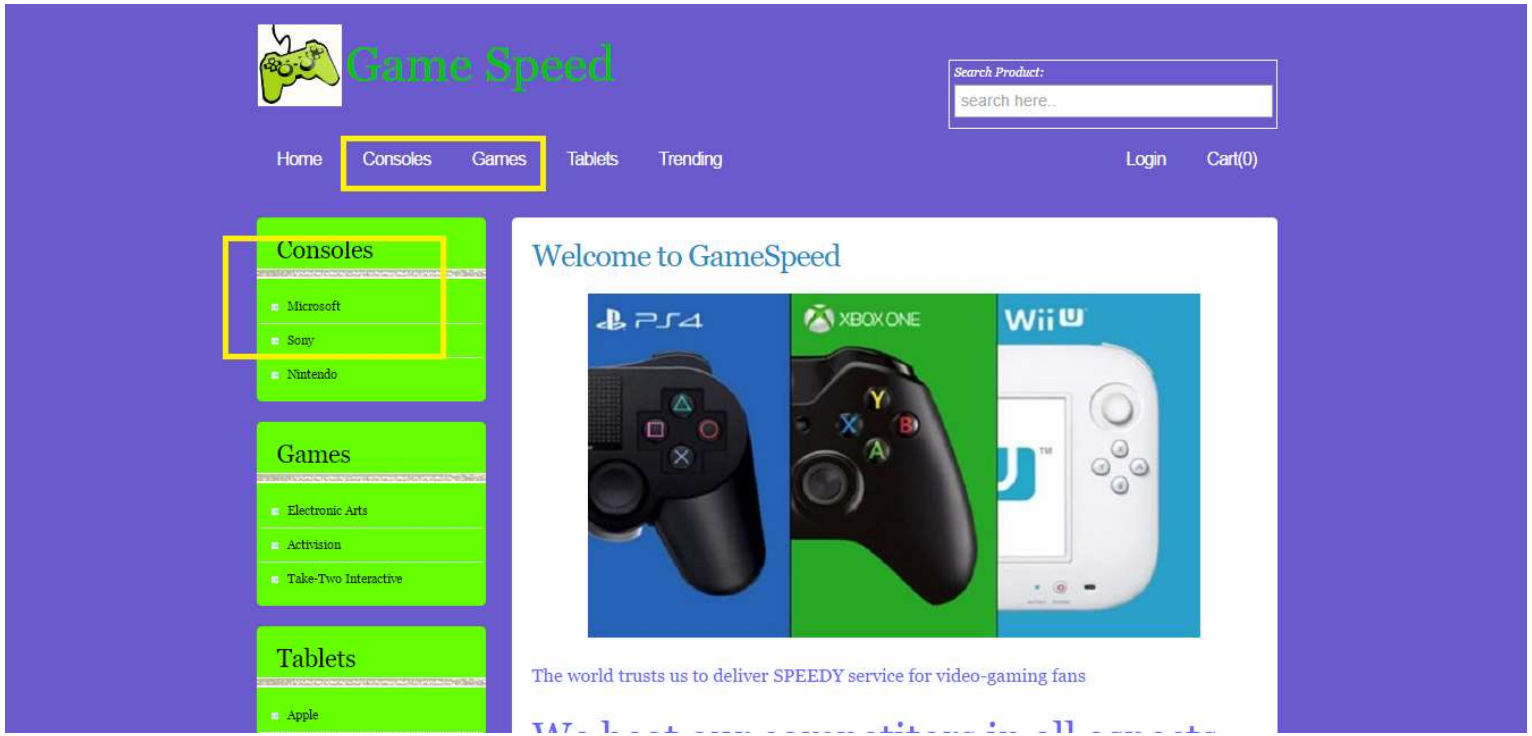


Example – Page Layout:



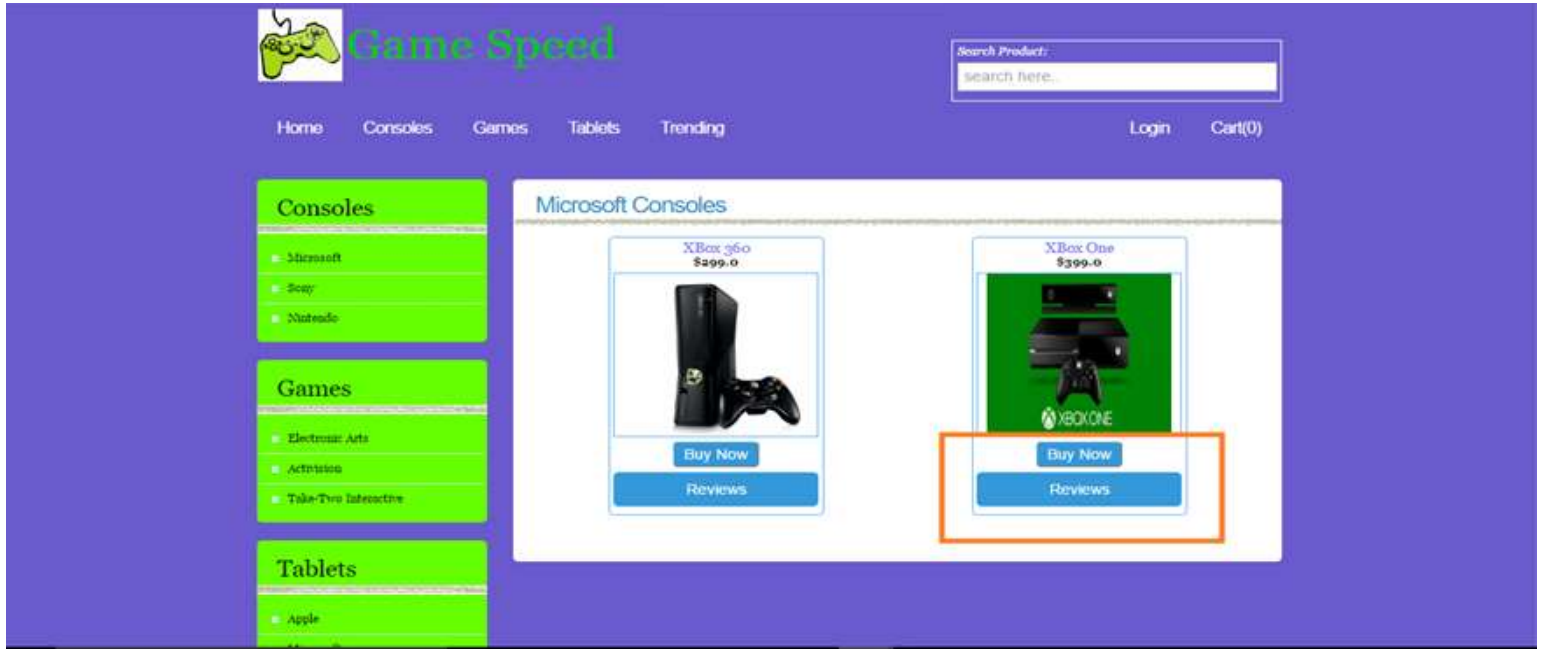
Example – Navigation Bar:

- Click on the products available in the navigation bar
- You can also select the products from the left navigation bar



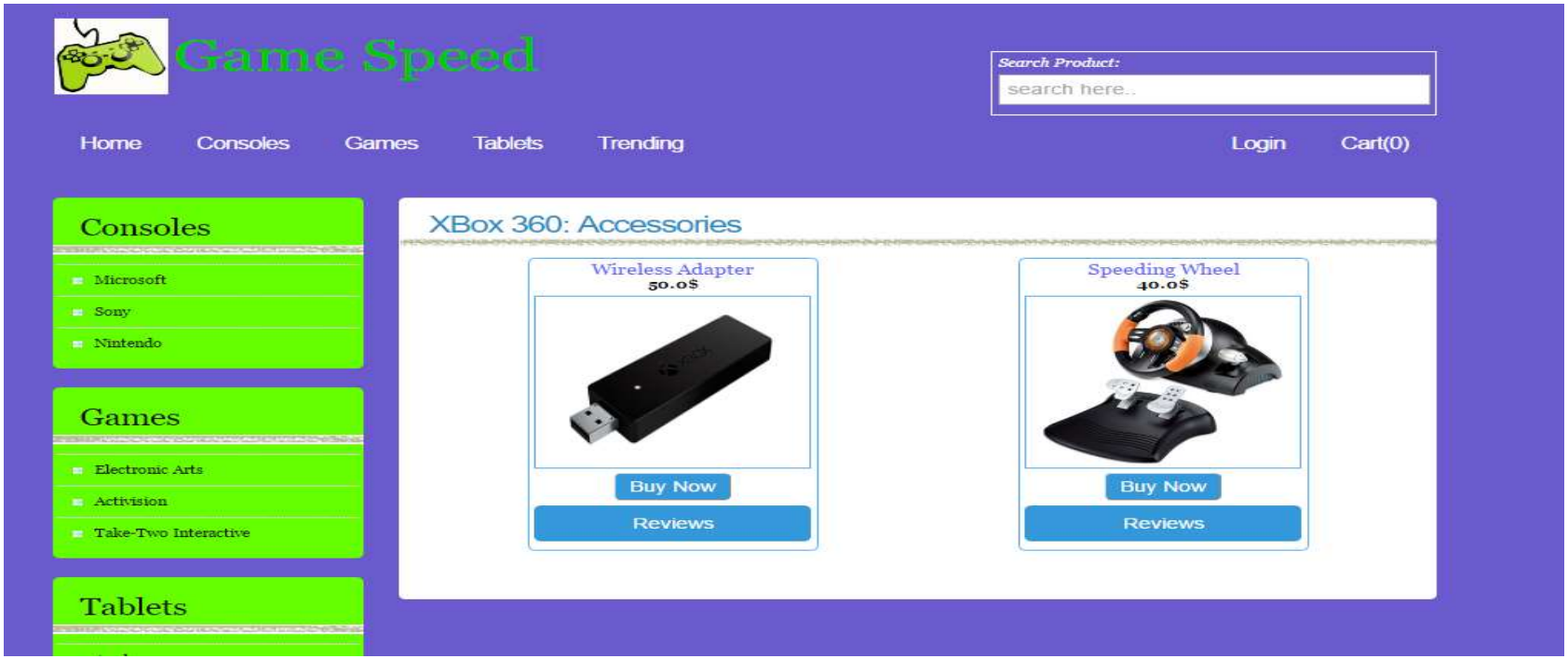
Example – Products Catalog:

- Clicking on a product type will take you to the product page
- You have different options available such as buy a product , write reviews for the product.



Example – Accessories:

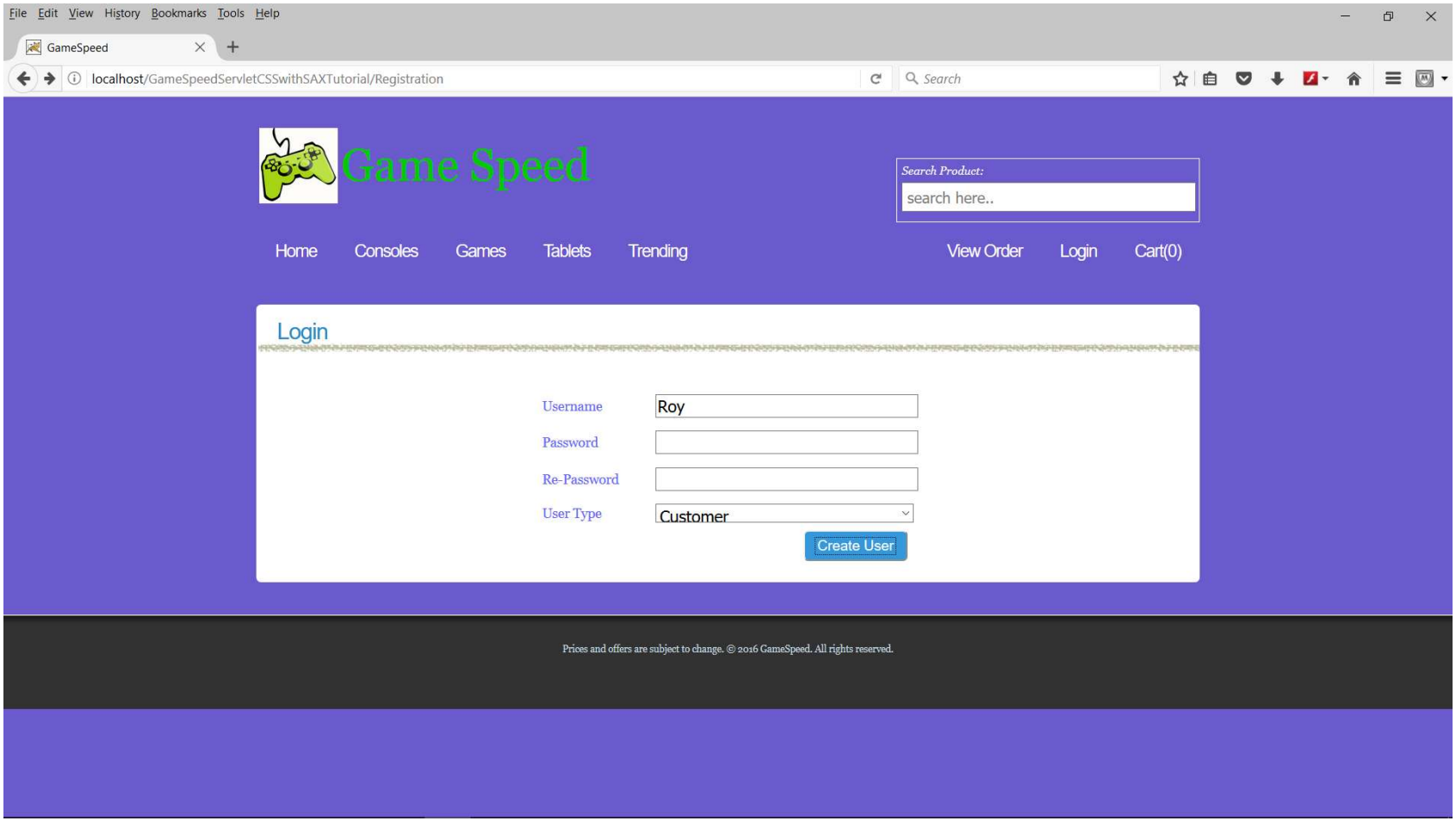
- Clicking on a Accessories link will take you to the Accessories page.
- You have different options available such as buy Accessories and review them.



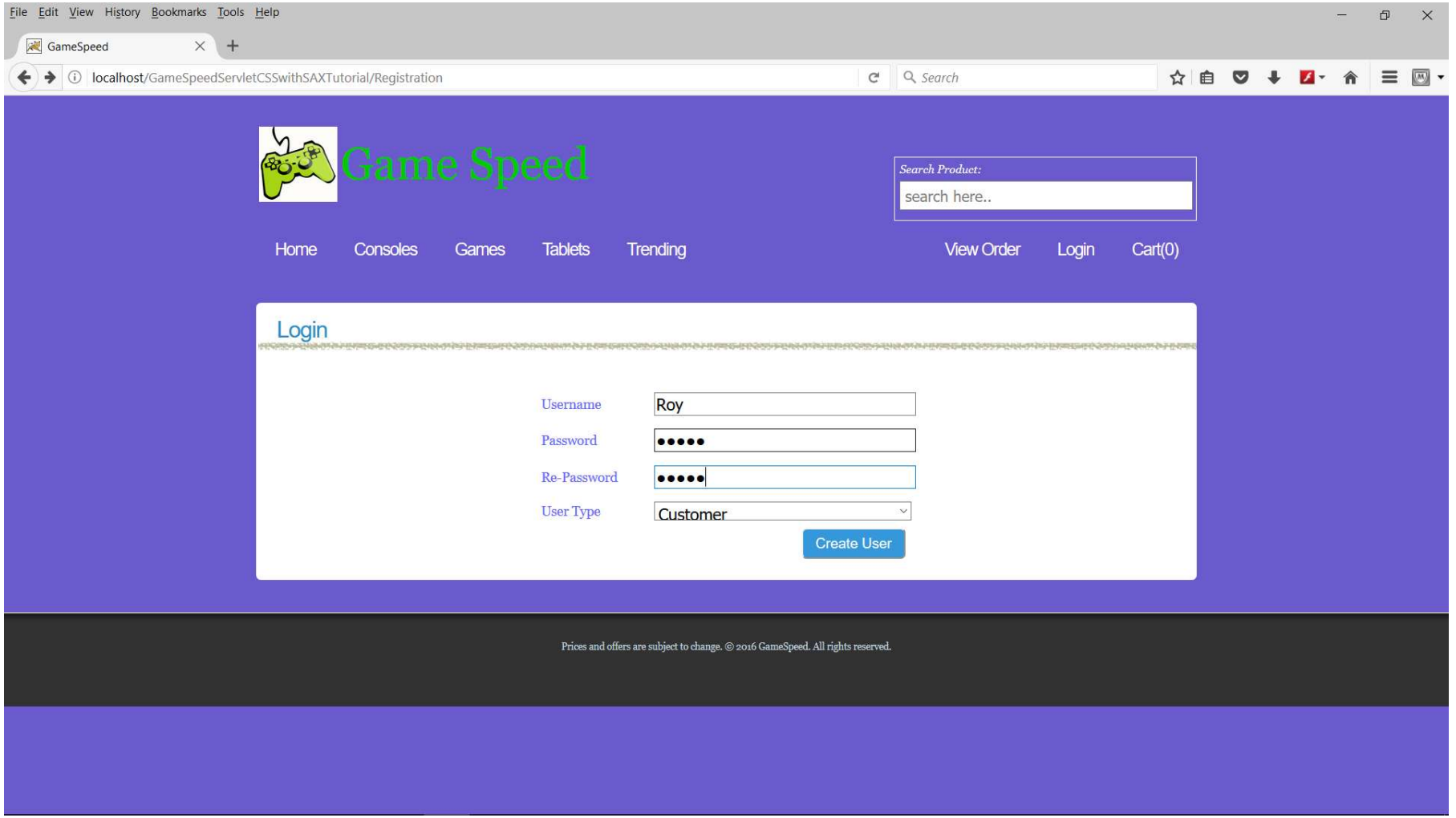
Example – Place Order:

- Click on ‘Buy Now’ button on the products page to purchase the product
- This should take you to a new page (Cart Servlet) where you can purchase the product
- Click on ‘Check Out’ to place the order for the selected product.

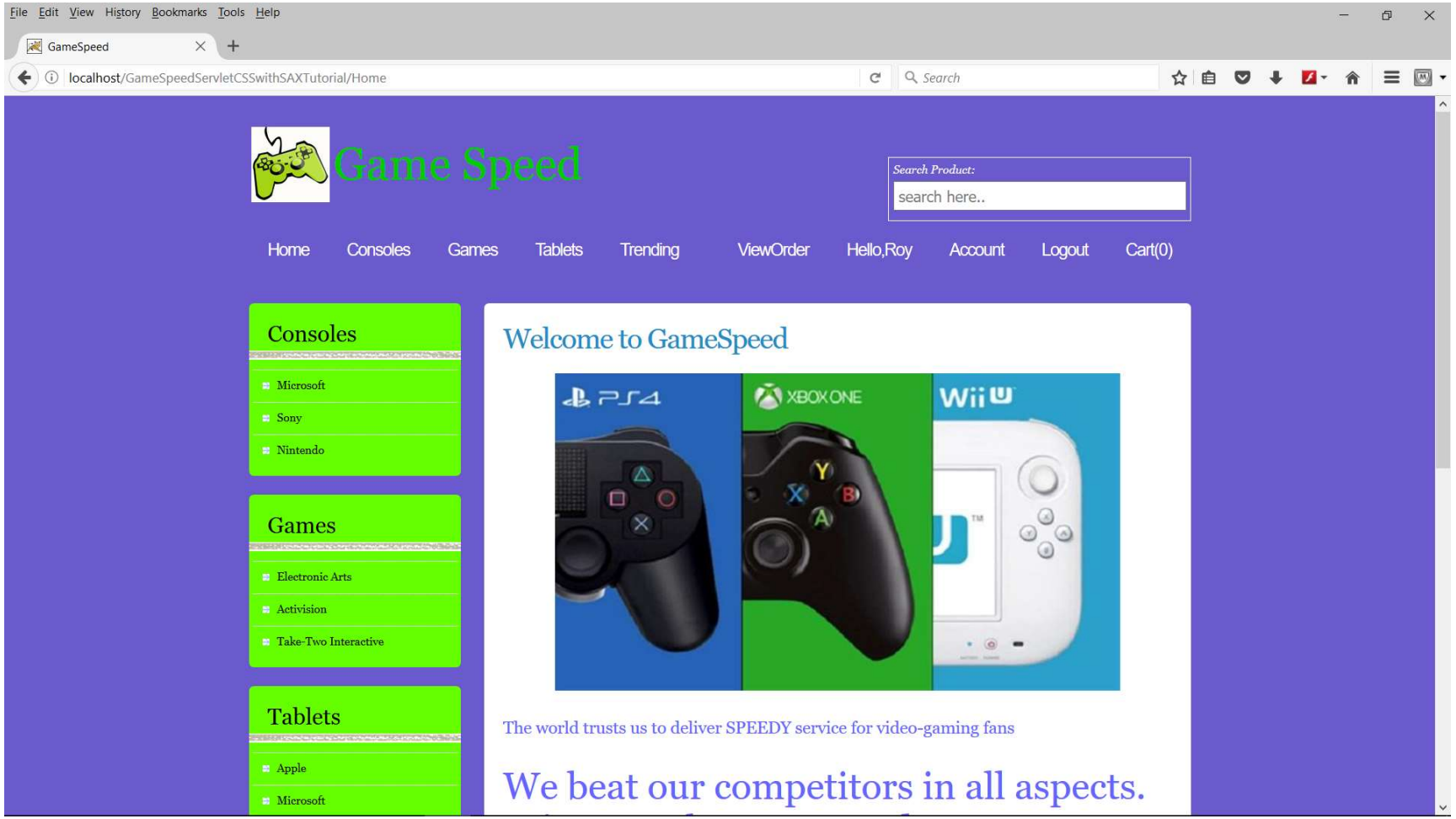
Example – First Create a Login



Example – First Create a Login

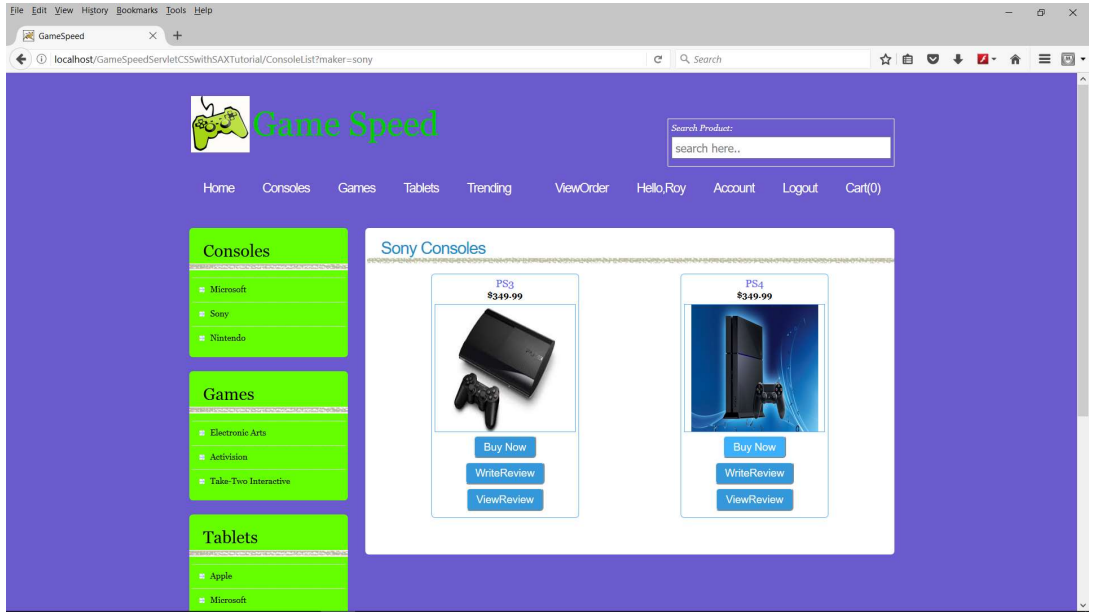


Example – Logged in as Roy



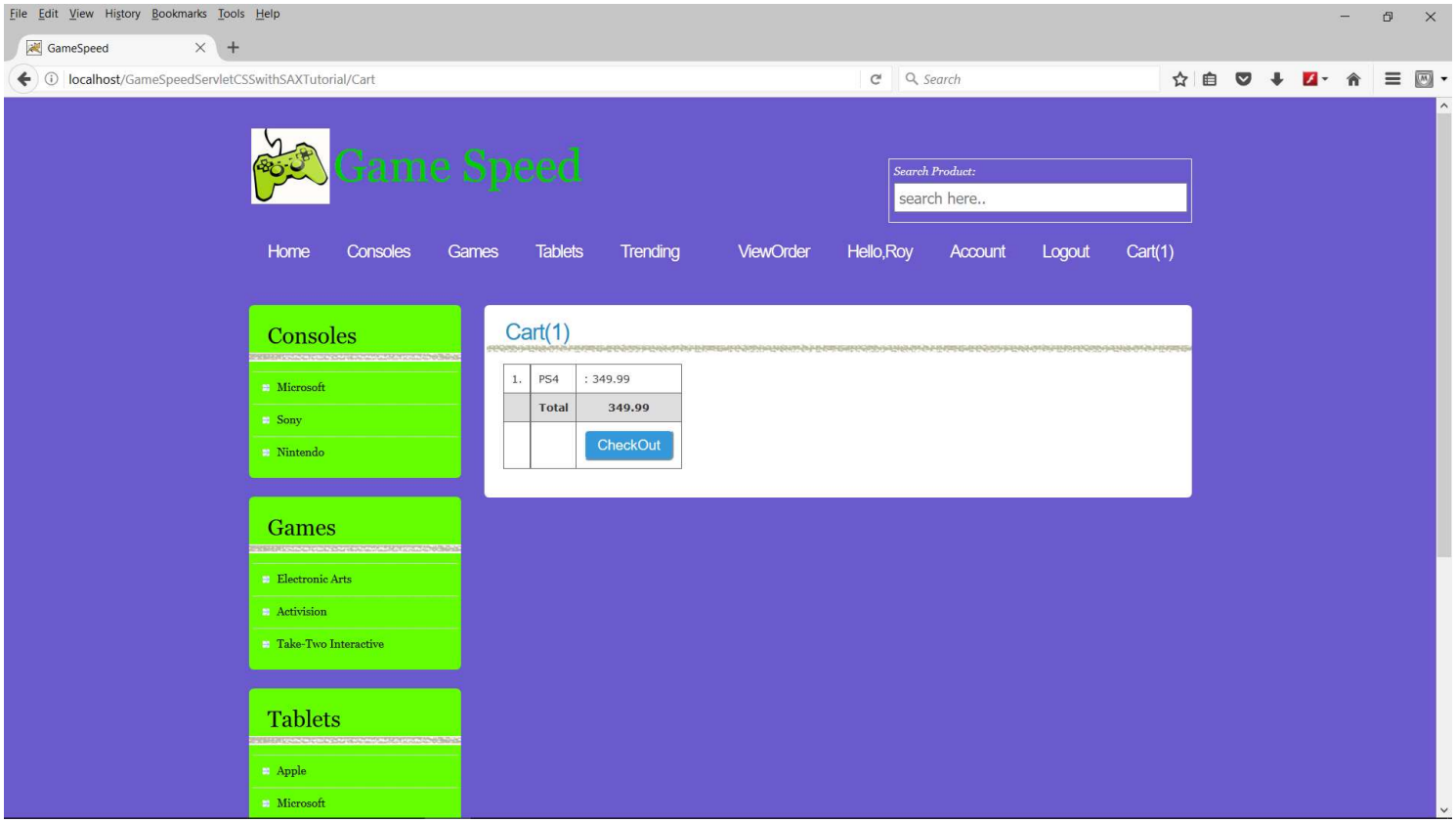
Example – Purchase Order:

- Enter the Credit card Number or Account Number of the Customer.
- Enter the Customer address.
- Click on ‘Submit’ to place the order for the selected product.



Example – Order Confirmation:

- Order Number is Generated for the Customer Order.
- Customer Order is Stored.



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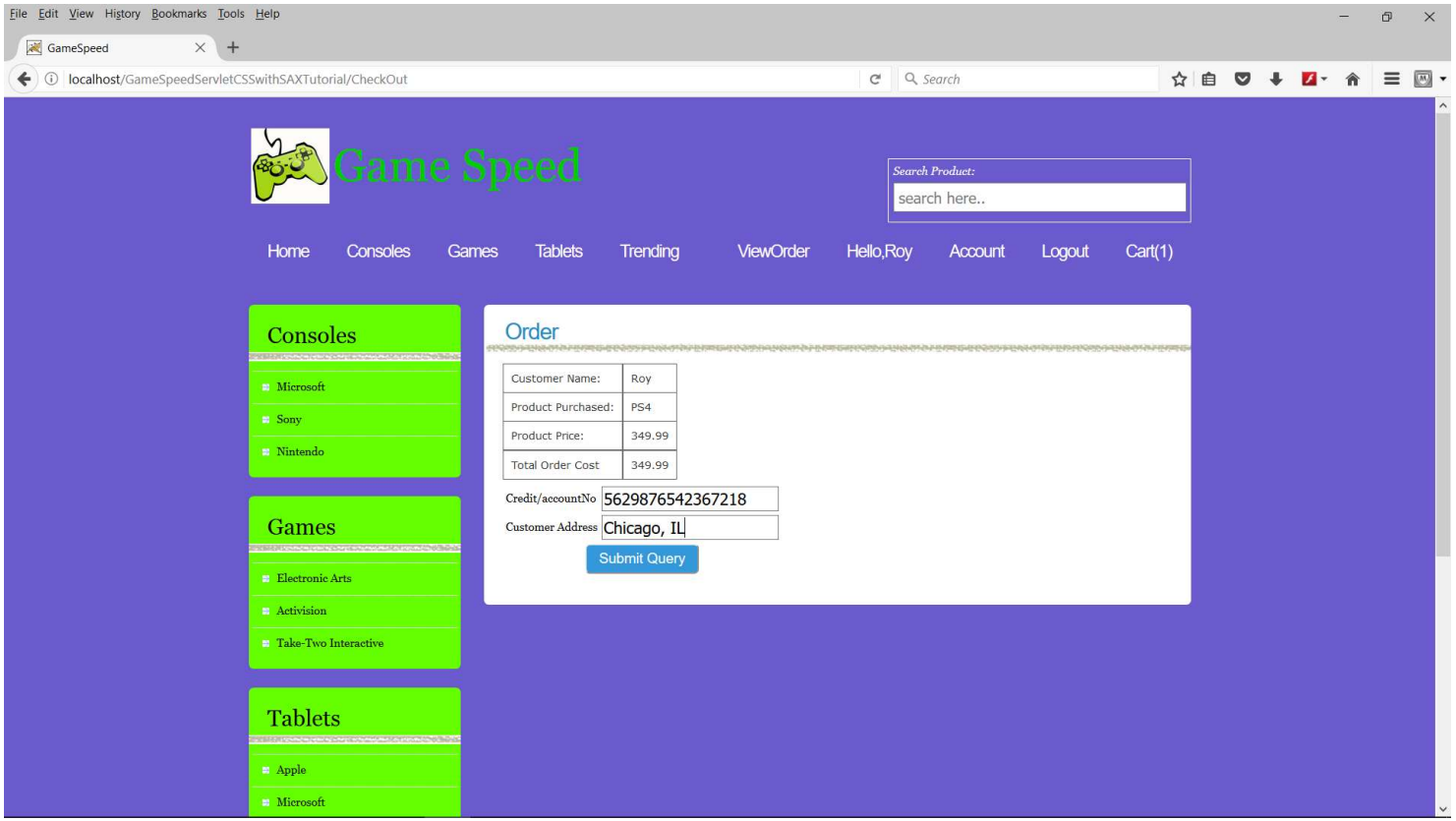

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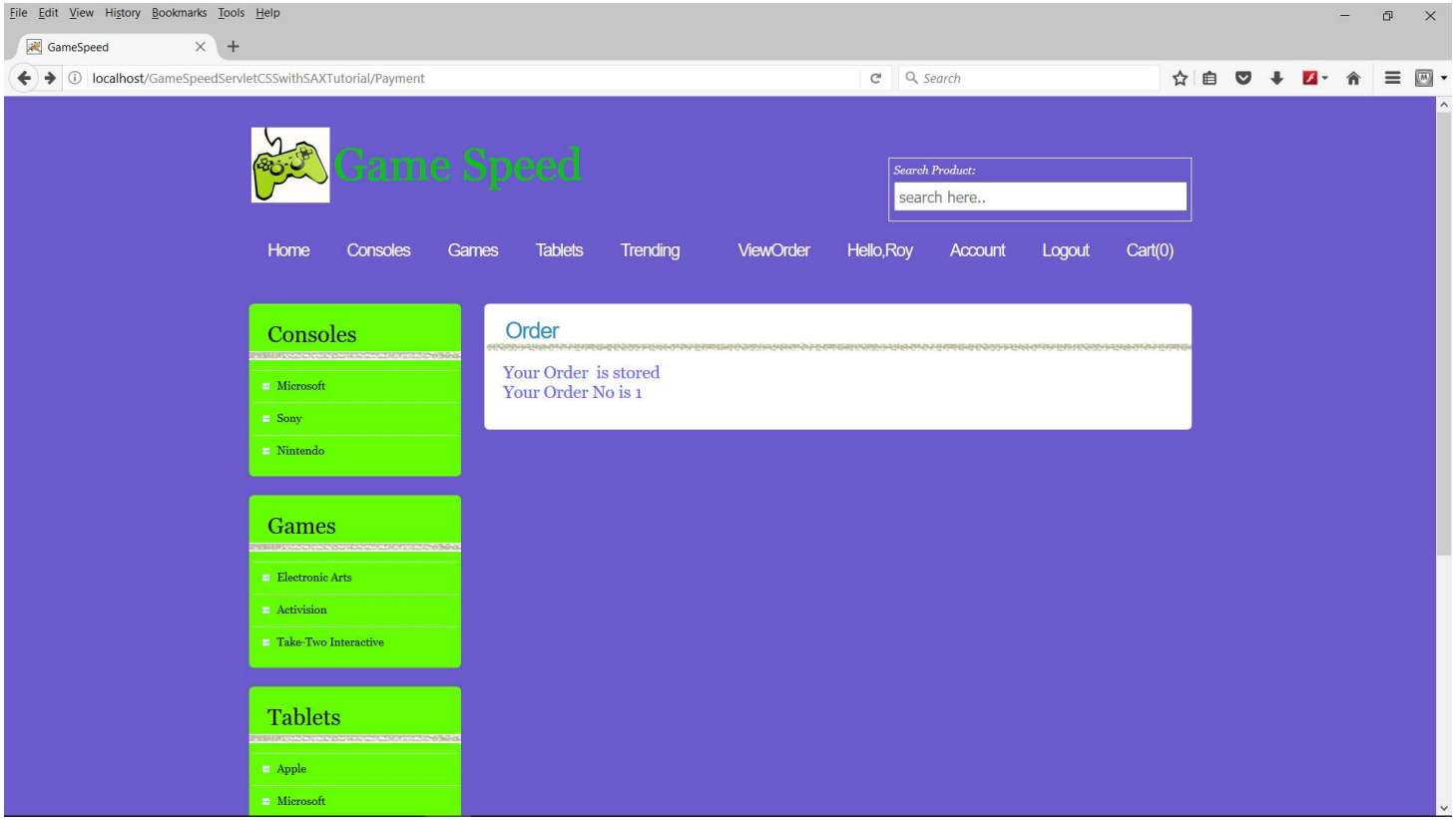
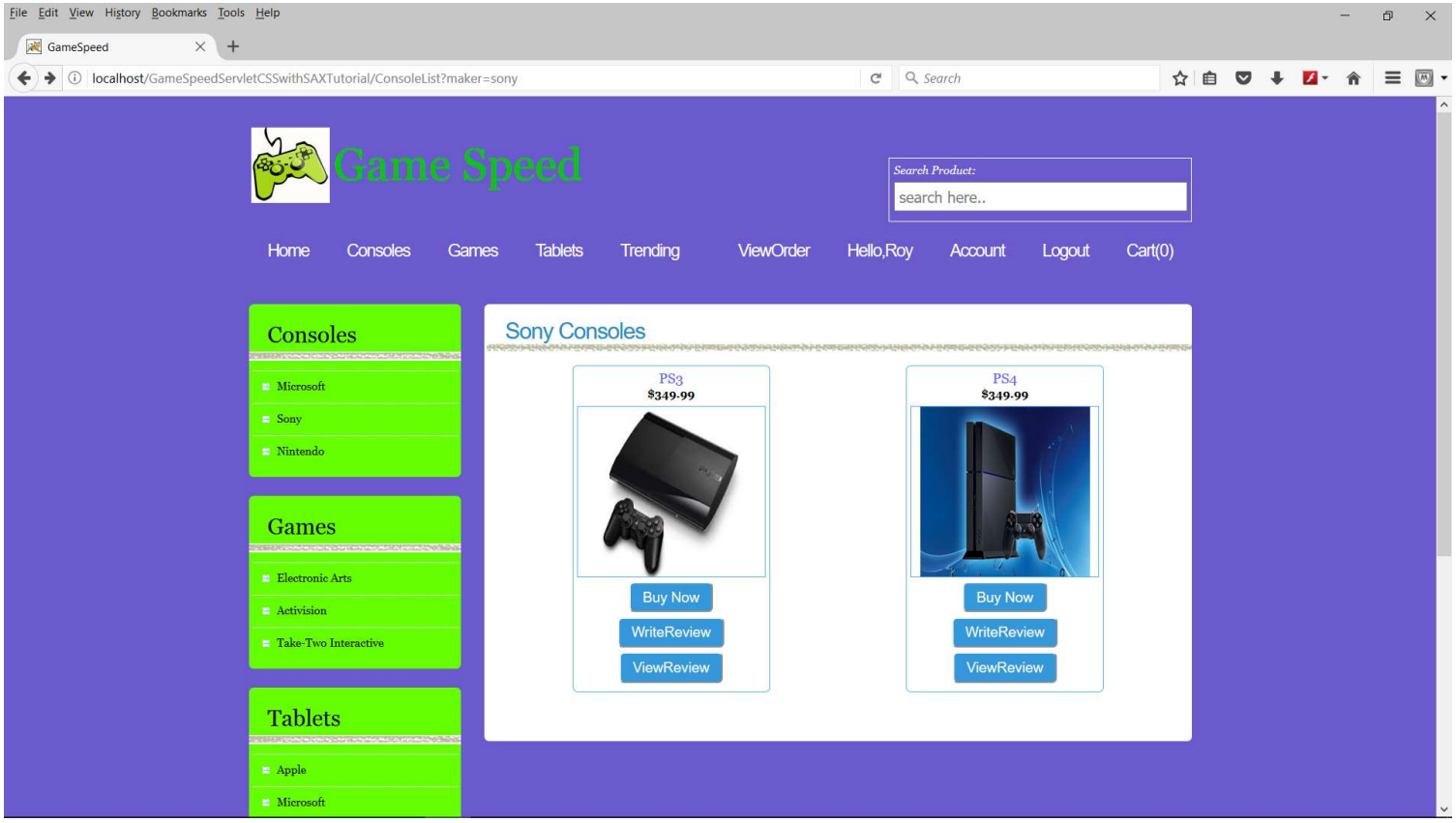


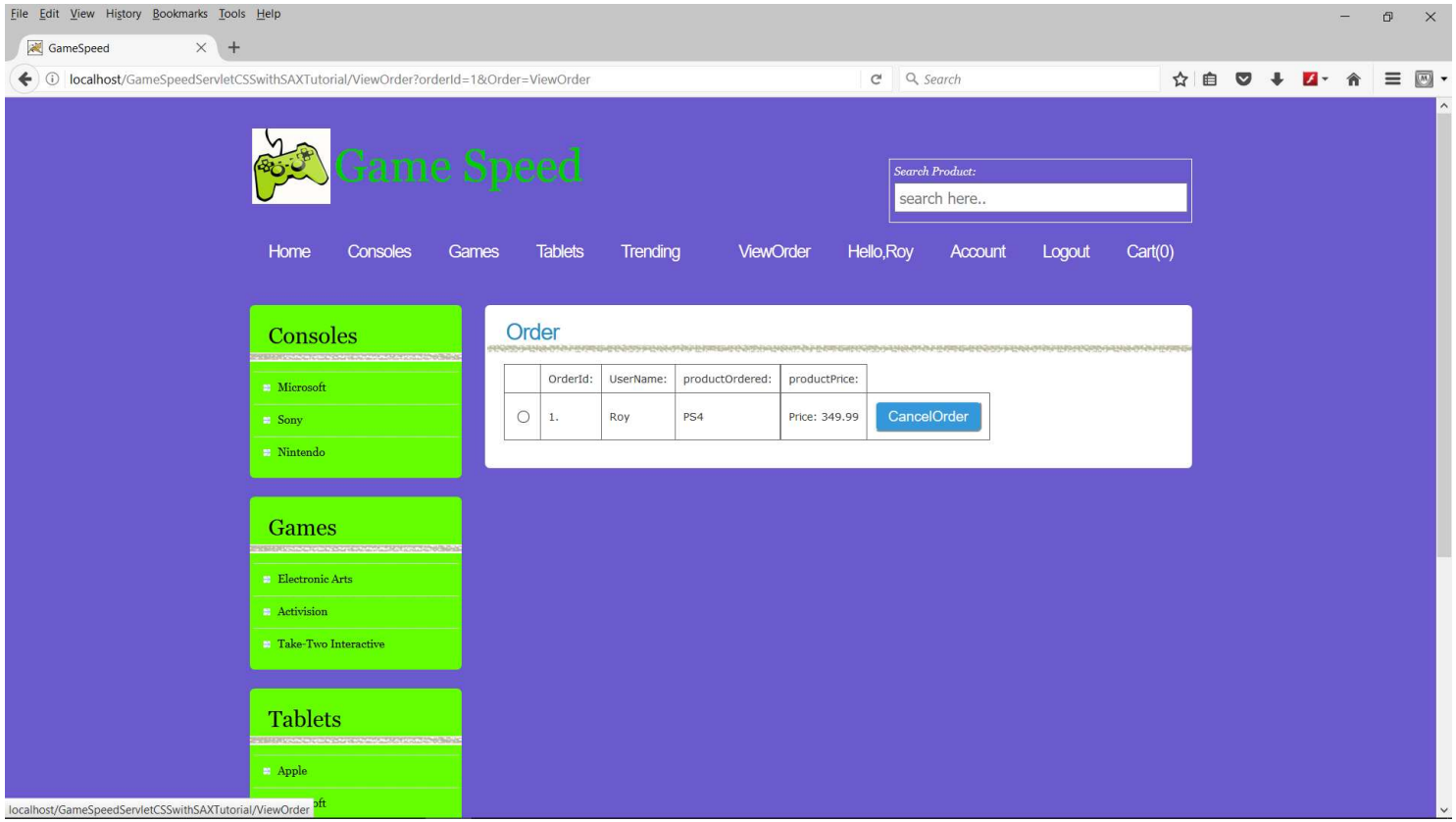
Example – Write Review:

- To write a review for the product, click on ‘Reviews’ button



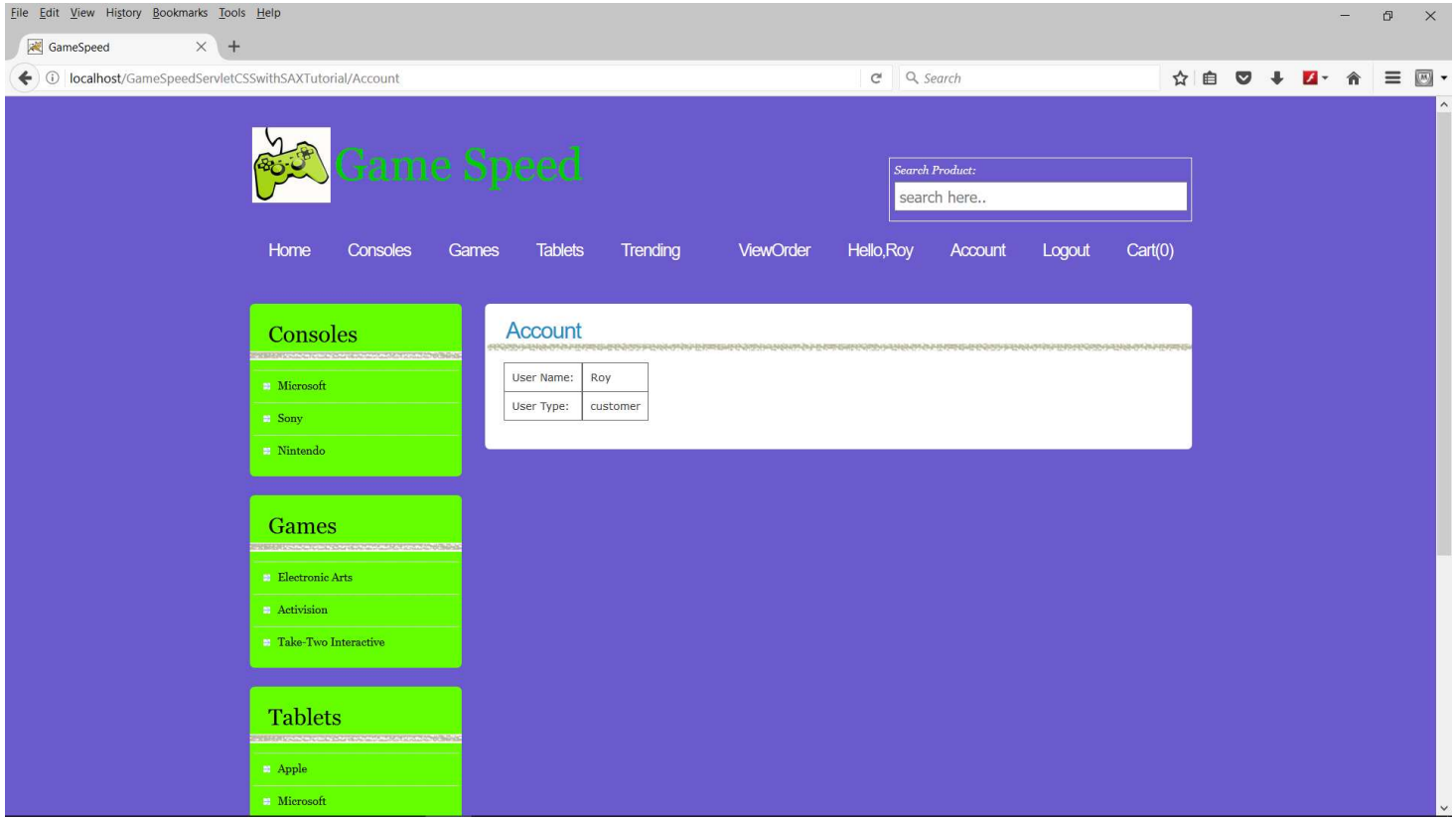
Example – View Order Status

- After Login – Click View Order



Example – Account Tab:

- Account Details of the Customer is Shown.



Example – Logout:

- User Successfully logged out of the Web Application.