Tutorial-1

HTML, CSS, Bootstrap,Glyphicons, Carousel, Servlets and JSP

CSP 584 – Enterprise Web Application

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Objectives

- In this tutorial, we will review and discuss the follow topics/technologies and show how they are utilized in design and development of the GameSpeed web-app:
  - Basic HTML tags
  - CSS
  - Bootstrap
  - Glyphicons
  - Carousel
  - Servlets & 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
<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 <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
        "http://www.w3.org/TR/html4/strict.dtd">
    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

```html
<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'

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

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

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

```html
<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

Bootstrap:

- Bootstrap is a free front-end framework for faster and easier web development

- Bootstrap is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first web sites.

- Bootstrap makes front-end web development faster and easier. It's made for folks of all skill levels, devices of all shapes, and projects of all sizes.

- Bootstrap is completely free to download and use!

- Bootstrap includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many other, as well as optional JavaScript plugins

- Bootstrap also gives you the ability to easily create responsive designs

Bootstrap: How to use in your application ?
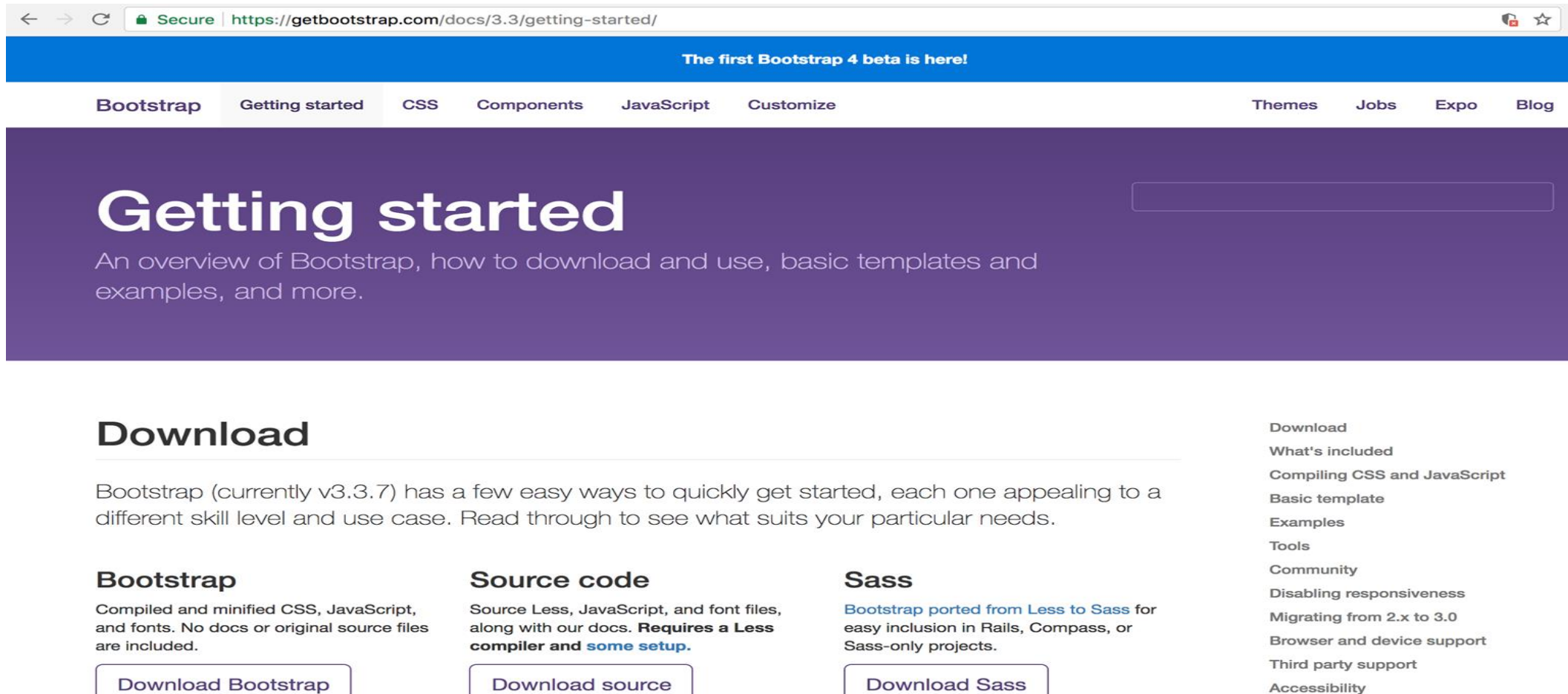
- There are two ways to start using Bootstrap on your own web site.

    - Download Bootstrap from getbootstrap.com
    - Include Bootstrap from a CDN

    You can download Bootstrap from below link:

    https://getbootstrap.com/docs/3.3/getting-started/

Bootstrap: Download Bootstrap

You can download in your system and use it.

Bootstrap: Include Bootstrap from CDN

Include Bootstrap CDN in the head section of the html

Bootstrap CDN

The folks over at MaxCDN graciously provide CDN support for Bootstrap's CSS and JavaScript. Just use these Bootstrap CDN links.

```html
<!-- Latest compiled and minified CSS -->
<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css" integrity="sha384-
BVYiiSIFeK1dGmJRAkycuHAHRg32OmUcww7on3RYdg4Va+PmSTsz/K68vbdEjh4u" crossorigin="anonymous">

<!-- Optional theme -->
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap-
theme.min.css" integrity="sha384-rHyoN1iRsVXV4nD0JutlnGaslCJuC7uwjduW9SVrLvRYooPp2bWYgmgJQIXwl/Sp"
crossorigin="anonymous">

<!-- Latest compiled and minified JavaScript -->
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"
integrity="sha384-Tc5IQib027qvyjSMfHjOMaLkfuWVxZxUPnCJA7l2mCWNIpG9mGCD8wGNIcPD7Txa"
crossorigin="anonymous"></script>
```

Example: Header.html

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>

<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<title>GameSpeed</title>
<meta name="keywords" content="" />
<meta name="description" content="" />
<link href="style.css" rel="stylesheet" type="text/css" media="screen" />
<!-- Links for Jquery and bootstrap css -->
  <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
  <script
src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>

<script>
```

Bootstrap documentation:

Glyphicons:

- GLYPHICONS is a library of precisely prepared monochromatic icons and symbols, created with an emphasis to simplicity and easy orientation.
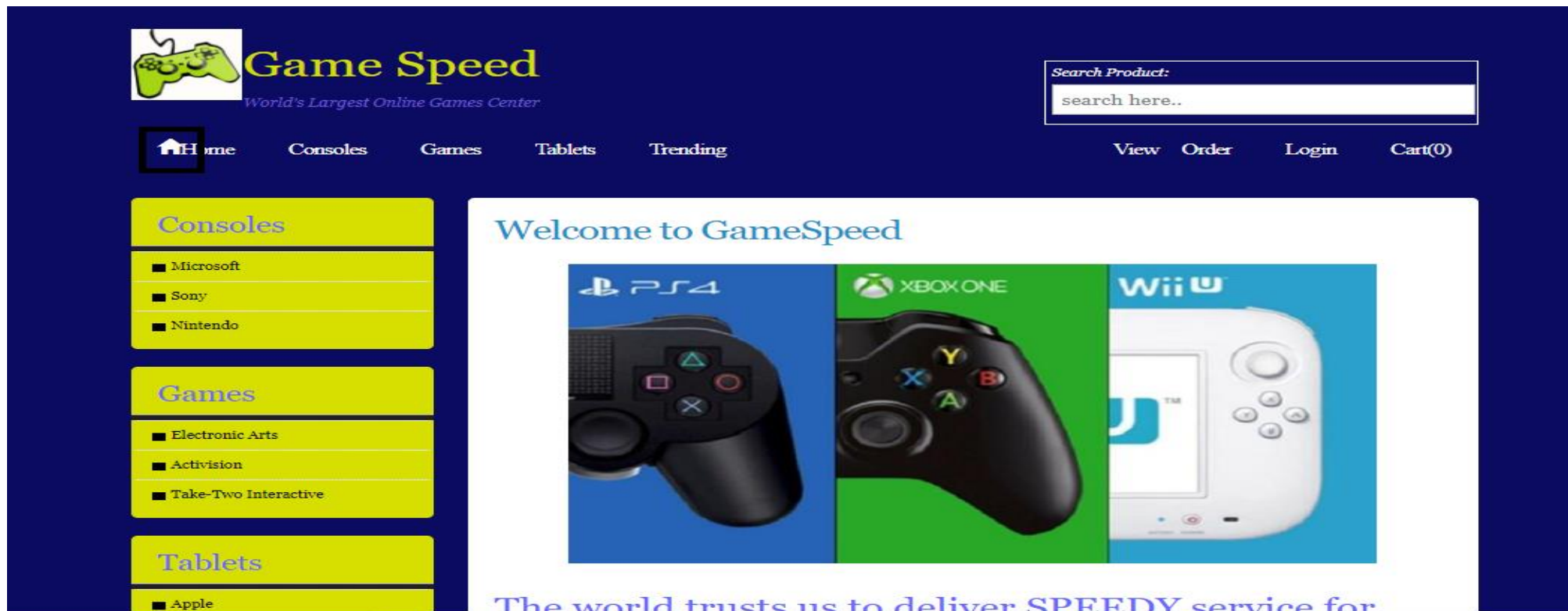
Glyphicons:

- You can get free glyphicons for bootstrap from:

  https://glyphicons.bootstrapcheatsheets.com/

  https://getbootstrap.com/docs/3.3/components/

Glyphicons: How to use:

- Header.html:

```
<div id="header">
        <div id="menu">
                <ul>
                <li><a href="Home" class="first"><span class="glyphicon glyphicon-home">Home</span></a></li>
                        <li><a href="ConsoleList">Consoles</a></li>
                        <li><a href="GamesList">Games</a></li>
                        <li><a href="TabletList">Tablets</a></li>
                        <li><a href="Trending">Trending </a></li>
                </ul>
        </div>
```
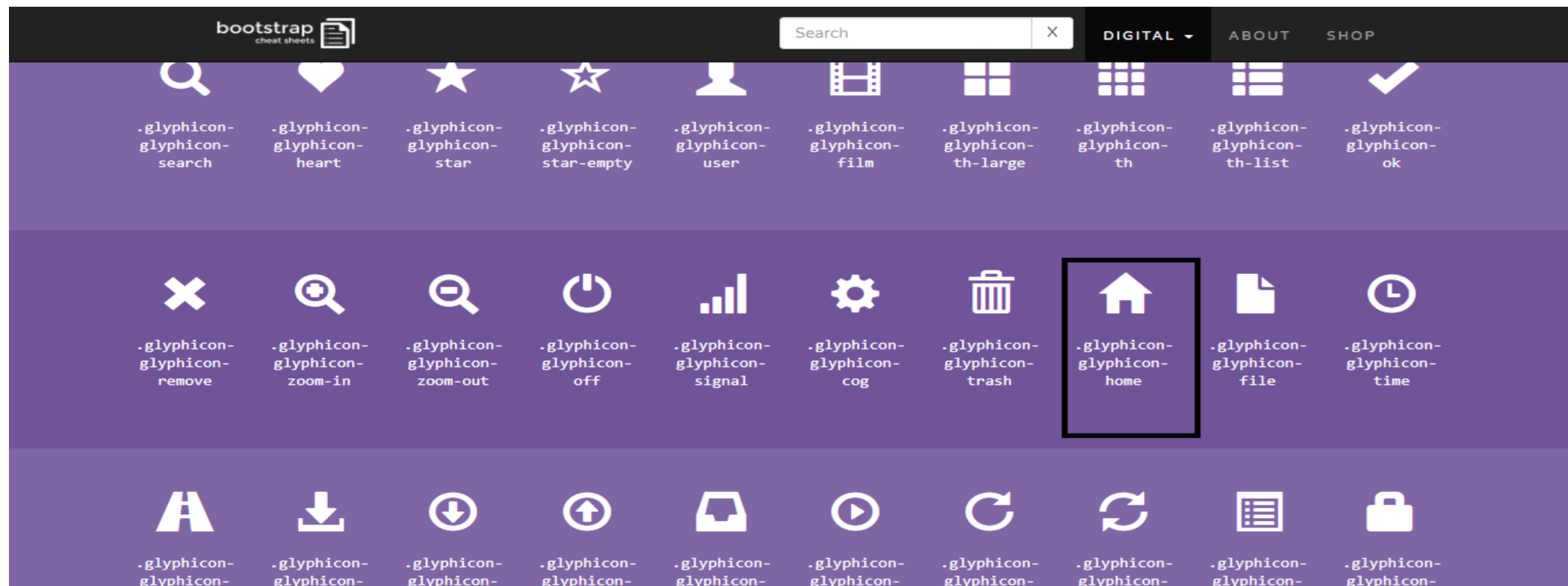
Bootstrap Carousel

- The carousel is a slideshow for cycling through a series of content, built with CSS 3D transforms and a bit of JavaScript. It works with a series of images, text, or custom markup. It also includes support for previous/next controls and indicators.

- In browsers where the Page Visibility API is supported, the carousel will avoid sliding when the webpage is not visible to the user (such as when the browser tab is inactive, the browser window is minimized, etc.).

- Please be aware that nested carousels are not supported, and carousels are generally not compliant with accessibility standards.

How To Create a Carousel?

How To Create a Carousel?

Carousel: Example

You can visit the link:

https://getbootstrap.com/docs/3.3/examples/carousel/#

Bootstrap Carousel

```
<div id="carousel-example-generic" class="carousel slide" data-ride="carousel">
  <!-- Indicators -->
  <ol class="carousel-indicators">
    <li data-target="#carousel-example-generic" data-slide-to="0" class="active"></li>
    <li data-target="#carousel-example-generic" data-slide-to="1"></li>
    <li data-target="#carousel-example-generic" data-slide-to="2"></li>
  </ol>

  <!-- Wrapper for slides -->
  <div class="carousel-inner" role="listbox">
    <div class="item active">
      <img src="..." alt="...">
      <div class="carousel-caption">
        ...
      </div>
    </div>
    <div class="item">
      <img src="..." alt="...">
      <div class="carousel-caption">
        ...
      </div>
    </div>
    ...
  </div>

  <!-- Controls -->
  <a class="left carousel-control" href="#carousel-example-generic" role="button" data-slide="prev">
    <span class="glyphicon glyphicon-chevron-left" aria-hidden="true"></span>
    <span class="sr-only">Previous</span>
  </a>
  <a class="right carousel-control" href="#carousel-example-generic" role="button" data-slide="next">
    <span class="glyphicon glyphicon-chevron-right" aria-hidden="true"></span>
    <span class="sr-only">Next</span>
  </a>
</div>
```

Usage

Multiple carousels

Carousels require the use of an `id` on the outermost container (the `.carousel`) for carousel controls to function properly. When adding multiple carousels, or when changing a carousel's `id`, be sure to update the relevant controls.

Via data attributes

Use data attributes to easily control the position of the carousel. `data-slide` accepts the keywords `prev` or `next`, which alters the slide position relative to its current position. Alternatively, use `data-slide-to` to pass a raw slide index to the carousel `data-slide-to="2"`, which shifts the slide position to a particular index beginning with `0`.

The `data-ride="carousel"` attribute is used to mark a carousel as animating starting at page load. **It cannot be used in combination with (redundant and unnecessary) explicit JavaScript initialization of the same carousel.**

Via JavaScript

Call carousel manually with:

```
$('.carousel').carousel()
```

Options

Options can be passed via data attributes or JavaScript. For data attributes, append the option name to `data-`, as in `data-interval=""`.

Name	type	default	description
interval	number	5000	The amount of time to delay between automatically cycling an item. If false, carousel will not automatically cycle.
pause	string | null	"hover"	If set to `"hover"`, pauses the cycling of the carousel on `mouseenter` and resumes the cycling of the carousel on `mouseleave`. If set to `null`, hovering over the carousel won't pause it.

Let's See some Examples of CSS Templates

Template 1 :
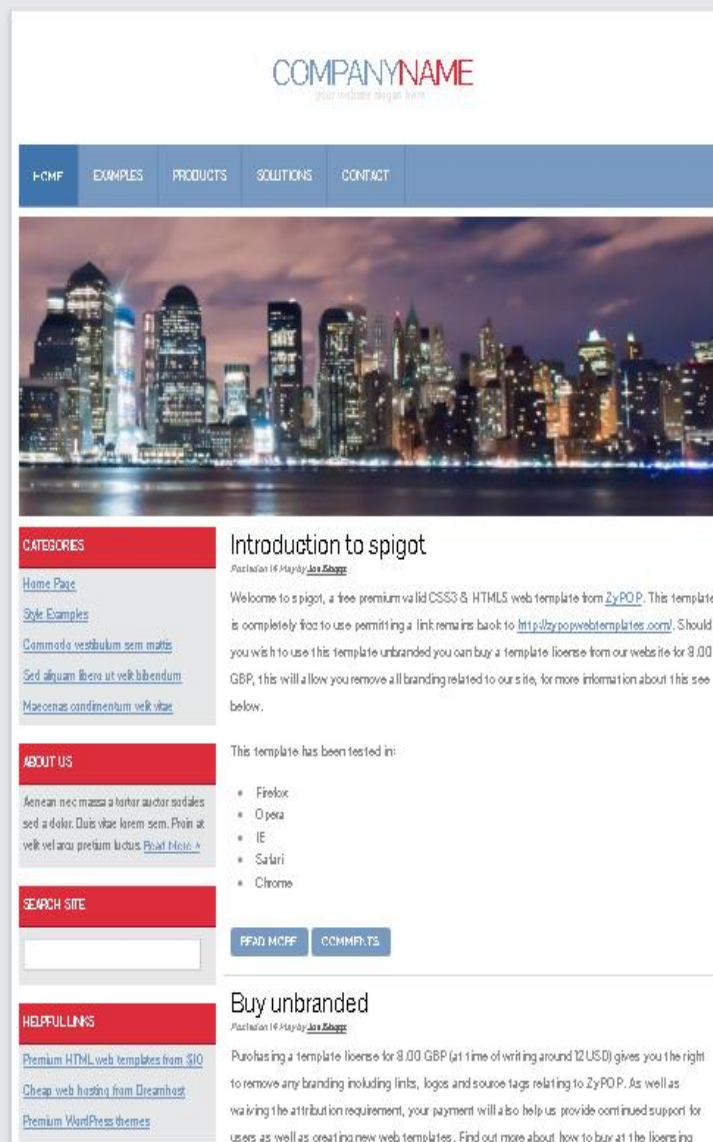
Template 2 :
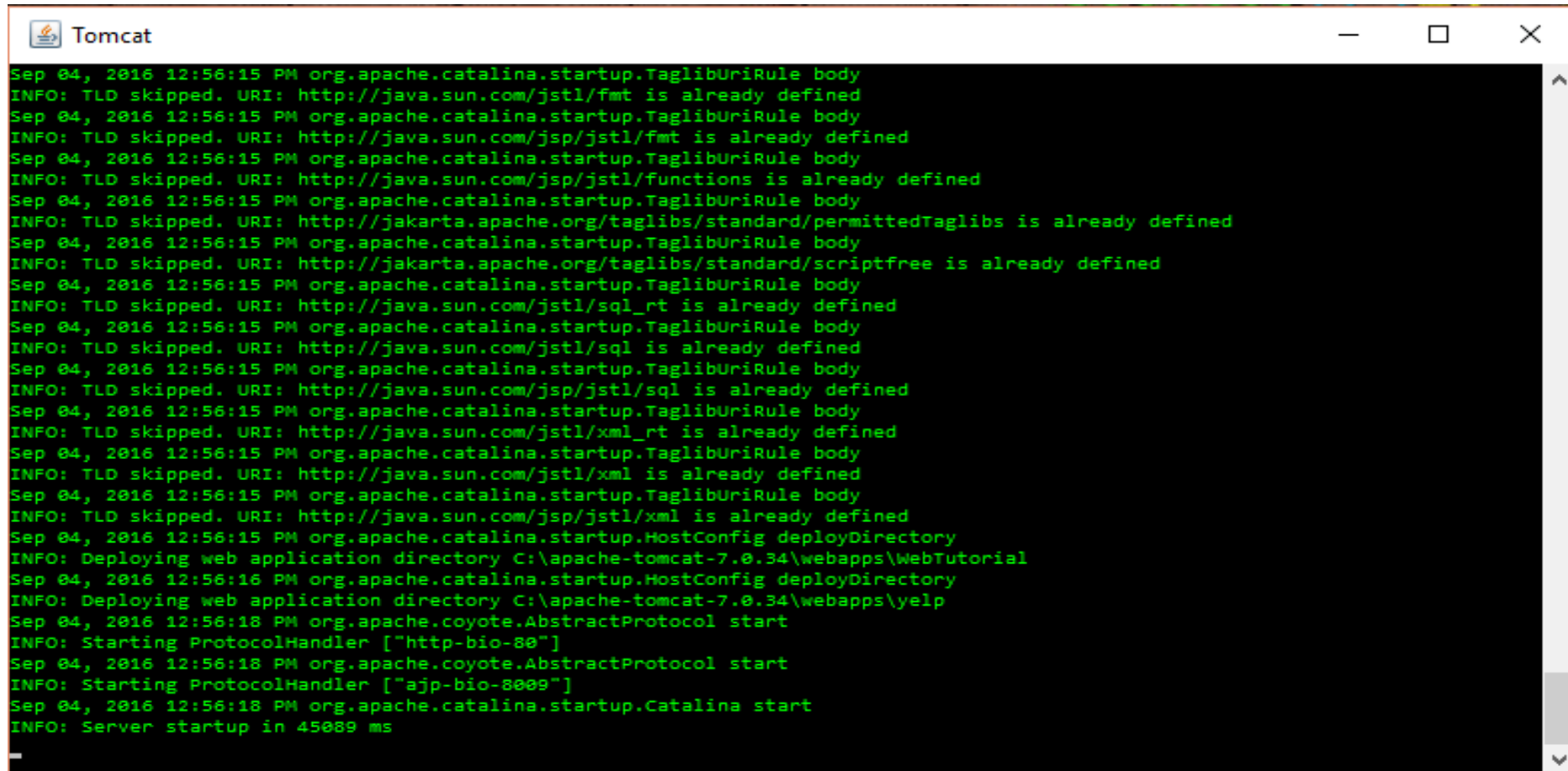
Template 3 :
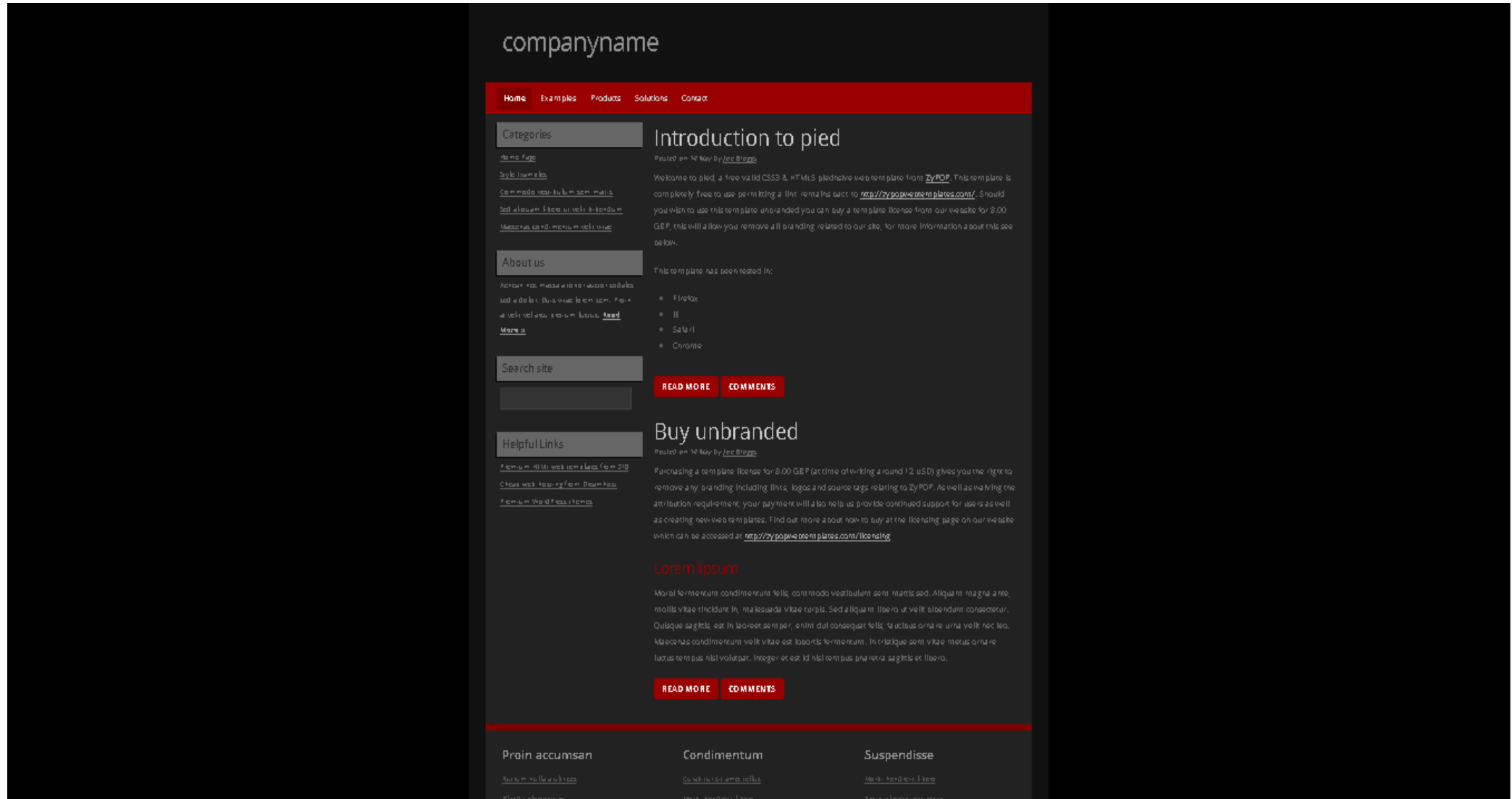
Example:

• 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) :

Load Servlet

Apache Tomcat

Web.xml

Welcome-file-list

Home Servlet

Header.html

Left Navigation Bar.html

Content.html

Footer.html
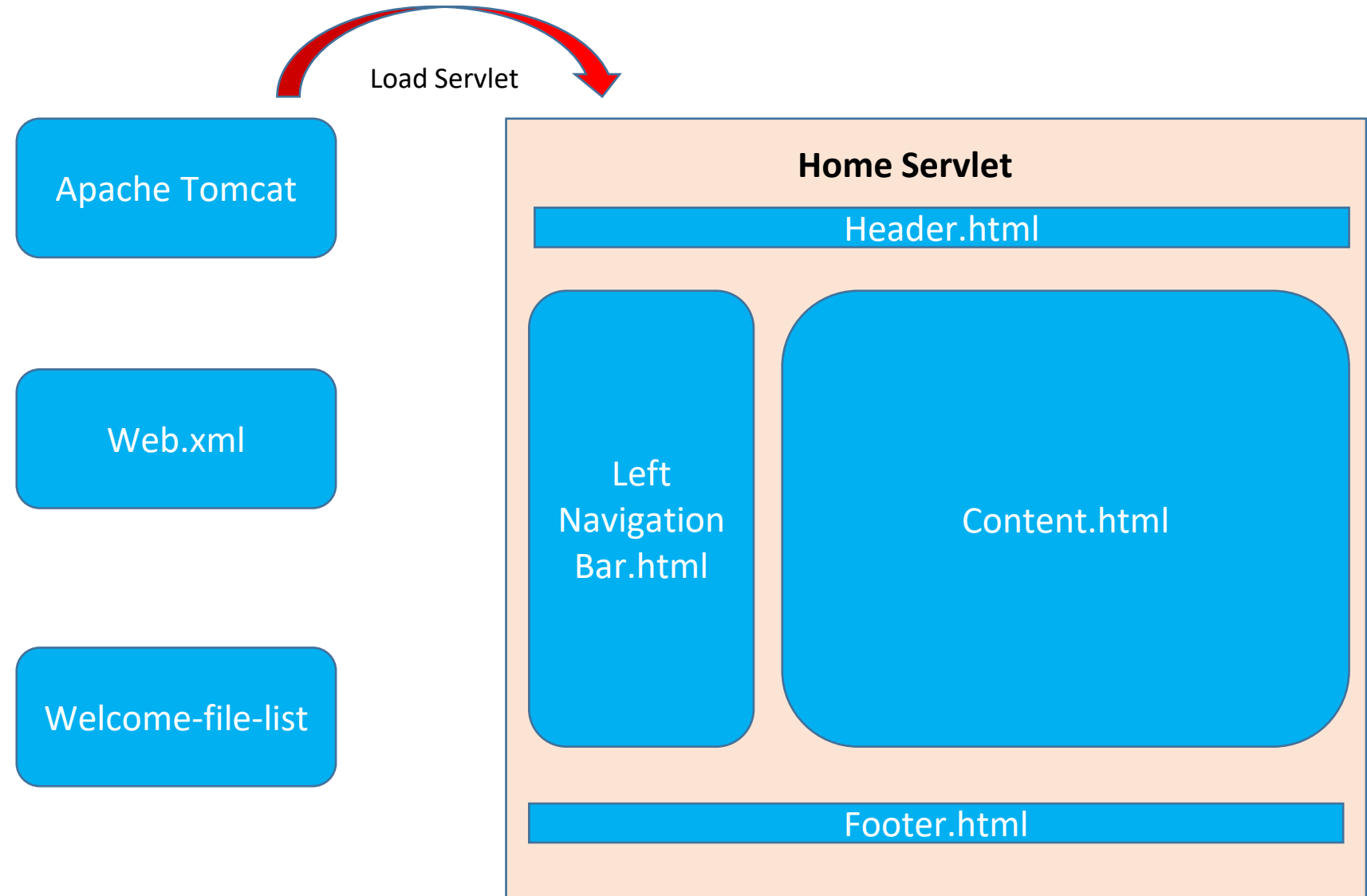
Home Servlet:

```java
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 :

```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=takeTwoInteractive">Take-Two
              Interactive</a></li>
        </ul>
     </li>
     <li>

....

   </ul>
</div>
```

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

ConsoleList Servlet :

```java
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; }

                }

        …
```

Content.html :

```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>
....
```

Header.html :

```
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>
<script>
<!-- jqurey script -->
$(document).ready(function(){

            $('#myCarousel').carousel({
  interval: 3000
})

$('.carousel .item').each(function(){
  var next = $(this).next();
  if (!next.length) {
    next = $(this).siblings(':first');
  }
  next.children(':first-child').clone().appendTo($(this));
});
});
```

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\\Tutorial_1\\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\\Tutorial_1\\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\\Tutorial_1\\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\\Tutorial_1\\PaymentDetails.txt"));
            ObjectOutputStream objectOutputStream = new ObjectOutputStream(fileOutputStream);
            objectOutputStream.writeObject(orderPayments);
            objectOutputStream.flush();
            objectOutputStream.close();
            fileOutputStream.close();
            }

            ...
        }
```

How ProductCatalog.xml get loaded ?

Web.xml
<servlet>
  <servlet-name>Startup</servlet-name>
  <servlet-class>Startup</servlet-class>
  <load-on-startup>1</load-on-startup>

 </servlet>

Startup Servlet
public class Startup extends HttpServlet
{

        public void init() throws ServletException
  {

           SaxParserDataStore.addHashmap();

  }
}

SaxParserDataStore Servlet

public static void addHashmap() {
        String TOMCAT_HOME = System.getProperty("catalina.home");
        new SaxParserDataStore(TOMCAT_HOME+"\\webapps\\Tutorial_1\\ProductCatalog.xml");
  }

SaxParserDataStore Servlet:
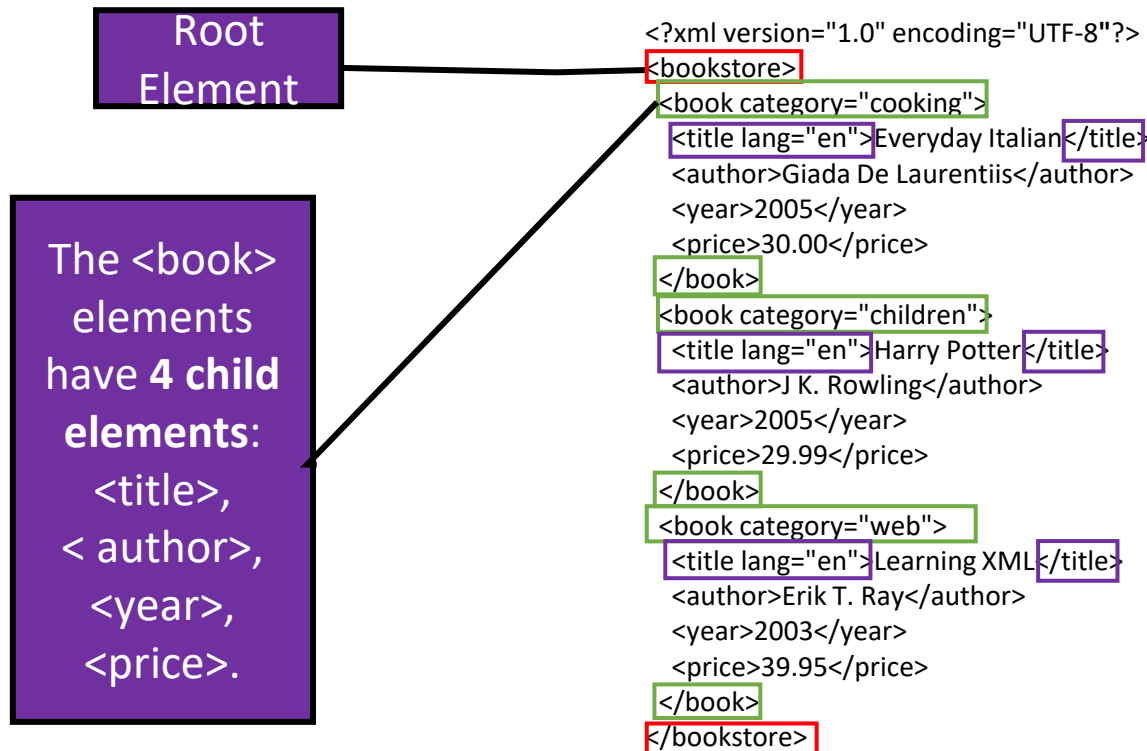
```java
public class SaxParserDataStore  extends DefaultHandler {

    ...

    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".

Root Element

The <book> elements have 4 child elements:
<title>,
< author>,
<year>,
<price>.

```
<?xml version="1.0" encoding="UTF-8"?>
<bookstore>
<book category="cooking">
<title lang="en">Everyday Italian</title>
<author>Giada De Laurentiis</author>
<year>2005</year>
<price>30.00</price>
</book>
<book category="children">
<title lang="en">Harry Potter</title>
<author>J K. Rowling</author>
<year>2005</year>
<price>29.99</price>
</book>
<book category="web">
<title lang="en">Learning XML</title>
<author>Erik T. Ray</author>
<year>2003</year>
<price>39.95</price>
</book>
</bookstore>
```

XML Tree Structure:

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

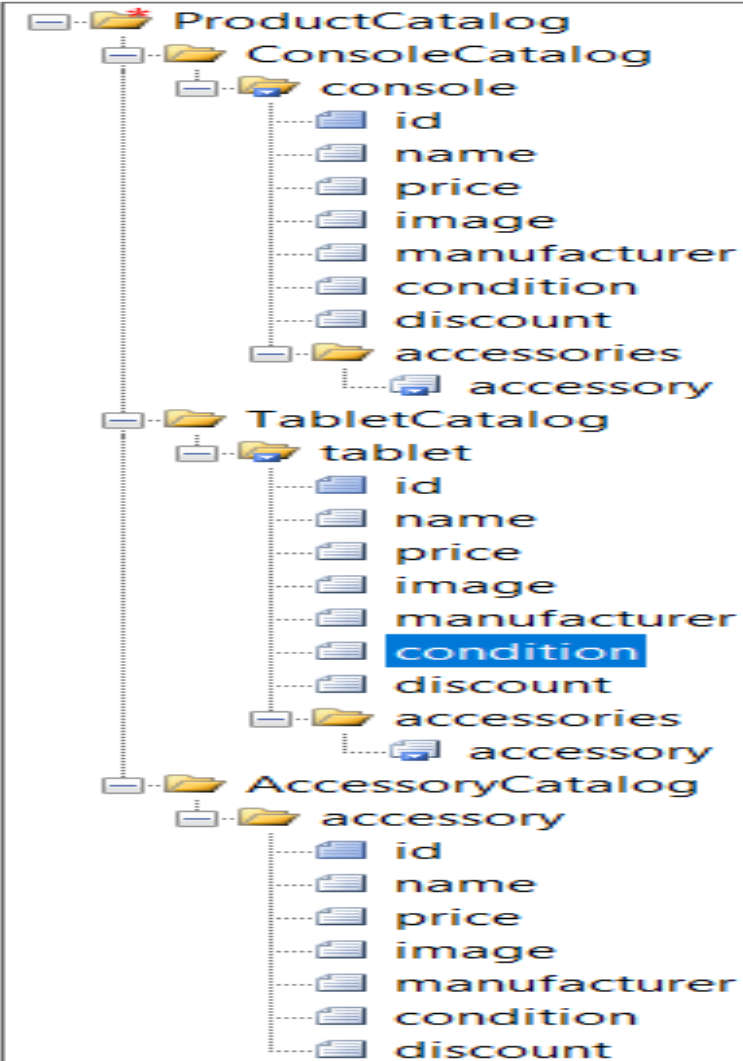Let us Seen an Example of XML Tree Structure of XML Shown Before :
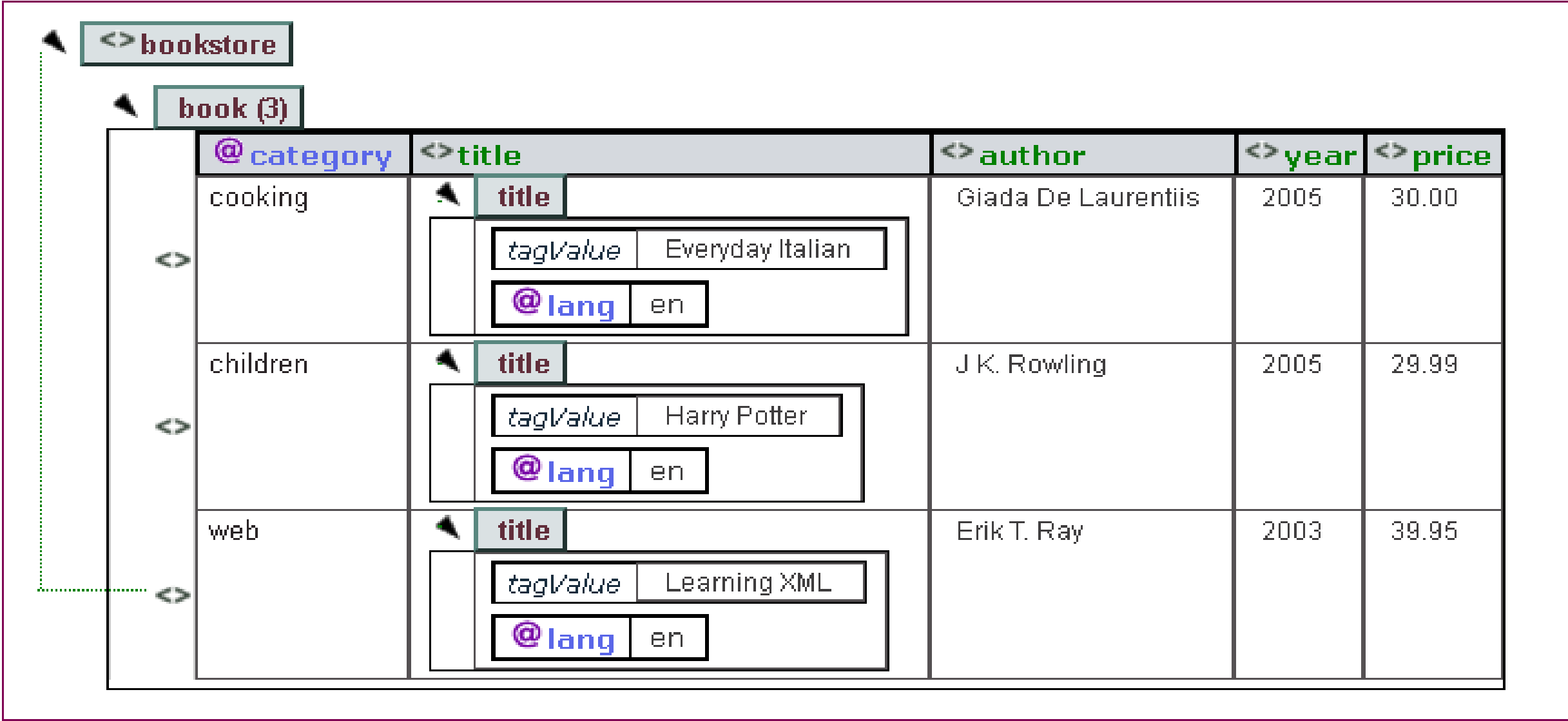
To Learn More about XML Tree , Visit: http://www.w3schools.com/xml/xml_tree.asp

XML Structure for ProductCatalog.xml :

XML Source

XML maps in this workbook:

ProductCatalog_Map

- ProductCatalog
  - ConsoleCatalog
    - console
      - id
      - name
      - price
      - image
      - manufacturer
      - condition
      - discount
      - accessories
        - accessory
  - TabletCatalog
    - tablet
      - id
      - name
      - price
      - image
      - manufacturer
      - condition
      - discount
      - accessories
        - accessory
  - AccessoryCatalog
    - accessory
      - id
      - name
      - price
      - image
      - manufacturer
      - condition
      - discount

ProductCatalog.xml :

```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 :

ProductCatalog

ConsoleCatalog

console (2)

@id	name	price	image	manufacturer	condition	discount	accessories
xboxone	Xbox One	399.99	xbox1.jpg	Microsoft	New	10.0	**accessories** **accessory (2)** xboxone_wc xboxone_sh
ps4	PS4	349.99	PS4-console-bundle.jpg	Sony	New	10.0	**accessories** **accessory** ps4_wc

TabletCatalog

tablet (2)

@id	name	price	image	manufacturer	condition	discount	accessories
ipad	ipad	189.99	ipad.jpg	Apple	Used	40.0	**accessories** **accessory** ipad-ep
Surface	Surface	299.99	surface.jpg	Microsoft	New	15.0	**accessories** **accessory (2)** surf_spkr surf_hp

How Product Data Gets Populated:
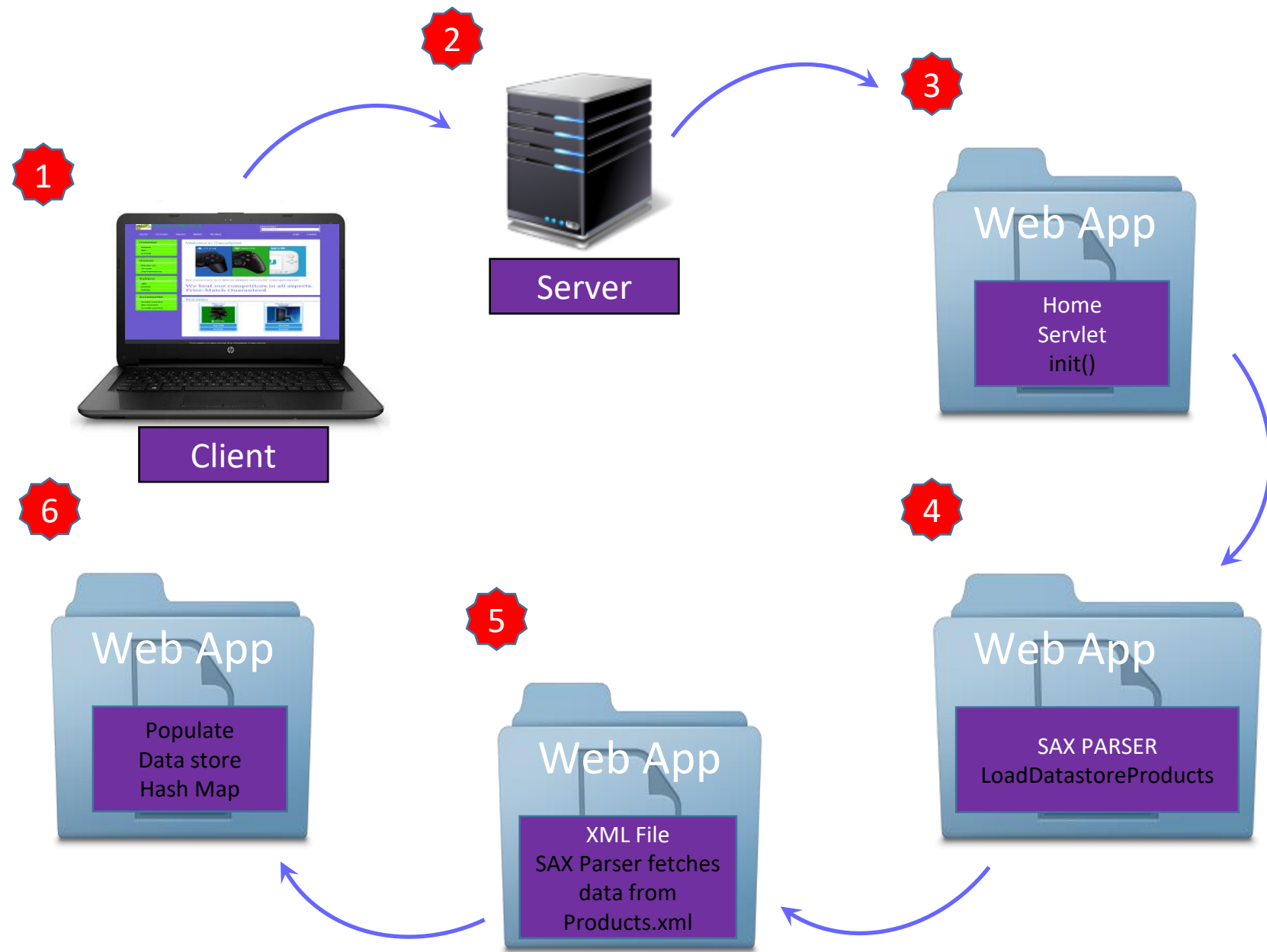
Example – Startup Page:

- Open your browser and type in 'http://localhost:8080/Tutorial_1'
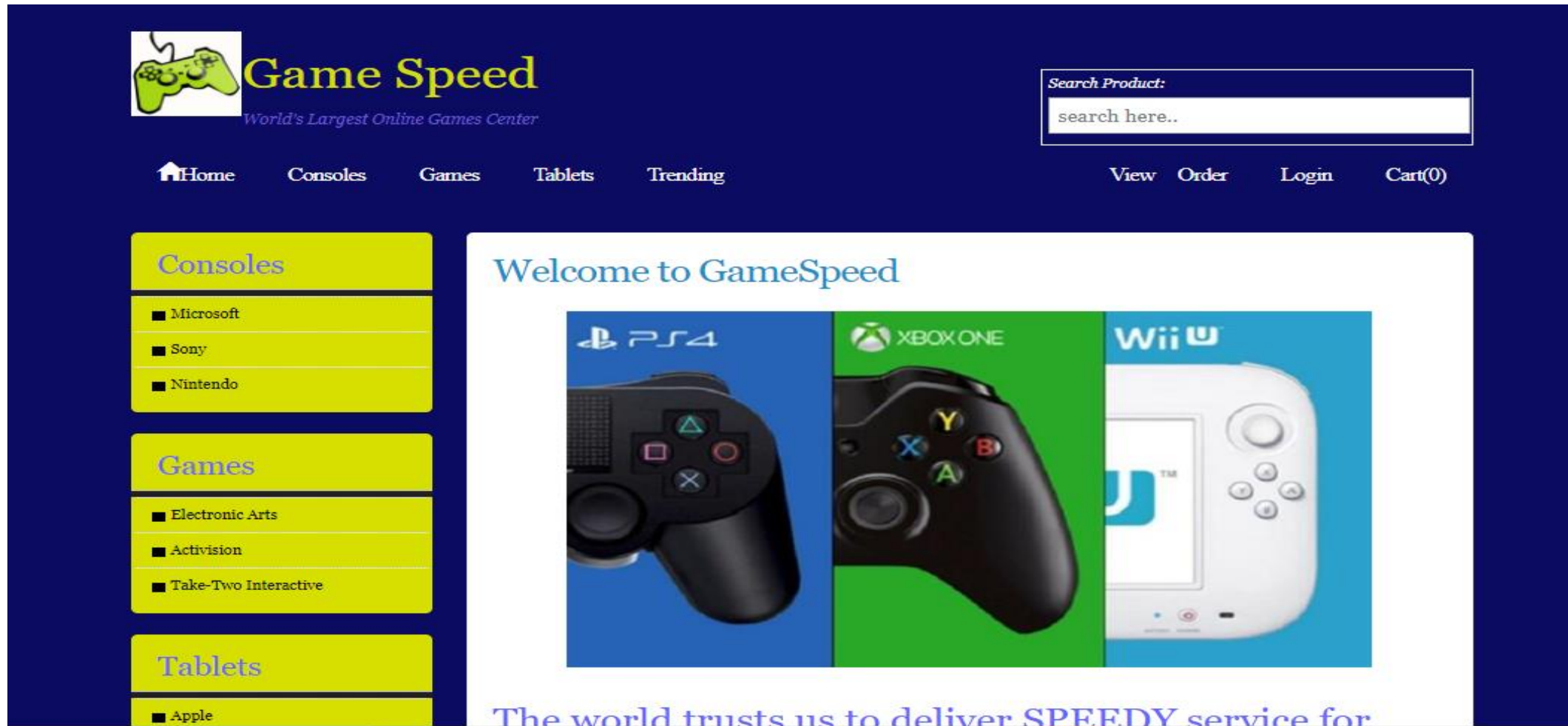
Example – Page Layout:
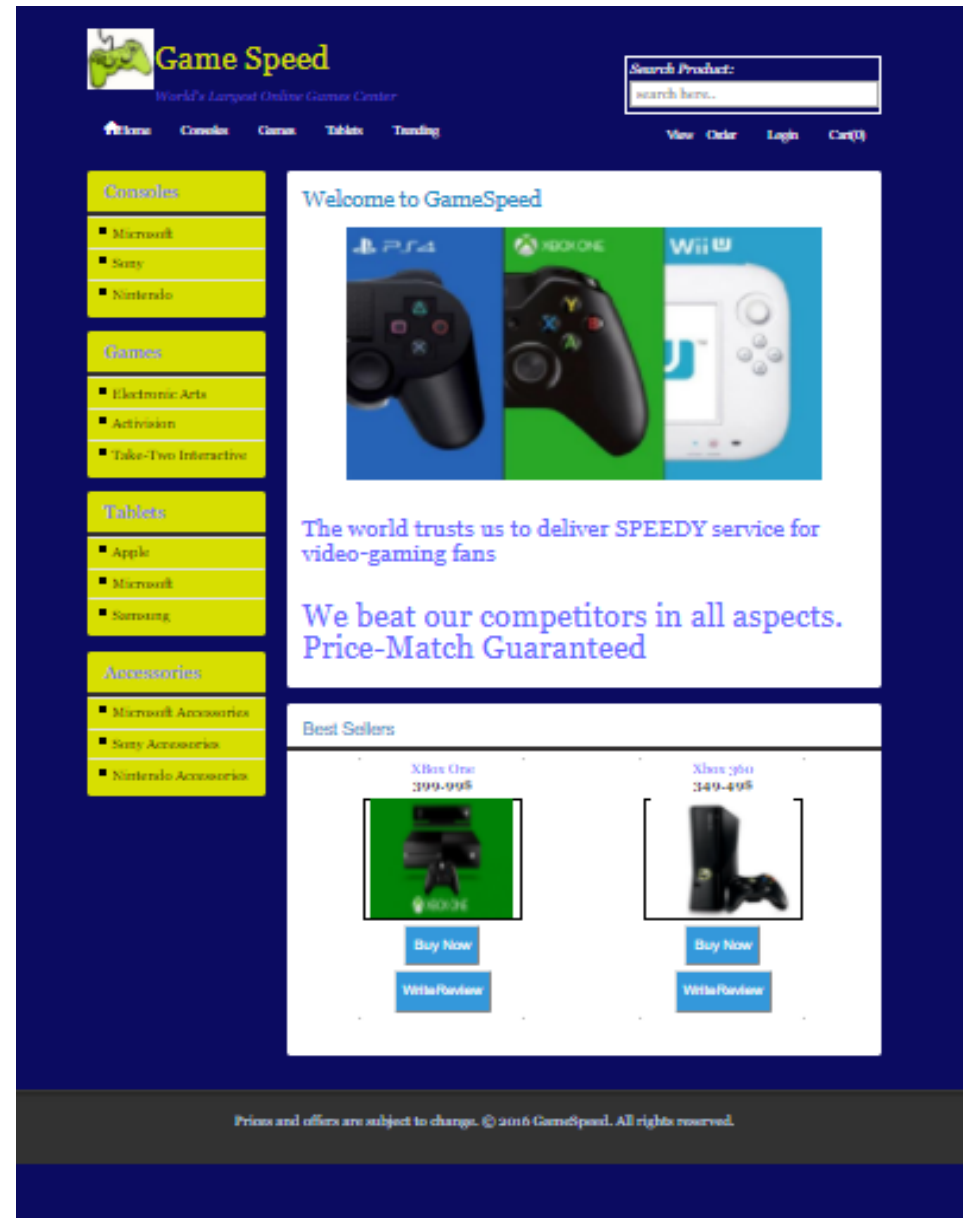
Example – Navigation Bar:

• Click on the products available in the navigation bar

• You can also select the products from the left navigation bar
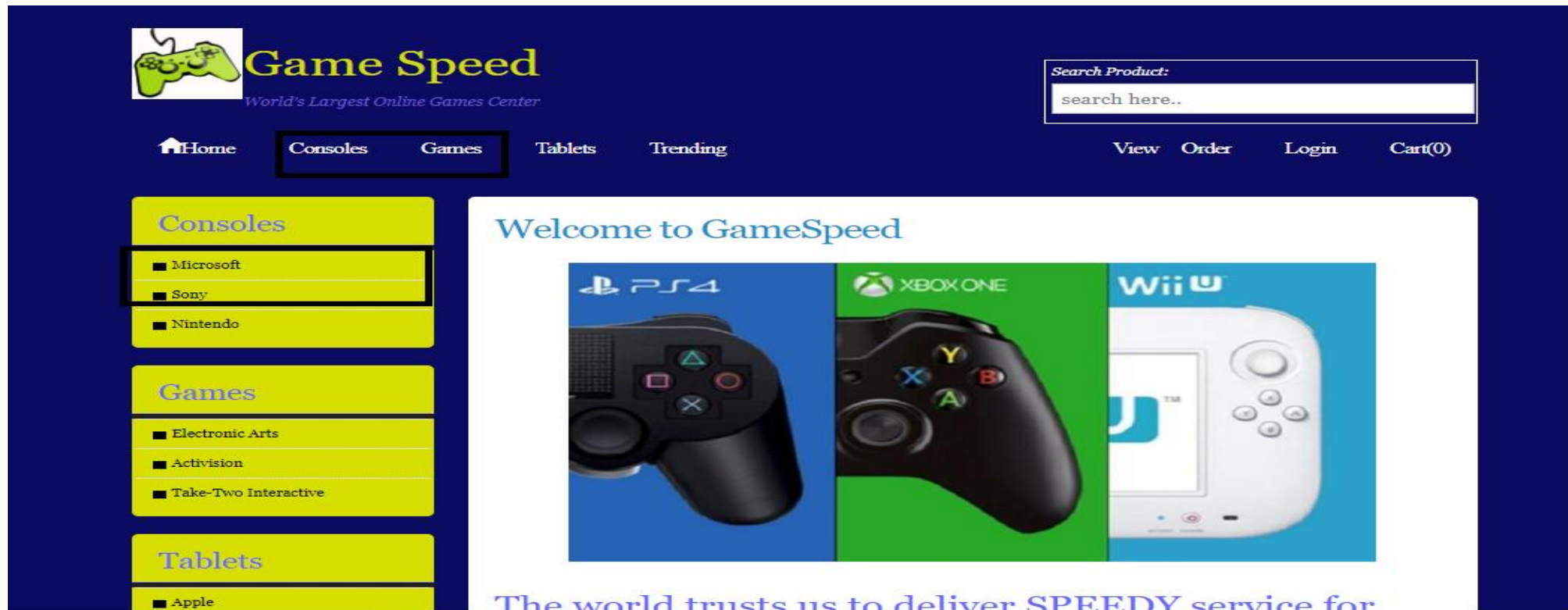
Example – Products Catalog:

- 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.
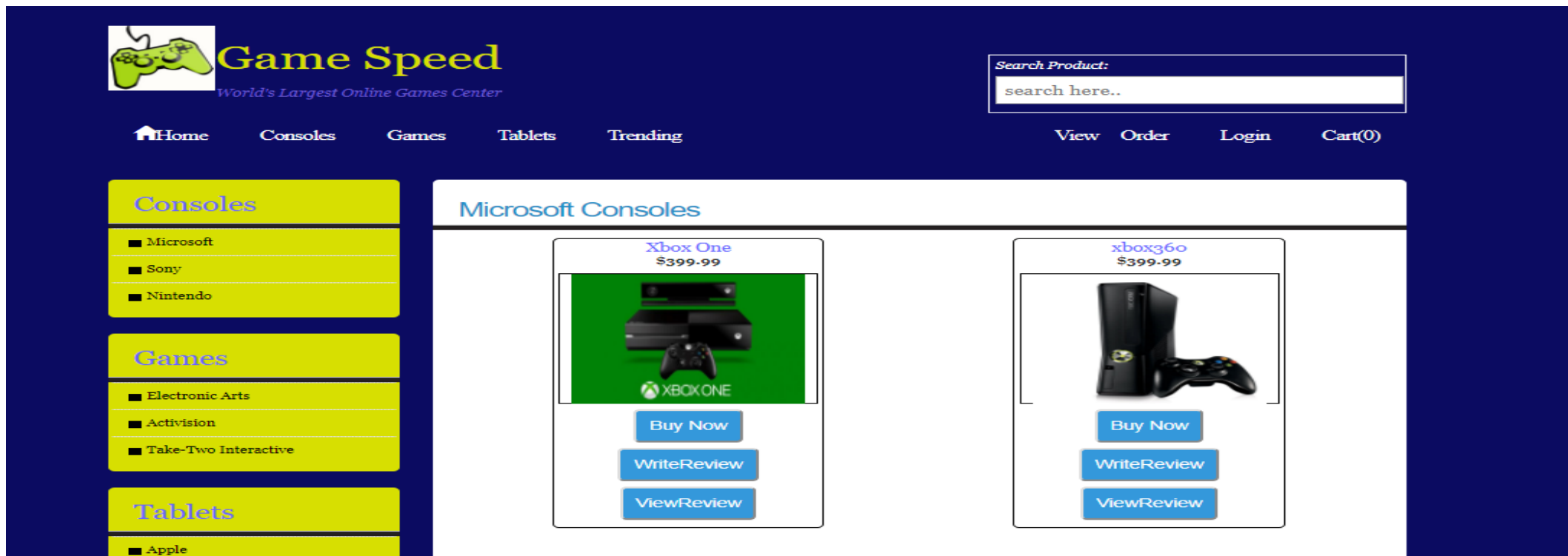
Example – Accessories:

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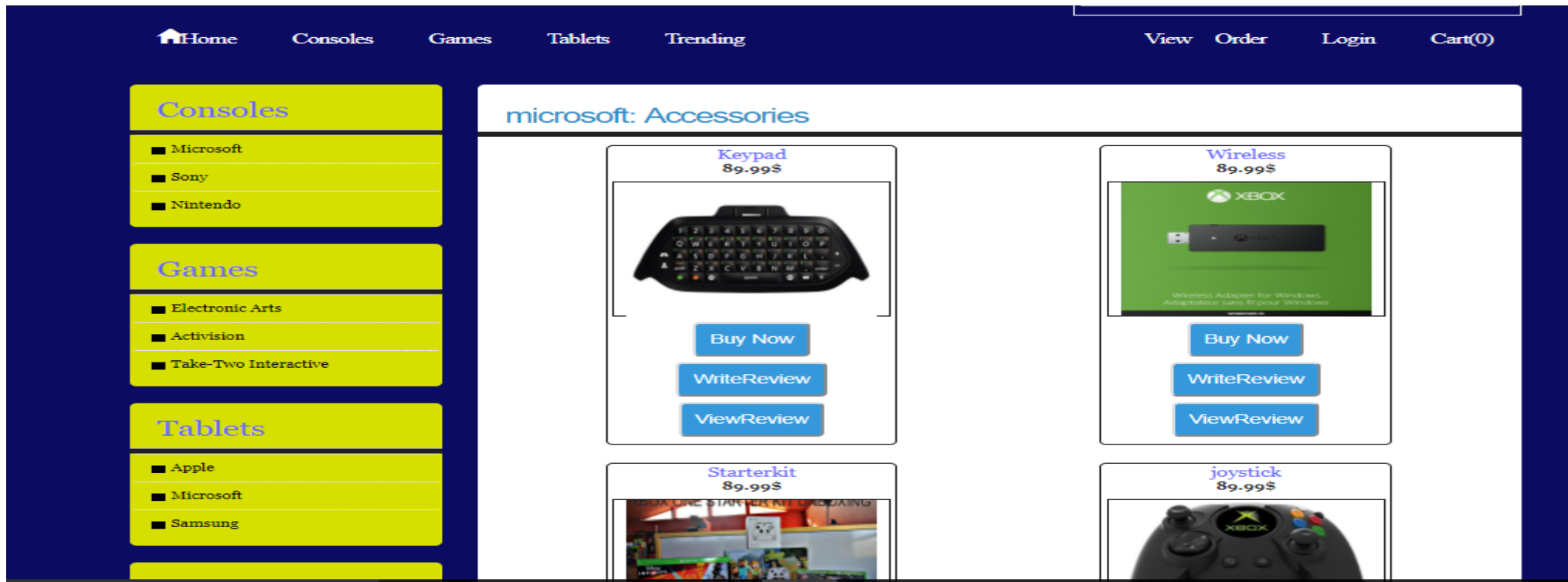
Example – Place Order:

- 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 and all the accessories associated with it will be displayed in the carousel

- Click on 'Check Out' to place the order for the selected product.

Carousel:

Consoles
- Microsoft
- Sony
- Nintendo

Games
- Electronic Arts
- Activision
- Take-Two Interactive

Tablets
- Apple
- Microsoft
- Samsung

Accessories

Cart(1)

1.	Xbox One	: 399.99
	Total	399.99
		CheckOut

Xbox One Accessories

Wireless adpter
89.99$

Buy Now

WriteReview

ViewReview

Controller
89.99$

Buy Now

WriteReview

ViewReview

Customize Carousel:
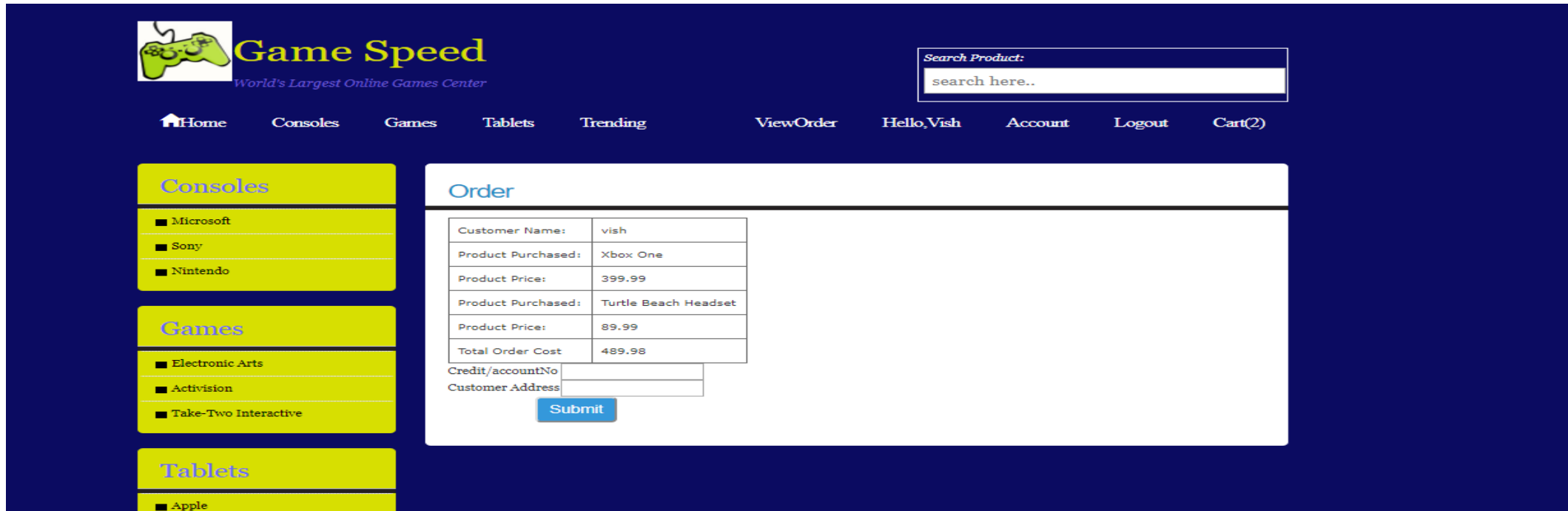
Customize Carousel:

```
    pw.print("<div class='item active'><div class='col-md-6' style = 'background-color: #58acfa;border :1px solid #cfd1d3'>");
}
else
{
    pw.print("<div class='item'><div class='col-md-6' style = 'background-color: #58acfa ;border :1px solid #cfd1d3' >");
}
```

```
rint("<a class='left carousel-control' href='#"+myCarousel+"' data-slide='prev' style = 'width : 10% ;background-color:#D7e4ef; opacity :1'>"+
    "<span class='glyphicon glyphicon-chevron-left' style = 'color :red'></span>"+
    "<span class='sr-only'>Previous</span>"+
    "</a>");
rint("<a class='right carousel-control' href='#"+myCarousel+"' data-slide='next' style = 'width : 10% ;background-color:#D7e4ef; opacity :1'>'
    "<span class='glyphicon glyphicon-chevron-right' style = 'color :red'></span>"+
```

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.
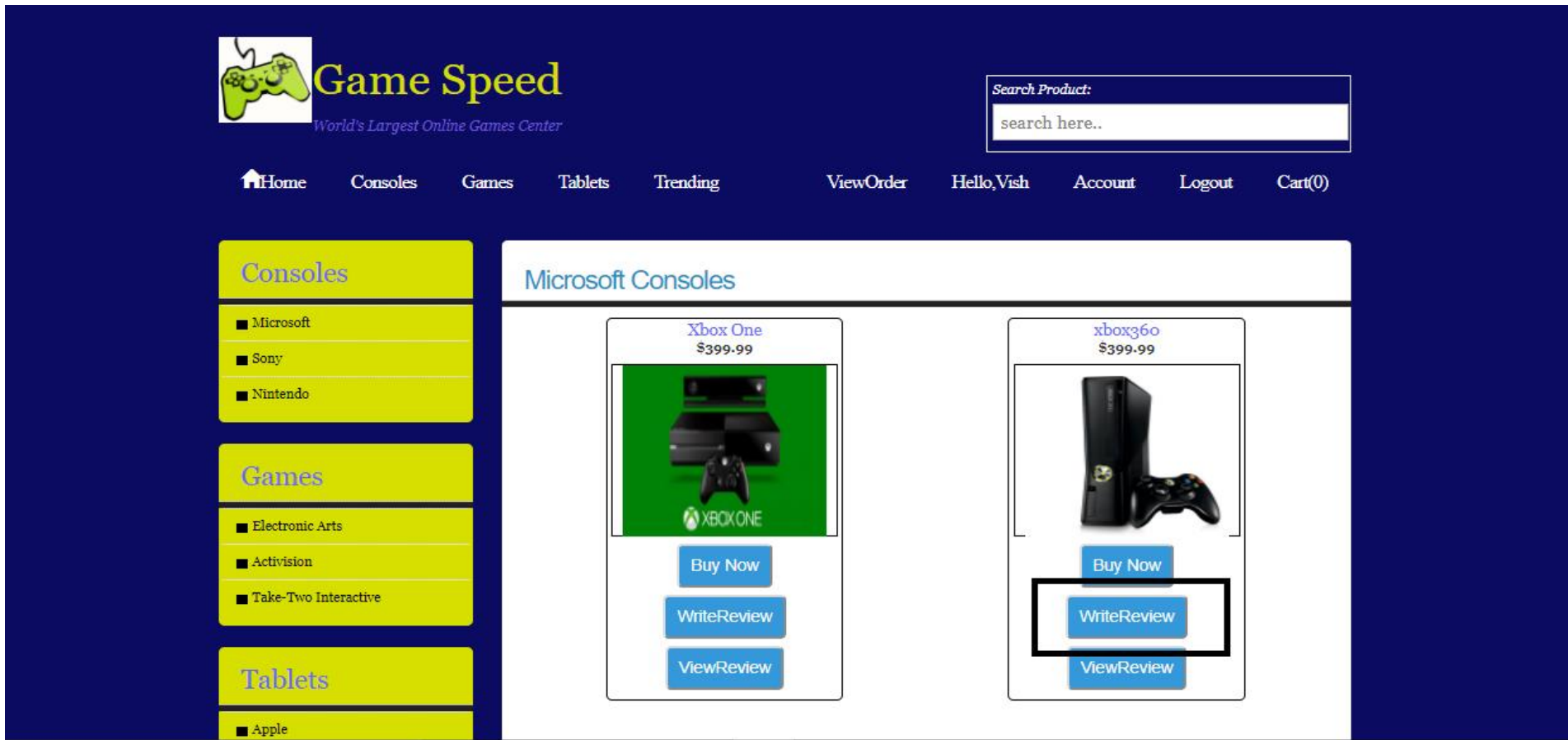
Example – Order Confirmation:

- Order Number is Generated for the Customer Order.
- Customer Order is Stored.
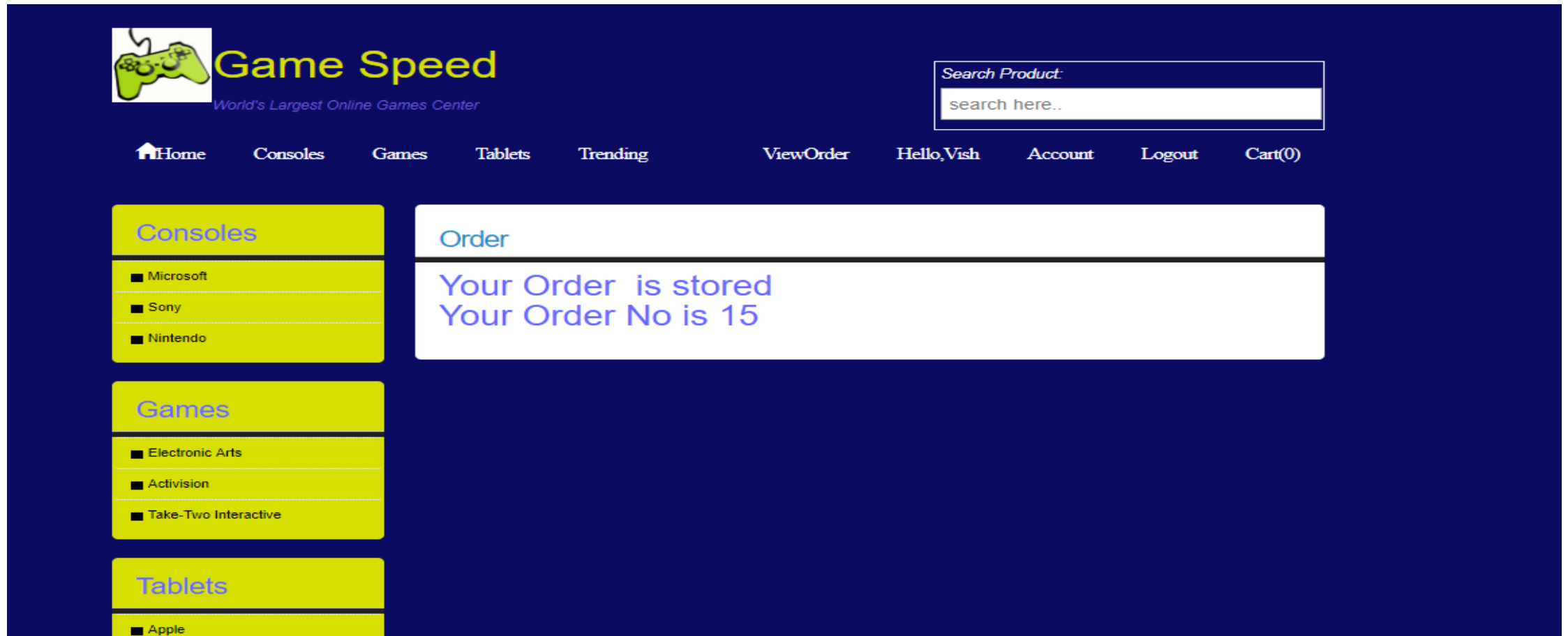
Example – Write Review:

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

Example – Account Tab:

- Account Details of the Customer is Shown.

Example – Logout:

• User Successfully logged out of the Web Application.

Questions?