



Islington college  
(इस्लिंग्टन कॉलेज)

**Module Code & Module Title**

**CS5004NA Emerging Programming Platforms and Technologies**

**Assessment Weightage & Type**

**50% Individual Coursework**

**Year and Semester**

**2019-20 Spring**

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**Assignment Due Date: June 3**

**Assignment Submission Date: June 3**

**Title: Develop a system for Online used vehicle**

*I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline in order for my assignment to be accepted and marked.*

*I am fully aware that late submissions will be treated as non-submission and a marks of zero will be awarded.*

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## Introduction

We were given a coursework to develop a system for an online used vehicle shop on 26<sup>th</sup> week and expected us to submit on June 3. While doing this coursework we use various technologies like XML, Schema, CSS, visual Studio etc. To validate all this XML and Schema we used website name XMLvalidation.com.

XML Stands for eXtensible Markup Language which is similar to the HTML which is designed to transport and store data. Unlike HTML XML doesn't have predefined tags. It is designed to be self-descriptive which means that user can define any tag however they like. XML simplifies data sharing by simplifying data transport which give us platform changes and data sharing availability. (W3, 2020)

XML Schema is the language that is used to describe the structure of the XML documents. It is also called XML schema definition (XSD). It is very useful as it is XML based and very much more powerful than DTD. To use Schema, you don't have to know new language as it is very similar to XML and easy to write. There are various tools you can check either the schema you have written is correct or not. Not only that you can auto generate XML schema for XML using various schema generator site which saves our time. (W3, 2020)

CSS stands for Cascading Style Sheets. It is used to describe how the html element will be displayed on the website. CSS is fast and supported by all the browser and devices which is the reason of its wide popularity in web designing field. (w3school, 2020)

## XML content

### Tree Diagram

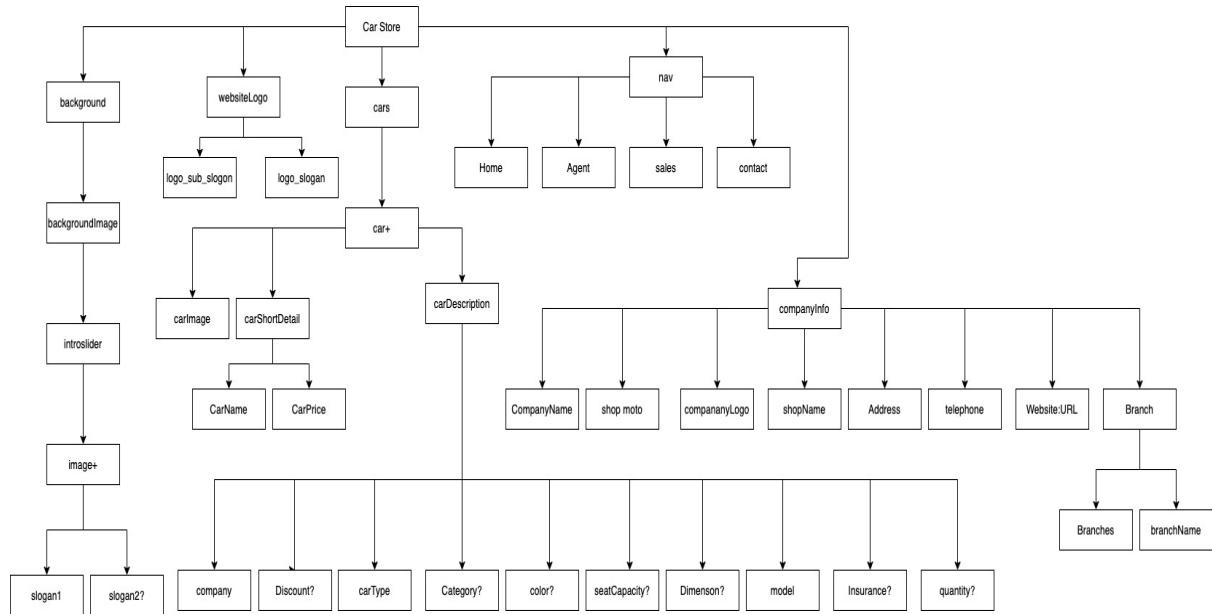


Figure 1 Tree Diagram

### Catalog\_18030046.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/css" href="catalog_18030046.css"?>

<car_store xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
            xsi:noNamespaceSchemaLocation="catalog_18030046.xsd">
    <!-- navigation bar -->
    <nav>
        <websitelogo>
            <logo_slogan id="main_slogan">Pujan Car</logo_slogan>
            <logo_sub_slogan id="sub_slogan">Bringing Best To U</logo_sub_slogan>
        </websitelogo>
        <navelement>
            <home active="true">Home</home>
            <agent>Agent</agent>
            <sales>Sales</sales>
            <contact>Contact</contact>
        </navelement>
    </nav>
    <!-- background image slider -->
    <backgroundImage>
        <intro_slider id="image_slider">
            <image id="image1">
                <slogan1 id="slogan1">Buy Brand new cars in cheap price</slogan1>
                <slogan2 id="slogan2" optional="true">only on pujans car
store</slogan2>
            </image>
        </intro_slider>
    </backgroundImage>
</car_store>
  
```

```
</image>

<image id="image2">
    <slogan1 id="slogan1">Sale Sale Sale</slogan1>
    <slogan2 id="slogan2" optional="true">Upto 40% discount on used
Car</slogan2>
</image>

<image id="image3">
    <slogan1 id="slogan1">A car for everyone</slogan1>
</image>
<image id="image4">
    <slogan1 id="slogan1">Designed for action</slogan1>
</image>
</intro_slider>
</backgroundImage>
<!-- car whole description -->
<cars>

<car name="Lamborghini">
    <car_image id="carimg1"></car_image>
    <carshortdetail>
        <carName>Lamborghini Aventador</carName>
        <price currency="in Rs">Rs.1,00,000</price>
    </carshortdetail>
    <carDesc>
        <companany>Manufacturer: Volkswagen</companany>
        <cartype sound="high">Engine Type: Petrol</cartype>
        <color required="optional">Color: Red,Gray</color>
        <model>Model:Laxuaray</model>
        <seatCapacity required="optional">Seat Capacity: 2</seatCapacity>
    </carDesc>
</car>

<car name="Lamborghini">
    <car_image id="carimg2"></car_image>
    <carshortdetail>
        <carName>Lamborghini Gallardo</carName>
        <price currency="in Rs">Rs.10,00,000</price>
    </carshortdetail>
    <carDesc>
        <companany>Manufacurer: Volkswagen</companany>
        <cartype sound="high">Engine Type: Petrol</cartype>
        <discounts>Discount: 5%</discounts>
        <model required="optional">Model:Racing</model>
        <insurance required="optional">Insurance: Included</insurance>
    </carDesc>
</car>

<car name="Mercedes">
    <car_image id="carimg3"></car_image>
```

```
<carshortdetail>
    <carName>Mercedes GLS</carName>
    <price currency="inRs">Rs.1,00,00,000</price>
</carshortdetail>
<carDesc>
    <companany>Manufacurer: Mercedes-Benz</companany>
    <cartype sound="high">Engine Type: Petrol</cartype>
    <quantity required="optional">Quantity: 5</quantity>
    <model>Model:SUV</model>
    <seatCapacity required="optional">Seat Capacity:4</seatCapacity>
</carDesc>
</car>

<car id="carmargin" name="Ferrari">
    <car_image id="carimg4"></car_image>
    <carshortdetail>
        <carName>Rosso corsar</carName>
        <price currency="inRs">Rs.2,00,00,000</price>
    </carshortdetail>
    <carDesc>
        <companany>Manufacurer: Ferrari</companany>
        <cartype sound="low">Engine Type: Eelectric</cartype>
        <dimension required="optional">Dimension: 5x9x7 inches</dimension>
        <model>Model:Laxuaray</model>
        <seatCapacity required="optional">Seat Capacity: 2</seatCapacity>
    </carDesc>
</car>

<car id="carmargin" name="Audi">
    <car_image id="carimg5"></car_image>
    <carshortdetail>
        <carName>Audi AS3 2020</carName>
        <price currency="inRs">Rs.14,00,000</price>
    </carshortdetail>
    <carDesc>
        <companany>Manufacurer: Audi</companany>
        <cartype sound="mid">Engine Type: Hybrid</cartype>
        <seatCapacity required="optional">Seat Capacity: 4</seatCapacity>
        <model>Model:Sedan</model>
        <category required="optional">Category: Used</category>
    </carDesc>
</car>

<car id="carmargin" name="Kia">
    <car_image id="carimg6"></car_image>
    <carshortdetail>
        <carName>Kia Seltos 2018</carName>
        <price currency="inRs">Rs.20,00,000</price>
    </carshortdetail>
    <carDesc>
        <companany>Manufacurer: Kia</companany>
```

```
<cartype sound="high">Engine Type: Petrol</cartype>
<model>Model: SUV</model>
<discounts required="optional">Discount: 20%</discounts>
<seatCapacity required="optional">Seat Capacity: 6</seatCapacity>
</carDesc>
</car>
</cars>
<!-- company details including address and phone number -->
<CompanyInfo>
    <companyName>Pujan Company</companyName>
    <shopMoto>Best Experience</shopMoto>
    <companyLogo></companyLogo>
    <shopDetails>
        <shopName>PUJAN'S CAR</shopName>
        <address id="fontContact">Address: Pepsicola</address>
        <telephone id="fontContact">PhoneNo:9808384948</telephone>
        <website id="fontContact">Visit us on: www.pujanrajrai.com</website>
        <branch id="fontContact">
            <branches id="fontContact" title="branches">
                Our Branches:
            </branches>

            <branchaddress >Baneswor,Sanothimi, Sanepa, Biratnagar
        </branchaddress>
        </branch>
    </shopDetails>
</CompanyInfo>

</car_store>
```

## Catalog\_18030046.css

```
@import url("https://fonts.googleapis.com/css2?family=Playfair+Display:ital@1&display=swap");
@import url("https://fonts.googleapis.com/css2?family=Open+Sans:ital,wght@1,600&display=swap");
nav{
    background-color: #35363A;
    display: inline-flex;
    height:10.18vh;
    width: 100%;

}
websitelogo{
    background-color:#202124;
    display: inline-block;
    height: 10.18vh;
    width: 47.5vh;

}

#main_slogan{
    color: #BDC1C7;
    font-family: 'Playfair Display', serif;
    font-size: 42px;
    margin-left:4vh;

}

#sub_slogan{
    display: block;
    color:#BDC1C7;
    font-size: 14px;
    margin-left:5vh;
}

home{
    display: inline-block;
    text-align: center;
    font-family: 'Open Sans', sans-serif;
    font-size: 26px;
    border-radius: 15px 15px;
    margin-top: 2.6vh;
    margin-left: 63vh;
    background-color: rgb(255,255,255);
    color: #35363A;
    width: 12.5vh;
    height: 5vh;
    border: 2px solid #fff;
```

```
}

agent{
    display: inline-block;
    text-align: center;
    color: #BDC1C7;
    font-family: 'Open Sans', sans-serif;
    width: 12.18vh;
    height: 4.5vh;
    font-size: 26px;
    border: 2px solid #BDC1C7;
    border-radius: 15px 15px;
    margin-top: 0vh;
    margin-left: 2vh;

}

agent:hover {
    background-color: white;
    text-align: center;
    color: #35363A;
    width: 12.5vh;
    height: 5vh;
    transition: height 0.5s;
    transition: width 0.5s;
    border: 2px solid #fff;

}

contact{
    display: inline-block;
    text-align: center;
    color: #BDC1C7;
    font-family: 'Open Sans', sans-serif;
    width: 12.18vh;
    height: 4.5vh;
    font-size: 25px;
    border: 2px solid #BDC1C7;
    border-radius: 15px 15px;
    margin-top: 0vh;
    margin-left: 2vh;

}

contact:hover {
    background-color: white;
    text-align: center;
    color: #35363A;
    width: 12.5vh;
    height: 5vh;
    transition: height 0.5s;
    transition: width 0.5s;
```

```
border: 2px solid #fff;

}

sales{
    display: inline-block;
    text-align: center;
    color: #BDC1C7;
    font-family: 'Open Sans', sans-serif;
    width: 12.18vh;
    height: 4.5vh;
    font-size: 26px;
    border: 2px solid #BDC1C7;
    border-radius: 15px 15px;
    margin-top: 0vh;
    margin-left: 2vh;

}

sales:hover {
    background-color: white;
    text-align: center;
    color: #35363A;
    width: 12.5vh;
    height: 5vh;
    transition: height 1s;
    transition: width 1s;
    border: 2px solid #fff;

}

backgroundImage{
    display: block;
    overflow: hidden;

}

#image_slider{
    display: inline-flex;
    width: 400%;
    height: 743px;
    overflow: hidden;
    animation: slide 15s ease infinite;
}

#image1{
    display: inline-;
    width: 1440px;
    height: 734px;
    border-top: 0.2px solid white;
    background-image: url("image/back1.jpg");
    background-repeat: no-repeat;
    background-size: 1440px 734px;
```

```
}

#image2{
    display: block-flex;
    width: 1440px;
    height: 734px;
    border-top: 0.2px solid white;
    background-image: url("image/back2.jpg");
    background-repeat: no-repeat;
    background-size: 1440px 734px;
}

#image3{
    display: flex;
    width: 1440px;
    height: 734px;
    border-top: 0.2px solid white;
    background-image: url("image/back3.jpg");
    background-repeat: no-repeat;
    background-size: 1440px 734px;
}

#image4{
    display: flex;
    width: 1440px;
    height: 734px;
    border-top: 0.2px solid white;
    background-image: url("image/back4.jpg");
    background-repeat: no-repeat;
    background-size: 1440px 734px;
}

@keyframes slide {
    0% {
        transform: translateX(0%);
    }

    12.5% {
        transform: translateX(0%);
    }

    25% {
        transform: translateX(-25%);
    }

    37.5% {
        transform: translateX(-25%);
    }

    50% {
        transform: translateX(-50%);
    }

    62.5% {
```

```
        transform: translateX(-50%);  
    }  
  
    75% {  
        transform: translateX(-75%);  
    }  
  
    87.5% {  
        transform: translateX(-75%);  
    }  
  
    99% {  
        transform: translateX(-75%);  
    }  
  
    100% {  
        transform: translateX(0);  
    }  
}  
  
#slogan1{  
    display: list-item;  
    font-size: 50px;  
    color: white;  
    margin-top: 630px;  
    margin-left: 40px;  
}  
#slogan2{  
    display: list-item;  
    font-size: 30px;  
    color: white;  
    margin-top: -10px;  
    margin-left: 30px;  
  
}  
  
cars{  
    display: block;  
    background-color: #2E2E2E;  
    width: 100%;  
    height: 800px;  
    margin-top: -9px;  
    /*border: 2px solid pink;*/  
}  
  
car {  
    display: inline-block;  
    border: 2px solid #202124;  
    background-color: #A0A0A0;
```

```
width: 335px;
height: 220px;
margin-top: 60px;
margin-left: 110px;
border-radius: 10px;
position: relative;
/*overflow: hidden;*/

}

car:hover{
    background-color: #E8E8E8;
    /*background-color: #202124;*/
    height: 417px;
    width: 340px;
    visibility: visible;
    display: inline-block;
    margin-bottom: 140px;
    color: #202124;
    border: 3px solid #202124;
    /*overflow: hidden;*/


}

car:hover carshortdetail{
    visibility: visible;
    color:#202124;
    border: none;
    border-bottom: 3px solid white;
    overflow:hidden;

}

car:hover carDesc{
    visibility: visible;
    color:#202124;
    overflow: hidden;

}

car_image{
    display: block;
    height: 110px;
    width: 330px;
    margin-top: 10px;
}

#carimg1{
    background-image: url("image/car1.png");
```

```
background-size: 330px 130px;
background-repeat: no-repeat;

}

#carimg2{

background-image: url("image/car2.png");
background-size: 330px 130px;
background-repeat: no-repeat;

}

#carimg3{

background-image: url("image/car3.png");
background-size: 330px 110px;
background-repeat: no-repeat;

}

#carimg4{
background-image: url("image/car4.png");
background-size: 330px 130px;
background-repeat: no-repeat;
}

#carimg5{
background-image: url("image/car5.png");
background-size: 320px 110px;
background-repeat: no-repeat;
}

#carimg6{
background-image: url("image/car6.png");
background-size: 320px 130px;
background-repeat: no-repeat;
}

carshortdetail{
color: white;
font-size: 30px;
display: block;
font-size: 33px;
text-align: center;
margin-top: 3px;
width: 329px;
height: 88px;
border: 3px solid white;

}

carDesc{

display: block;
text-align: center;
font-size: 25px;
```

```
height: 200px;
width: 330px;
color: white;
visibility: hidden;
font-size: 20px;

}

#carmargin{
    display: inline-block;
    top:-160px;
}/*
#carmargin:hover{
    top:100px;
}*/
companany,cartype,itemNumber,model,seatCapacity,color,dimension,quantity,discounts,i
nsurance,category{
    margin-top: 10px;
    font-size: 25px;
    display: block;
    border-bottom: 1px solid white;
}

CompanyInfo{
    display: block;
    width: 100%;
    color: white;
    height: 40vh;
    background-color:#202124;
}

companyName{
    display: inline-block;
    width: 180px;
    height: 85px;
    float: right;
    border:4px solid white;
    font-size: 32px;
    text-align: center;
    margin-top: 24px;
    margin-right: 30px;
}

shopMoto{
    display: inline-block;
    width: 180px;
    height: 85px;
    float: left;
    border:4px solid white;
    font-size: 32px;
    text-align: center;
    margin-top: 24px;
}
```

```
        margin-left: 30px;
    }

companyLogo{

    display: inline-flex;
    width: 250px;
    height: 120px;
    float: center;
    border: 2px solid white;
    background-image: url("image/logo.png");
    background-repeat: no-repeat;
    background-size: 230px 100px;
    border-radius: 50%;
    margin-left: 350px;
    margin-top: 20px;

}

shopDetails{
    margin-top: 10px;
    display: block;
    width: 300px;
    height: 160px;
    border: 4px solid white;
    text-align: center;
    font-size: 30px;
    margin-left: 553px;
}

shopName{
    display: block;
}

#fontContact{
    display: block;
    font-size: 20px;
}

branchaddress{
    display: list-item;
    font-size: 16px;
    margin-left: 30px;
    margin-right: 10px;
}
```

## Schema Content

### Catalog\_18030046.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xsschema xmlns:xss="http://www.w3.org/2001/XMLSchema">
    <!-- navigation validation-->
    <xselement name="nav">
        <xsccomplexType>
            <xsssequence>
                <xselement ref="websitelogo"/>
                <xselement ref="navelement"/>
            </xsssequence>
        </xsccomplexType>
    </xselement>

    <xselement name="websitelogo">
        <xsccomplexType>
            <xsssequence>
                <xselement ref="logo_slogan"/>
                <xselement ref="logo_sub_slogan"/>
            </xsssequence>
        </xsccomplexType>
    </xselement>

    <xselement name="logo_slogan">
        <xsccomplexType>
            <xssimpleContent>
                <xsextension base="xs:string">
                    <xsoattribute type="xs:string" name="id"/>
                </xsextension>
            </xssimpleContent>
        </xsccomplexType>
    </xselement>

    <xselement name="logo_sub_slogan">
        <xsccomplexType>
            <xssimpleContent>
                <xsextension base="xs:string">
                    <xsoattribute type="xs:string" name="id"/>
                </xsextension>
            </xssimpleContent>
        </xsccomplexType>
    </xselement>

    <xselement name="navelement">
        <xsccomplexType>
            <xsssequence>
                <xselement ref="home"/>
                <xselement ref="agent"/>
                <xselement ref="sales"/>
                <xselement ref="contact"/>
            </xsssequence>
        </xsccomplexType>
    </xselement>

```

```
</xs:sequence>
</xs:complexType>
</xs:element>

<xs:element name="home">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="active"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
<xs:element name="agent" type="xs:string"/>
<xs:element name="sales" type="xs:string"/>
<xs:element name="contact" type="xs:string"/>

<!-- background image slider start -->

<xs:element name="backgroundImage">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="intro_slider"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>

<xs:element name="intro_slider">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="image" maxOccurs="unbounded" minOccurs="0"/>
    </xs:sequence>
    <xs:attribute type="xs:string" name="id"/>
  </xs:complexType>
</xs:element>

<xs:element name="image">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="slogan1"/>
      <xs:element ref="slogan2" minOccurs="0"/>
    </xs:sequence>
    <xs:attribute type="xs:string" name="id" use="optional"/>
  </xs:complexType>
</xs:element>

<xs:element name="slogan1">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="id" use="optional"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
```

```
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:element name="slogan2">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="id" use="optional"/>
        <xs:attribute type="xs:string" name="optional" use="optional"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

<xs:element name="cars">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="car" maxOccurs="unbounded" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>

<xs:element name="car">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="car_image"/>
      <xs:element ref="carshortdetail"/>
      <xs:element ref="carDesc"/>
    </xs:sequence>
    <xs:attribute type="xs:string" name="name" use="optional"/>
    <xs:attribute type="xs:string" name="id" use="optional"/>
  </xs:complexType>
</xs:element>

<xs:element name="car_image">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="id" use="optional"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

<xs:element name="carshortdetail">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="carName" type="xs:string"/>
      <xs:element ref="price"/>
```

```
</xs:sequence>
</xs:complexType>
</xs:element>

<xs:element name="price">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="currency" use="optional"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

<xs:element name="carDesc">
  <xs:complexType>
    <xs:choice maxOccurs="unbounded" minOccurs="0">
      <xs:element name="companany" type="xs:string"/>
      <xs:element ref="cartype"/>
      <xs:element ref="color"/>
      <xs:element ref="discounts"/>
      <xs:element ref="quantity"/>
      <xs:element ref="dimenson"/>
      <xs:element ref="model"/>
      <xs:element ref="seatCapacity"/>
      <xs:element ref="insurance"/>
      <xs:element ref="category"/>
    </xs:choice>
  </xs:complexType>
</xs:element>

<xs:element name="cartype">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="sound" use="optional"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
<xs:element name="color">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="required"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
<xs:element name="model">
```

```
<xs:complexType>
  <xs:simpleContent>
    <xs:extension base="xs:string">
      <xs:attribute type="xs:string" name="required" use="optional"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:element name="seatCapacity">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="required" use="optional"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

<xs:element name="discounts">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="required" use="optional"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

<xs:element name="insurance">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="required"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

<xs:element name="quantity">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="required"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

<xs:element name="dimension">
```

```
<xs:complexType>
<xs:simpleContent>
    <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="required"/>
    </xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>

<xs:element name="category">
<xs:complexType>
<xs:simpleContent>
    <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="required"/>
    </xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>

<xs:element name="CompanyInfo">
<xs:complexType>
<xs:sequence>
    <xs:element name="companyName" type="xs:string"/>
<xs:element name="shopMoto" type="xs:string"/>
<xs:element name="companyLogo" type="xs:string"/>
    <xs:element ref="shopDetails"/>
</xs:sequence>
</xs:complexType>
</xs:element>

<xs:element name="shopDetails">
<xs:complexType>
<xs:sequence>
    <xs:element name="shopName" type="xs:string"/>
    <xs:element ref="address"/>
    <xs:element ref="telephone"/>
    <xs:element ref="website"/>
    <xs:element ref="branch"/>
</xs:sequence>
</xs:complexType>
</xs:element>

<xs:element name="address">
<xs:complexType>
<xs:simpleContent>
    <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="id"/>
    </xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
```

```
<xs:element name="telephone">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="id"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

<xs:element name="website">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="id"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

<xs:element name="branch">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="branches"/>
      <xs:element name="branchaddress" type="xs:string"/>
    </xs:sequence>
    <xs:attribute type="xs:string" name="id"/>
  </xs:complexType>
</xs:element>

<xs:element name="branches">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="id"/>
        <xs:attribute type="xs:string" name="title"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

</xs:schema>
```

## Testing

### Testing 1

Test No:1	XML validation
Action Performed	XML file was uploaded in <a href="http://xmlvalidation.com/">http://xmlvalidation.com/</a>
Expected Output	No error will be shown
Actual Output	No error display
Result	Successful

Table 1 Testing 1

# Validate an XML file

Read here how to validate your XML files (including referenced DTDs) online with just a few mouse clicks.

No errors were found

The following files have been uploaded so far:

XML document: 

Figure 2 Test1 XML validation

## Testing 2

Test No:2	Schema validation
Action Performed	XSD file was uploaded in <a href="http://xmlvalidation.com">http://xmlvalidation.com</a>
Expected output	No error will be shown
Actual output	No error shown
Result	Successful

Table 2 Testing2

# Validate an XML file

Read here how to [validate your XML files \(including referenced DTDs\)](#) online with just a few mouse clicks.

**No errors were found**

The following files have been uploaded so far:

[XML document:](#)

[catalog\\_18030046.xsd](#)

Click on any file name if you want to edit the file.

Figure 3 Test1 xsdl validation

### Testing 3

Test No:3	Design check
Action Performed	XML file was loaded in google chrome browser
Expected output	XML file successfully run without error and excepted CSS design will be displayed
Actual output	XML was successfully loaded in xml and beautiful design was displayed as expected
Result	Successful

Table 3 Testing 3

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CS5004NA

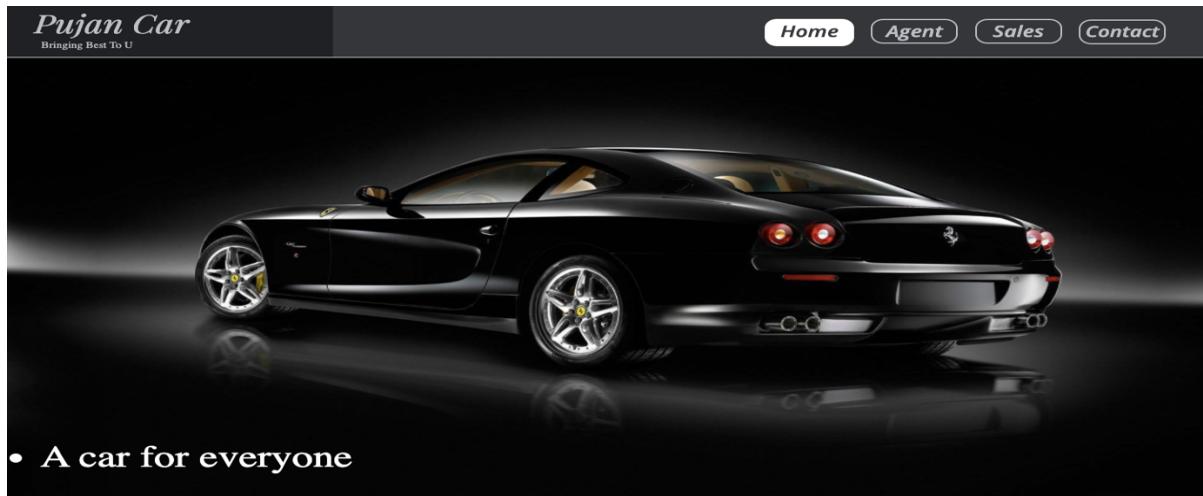


Figure 4 Testing 3 css(i)

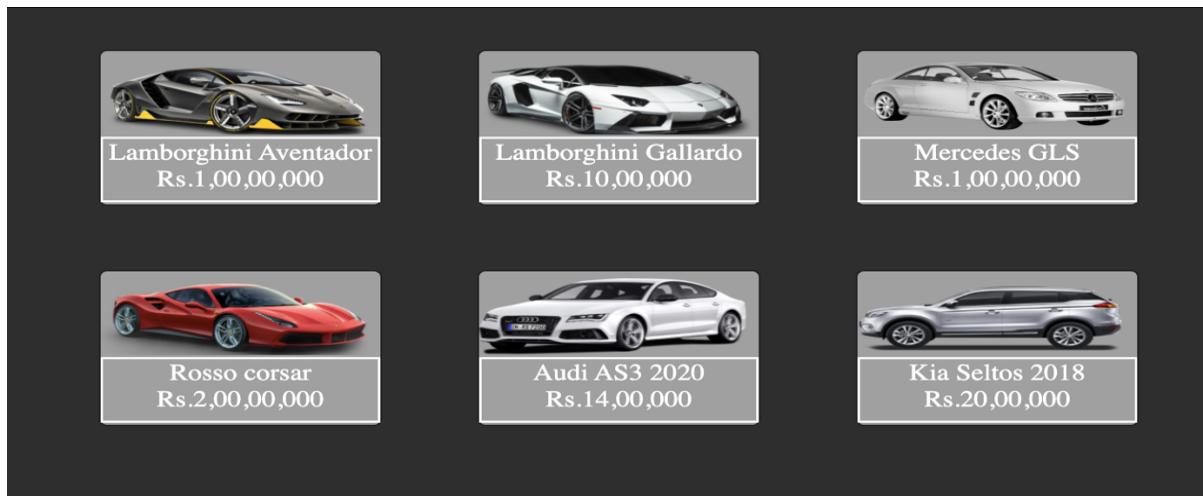


Figure 5 Testing 3 css(ii)



Figure 6 Testing 3 css(iii)

## Testing 4

Test No:4	Background image change animation
Action Performed	XML file was loaded in browser
Expected output	Background image of image slider will change in every 4 second
Actual output	Background Image changed in every 4 second for infinite time
Result	Successful

Table 4 Testing 4

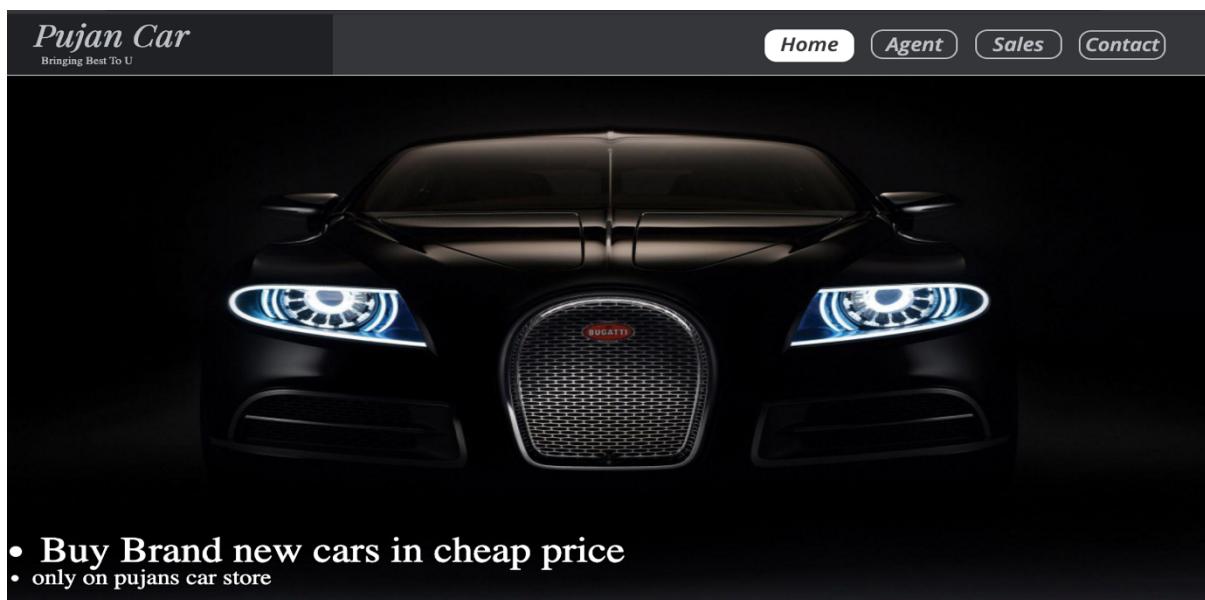


Figure 7 Testing 4 Background Image(i)

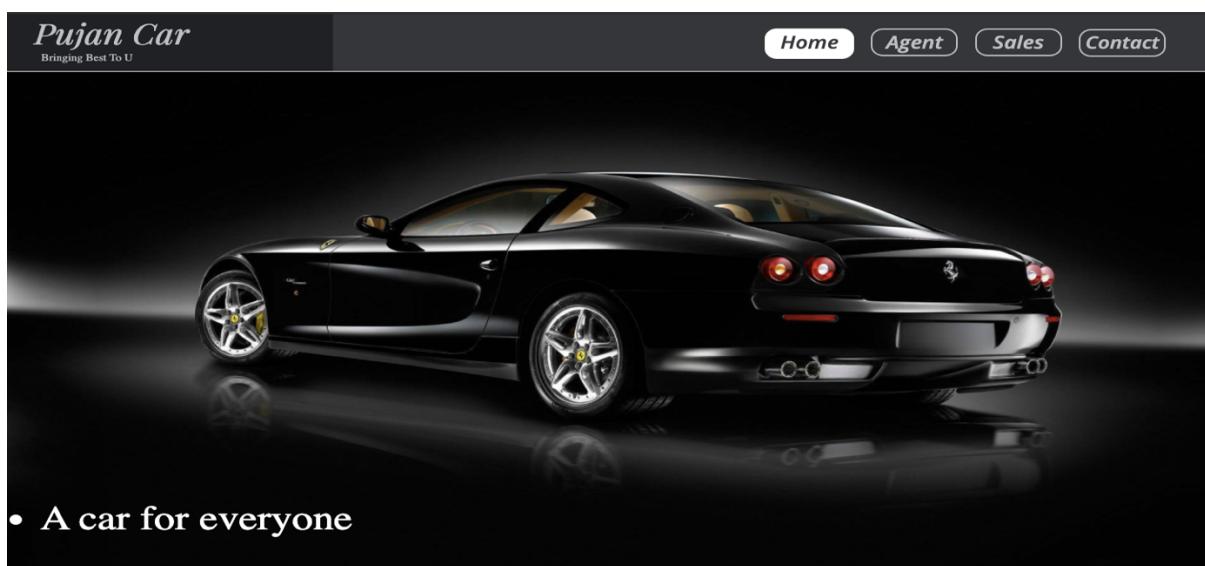


Figure 8 Testing 4 Background Image(ii)

Pujan Raj Rai  
CS5004NA

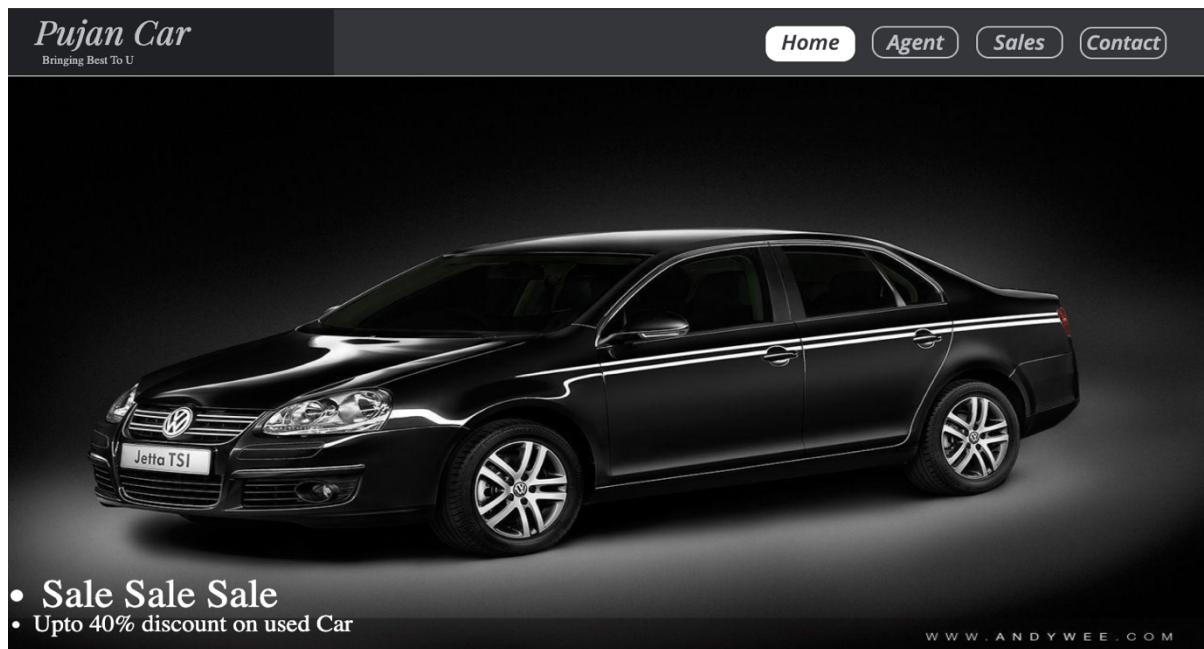


Figure 9 Testing 4 Background Image(iii)

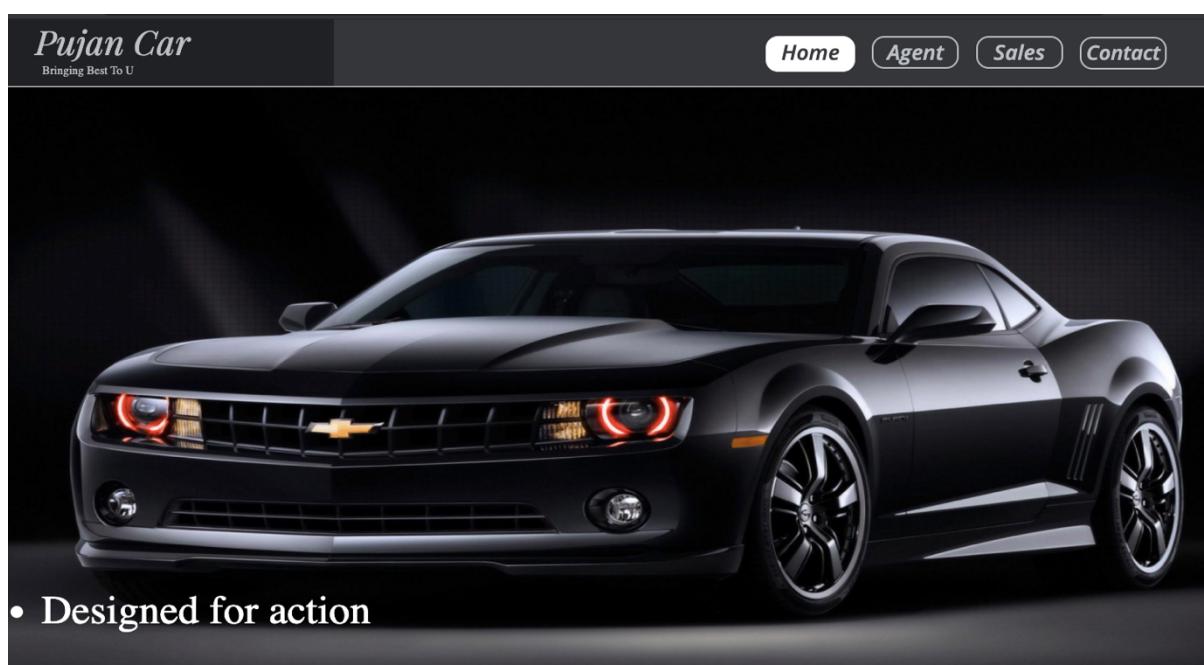


Figure 10 Testing 4 Background Image(iv)

## Testing 5

Test No:5	Hover effect
Action Performed	Mouse cursor hover on div
Expected output	Div size will increase and shows us additional information
Actual output	Div size increased on hover and additional information was displayed
Result	Successful

Table 5 Testing 5

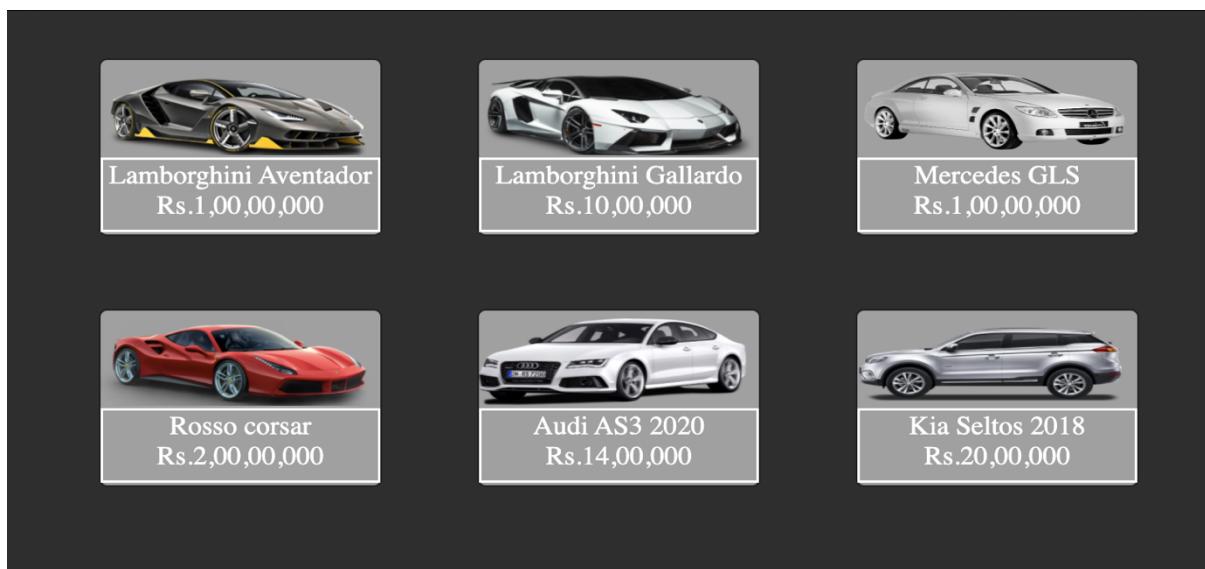


Figure 11 testing 5 Before hover

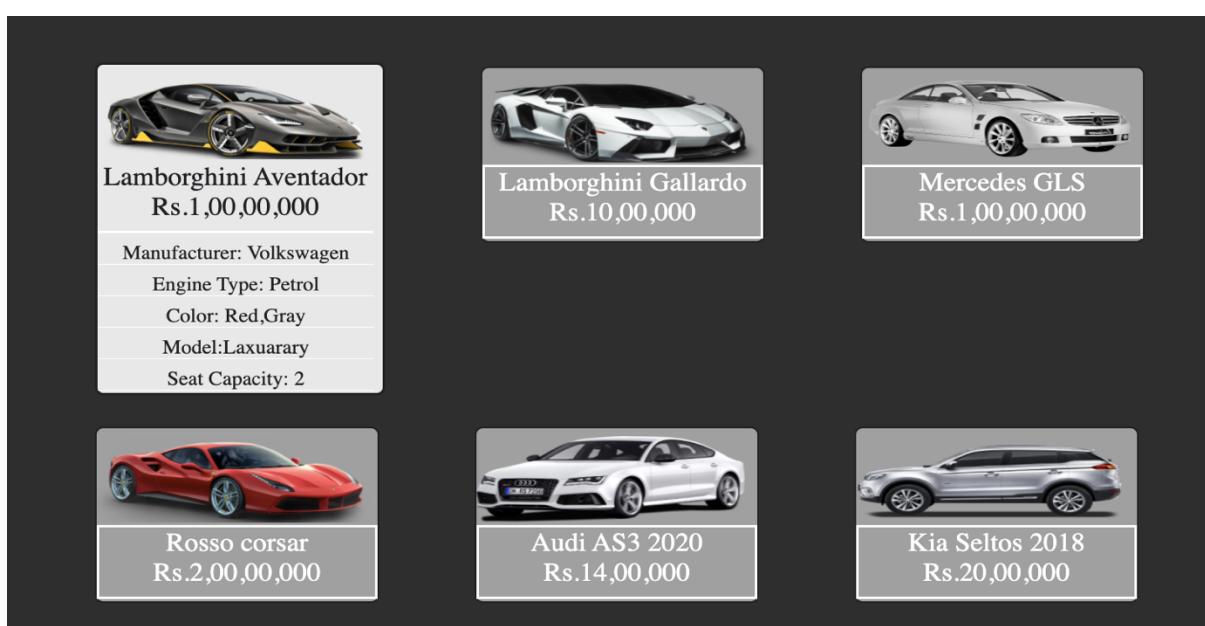


Figure 12 testing 5 after hover

## **Limitation of DTD and CSS**

### **CSS and its limitation:**

CSS stands for Cascading Style Sheets. It is used to describe how the html element will be displayed on the website. CSS is fast and supported by all the browser and devices which is the reason of its wide popularity in web designing field. (w3school, 2020) Despite of the simple, easy and ea use there are some limitation of CSS which are listed below:

- Logical operation i.e. if/else or loops or +/- can't be performed by CSS
- CSS cannot interact with any type of database
- Requesting any webpage is not possible with
- Complex dynamic interactions are not possible only with the help of CSS
- CSS only support rectangle element
- CSS cannot store variables.

(BIQ, 2019)

### **DTD and its limitation:**

DTD Stands for Document Type Definition which is defines the structure, legal elements and attributes of XML files. DDT is specially used to verify that xml data is valid or not. DDT can be declared in two ways external and internal.

(W3, 2020) Some of the limitation of DDT are listed below:

- DTD does not support namespaces.
- DTD does not itself use an XML notation.
- DTD cannot constrain character data.
- The attribute types of DDT are too restricted in size
- DDT Element and attribute declarations are entirely context insensitive
- The content model lacks an interleaving operator.
- DTD lacks data type. DTD only supports 10 Data types.
- An internal DTD overrides the external DTD.

(a2zsubjects, 2020)

## Critical Evolution

During the process of completion of the coursework many challenges and problems raised. Due to the covid-19 virus whole world went lockdown and we were unable to meet with our friends and teachers which caused difficult in solving coursework problem. But eventually we became familiar with the online classes and most of the problem occurred while doing the coursework was solved there by teacher.

Naming the elements and attributes were the first challenge I faced in the beginning. And then I named the elements and attributes in such a way that anyone having little knowledge about the documentation will know what is inside. One of the most important and challenging things was to style the xml using CSS. Styling each xml element and producing attractive and desirable output was very difficult. After a lot of research and by doing hit and trial attractive design was gain. Developing the schema for xml document was a bit troublesome job we had to define all the properties datatype and the rules in it. Various optional and mandatory data field were made and either the element is reputative or not was also defined.

Finally, after a lot of research and with the help of teachers and friends the coursework was completed on the given time.

## Conclusion

After doing a lot of research, reading xml documentation, lecture slides, watching many tutorial videos I finally overcome all the difficulties and completed my coursework.

After the completion of the coursework I concluded myself that XML is very useful and has wide application. It is widely used by the various programs and devices to handle, store, structure, display and transmit data. B2B data exchanges is its one of the best features which is widely in used. XML is also the standard for Office file formats, including Microsoft Office and Google Docs files. The main feature of xml is it stores data in plain text format the storage is independent of platform and we can export, import or simply move data more easily. While doing this coursework I came to know that various technologies has changed the world. During this pandemic the sharing of data is in the highest pick in the history of internet so with the help of this kind of technologies data can be reduce which will help us in the faster and reliable data transmission.

At last I would like to thank all of teacher, friends and seniors who helped doing this coursework. I would also like college administrative for continuing our classes during this pandemic. In the end I would also like to thank all the IT person because of which we now are able to learn things from home being online.

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