LONDON METROPOLITAN UNIVERSITY

Islington college
(इस्लिङ्टन कलेज)

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, 2020

Assignment Submission Date: June 3, 2020

Title: Online used Vehicle Shop

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.

Acknowledgement

Working on this project “Online Used Vehicle Shop” was a source of immense knowledge and value for the IT student who have to be in the development field with the knowledge; this project experience gives an extra confidence in our performance.

I have taken efforts in this project. It would not have been possible to complete this project properly without the kind support and help of module leaders, tutors and lab teachers. I would like to extend my sincere thanks to all of them.

I would like express my sincere gratitude to our module leader Mr. Dhruba Sen sir for his guidance and valuable support. I am highly thankful to our tutor Mr. Prithvi Maharjan sir for his guidance and constant supervision as well as for providing necessary information regarding the project and also for his support in completing the project.

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1. Introduction

"XML stands for "Extensible Markup Language". It is a markup language that defines a rule for encoding documents in a format that is both machine and human readable. XML design goal focuses on generality, simplicity and usability across the internet. XML is designed to store and transport data and to be self-descriptive. XML is a textual data format with strong support via Unicode for different human languages. The language is widely used for the representation of arbitrary data structure such as those used in web services although the design of XML focuses on documents." (GeeksforGeeks, 2020)

"CSS stands for "Cascading Style Sheets". CSS can be used for adding style and displaying information to an XML document. The whole XML document can be formatted using CSS." (javatpoint, 2020)

For this coursework, we are required to use our knowledge on Emerging Programming Platforms and Technologies to analyse the requirement of modeling a system for an online used vehicle shop as an XML developer. The coursework contains a basic concept in XML (Extensible Markup Language), XML schema, and CSS (Cascading Style Sheets).

As per the requirement of the coursework, a system for online used vehicle shop was modeled named "Steals n' Deals". To model this system, Visual Studio Code was used. All the details of vehicle shop are included in the system. This system gives the detail information about the cars. The system will help the users to learn about different brands of car in detail and more easily.

The task assigned was not easy. Modeling a system for an online used vehicle shop was a little tough task. So, realizing the toughness of the task, this project was started with a great determination, efforts and hard work.

The main aim of this project was to model a detailed overview of the system for online used vehicle shop. To carry out all the given tasks in coursework with in the given time, completing all the tasks of the coursework in the proper way and meeting the criteria of the task was the objective of this project. In order to accomplish the major aims and objectives of this projects lots of research and study was needed to be done

on relevant topics. Having Knowledge about related topics and modules was must for carrying out the major tasks and completing the coursework successfully.

2. XML Content

2.1. Tree Diagram

"An XML document is always descriptive. Tree diagram is often referred as XML tree. It plays an important role to describe any XML document easily. Tree diagram contains elements, child elements and so on. All succeeding branches and sub-branches starting from the root can be known by using tree diagram. The parsing starts at the root then moves down the first branch to an element. Then take the first branch from there, and so on to the leaf nodes." (tutorialspoint, 2020)

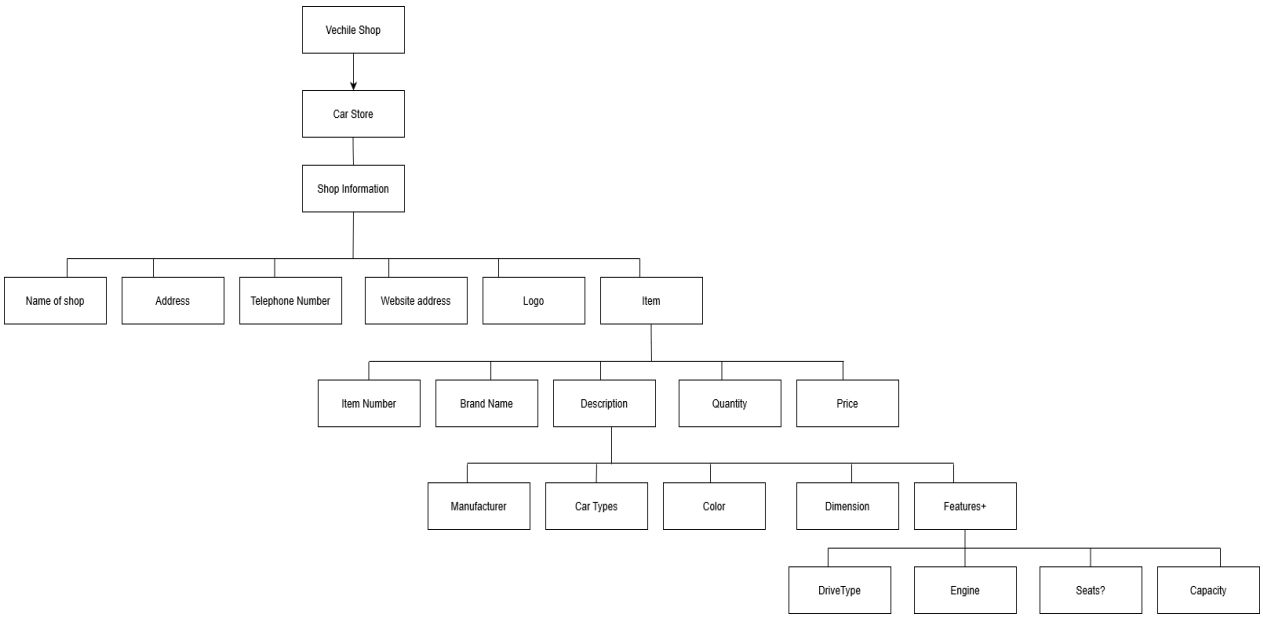

Figure 1 Tree Diagram

2.2. XML Content

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/css" href="catalog_18030006.css"?>
<CarStore>
    <ShopInformation>
        <NameofShop>Name: Steals n' Deals</NameofShop>
        <ShopAddress>Address: Lazimpat,Kathmandu</ShopAddress>
        <TelephoneNumber>Phone No: 1124-8675-2436</TelephoneNumber>
            <WebsiteAddress>E-
mail: Steals n'deals11@gmail.com</WebsiteAddress>
            <Logo xmlns:xs="http://www.w3.org/2001/XMLSchema">
            </Logo>
                <Item>
                    <ItemNumber>ItemNumber: 01</ItemNumber>
                    <CarImg id="Img1"/>
                    <BrandName>BrandName: Acura RDX</BrandName>
                    <Quantity>Quantity: 4</Quantity>
                    <Price>Price: $40,000</Price>
                    <Description>
                    Description of Car
                        <Manufacturer>Manufacturer: American Honda Mo
tor Co., Inc</Manufacturer>
                        <CarTypes>Electric</CarTypes>
                        <Color>Color: Basque Red Pearl li</Color>
                        <Dimension>Dimension: The 2012 Acura RDX offe
rs sharp handeling at an appealing price tag,but other small luxury cro
ssovers will likely prove more desirable overall. Acura RDX SUV offers
the following pros like sporty handling, compelling performance, well-
eqquiped, relatively low price tag. Acura RDX SUV drwabacks are firm ri
de, lacks a certain luxury exterior and feel, missing some top-
end luxury features.</Dimension>
                        <Features>
                        Features of Car
                            <DriveType> DriveType: All wheel drive</D
riveType>
                            <Engine>Engine: 240-hp, 2.3-liter I-
4 (premium)</Engine>
                            <Seats>Seats: 5</Seats>
                            <Capacity>Capacity: 1500 lbs</Capacity>
                        </Features>
                    </Description>
                </Item>
                <Item>
                    <ItemNumber>ItemNumber: 02</ItemNumber>
```

```
                    <CarImg id="Img2"/>
                    <BrandName>BrandName: Lamborghini Huracan</BrandName>
                    <Quantity>Quantity: 2</Quantity>
                    <Price>Price: $250,000</Price>
                    <Description>
                     Description of Car
                        <Manufacturer>Manufacturer: Ferruccio Lamborghini</Manufacturer>
                        <CarTypes>Fuel</CarTypes>
                        <Color>Color: Verde Mantis</Color>
                        <Dimension>Dimension: Lamborghini Huracan dimensions 4520 mm in length, 1933 mm in width and 1165 mm in height, with a wheelbase of 2620 mm, you can also check Lamborghini Huracan dimension converted into CM (centimeter), Inches and feet for all variants of the car.</Dimension>
                        <Features>
                        Features of Car
                            <DriveType> DriveType: All wheel drive</DriveType>
                            <Engine>Engine: 11.24 kmpl, 90-liter</Engine>
                            <Seats>Seats: 2</Seats>
                            <Capacity>Capacity: 4520mm</Capacity>
                        </Features>
                    </Description>
                </Item>
                <Item>
                    <ItemNumber>ItemNumber: 03</ItemNumber>
                    <CarImg id="Img3"/>
                    <BrandName>BrandName: Mercedes-Benz CLA</BrandName>
                    <Quantity>Quantity: 2</Quantity>
                    <Price>Price: $54,000</Price>
                    <Description>
                     Description of Car
                        <Manufacturer>Manufacturer: Mercedes-Benz</Manufacturer>
                        <CarTypes>Fuel</CarTypes>
                        <Color>Color: Polar Silver</Color>
                        <Dimension>Dimension: Mercedes-Benz CLA dimensions 4630 mm in length, 1777 mm in width and 1432 mm in height, with a wheelbase of 2699 mm, you can also check Mercedes-Benz CLA dimension converted into CM (centimeter), Inches and feet for all variants of the car.</Dimension>
```

```
                        <Features>
                        Features of Car
                            <DriveType> DriveType: All wheel drive</DriveType>
                            <Engine>Engine: 23/33 mpg, 13.5 gal I-4 (premium unleaded)</Engine>
                            <Seats>Seats: 5</Seats>
                            <Capacity>Cargo Capacity: 11.6 cu.ft</Capacity>
                        </Features>
                    </Description>
                </Item>
                <Item>
                    <ItemNumber>ItemNumber: 04</ItemNumber>
                    <CarImg id="Img4"/>
                    <BrandName>BrandName: Porsche 718 Boxster S Specs</BrandName>
                    <Quantity>Quantity: 1</Quantity>
                    <Price>Price: $72,000</Price>
                    <Description>
                     Description of Car
                        <Manufacturer>Manufacturer: Porsche AG</Manufacturer>
                        <CarTypes>Fuel</CarTypes>
                        <Color>Color: Guards Red</Color>
                        <Dimension>Dimension: Porsche 718 Boxster S Specs dimensions 172.4in length, 70.9in Max width, 59.6in Front width, 60.6in Rear width and 50.4in height, with a wheelbase of 97.4in and Ground clearance of 4.3 in.</Dimension>
                        <Features>
                        Features of Car
                            <DriveType> DriveType: Rear wheel drive</DriveType>
                            <Engine>Engine: 21/28 mpg, 214.2 gal (premium unleaded)</Engine>
                            <Seats>Seats: 2</Seats>
                            <Capacity>Capacity: 1500 lbs</Capacity>
                        </Features>
                    </Description>
                </Item>
                <Item>
                    <ItemNumber>ItemNumber: 05</ItemNumber>
                    <CarImg id="Img5"/>
                    <BrandName>BrandName: Maruti Suzuki Swift</BrandName>
```

```
                    <Quantity>Quantity: 5</Quantity>
                    <Price>Price: $15,00</Price>
                    <Description>
                     Description of Car
                        <Manufacturer>Manufacturer: Suzuki Motor Corporation</Manufacturer>
                        <CarTypes>Fuel</CarTypes>
                        <Color>Color: White</Color>
                        <Dimension>Dimension: Maruti Suzuki Swift dimensions 3840 mm in length, 1735 mm in width and 1530 mm in height, with a wheelbase of 2450 mm, you can also check Maruti Suzuki Swift dimension converted into CM (centimeter), Inches and feet for all variants of the car.</Dimension>
                        <Features>
                        Features of Car
                            <DriveType> DriveType: All wheel drive</DriveType>
                            <Engine>Engine: 20/22 KMPL, 214 ltr</Engine>
                            <Seats>Seats: 5</Seats>
                            <Capacity>Capacity: 1500 lbs</Capacity>
                        </Features>
                    </Description>
                </Item>
        </ShopInformation>
    </CarStore>
```

3. Schema Content

"A XML schema is the structural layout of an XML document, expressed in terms of contents and constraints of the document. XML schemas are expressed using DTD (Document Type Definition) language which is native to the XML specification but with a fairly limited capability. XML document can be associated with a schema language, either by markup in the XML document or through some external means." (techopedia, 2012)

```
<xs:schema attributeFormDefault="unqualified" elementFormDefault="qualified" x
mlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="CarStore">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="ShopInformation">
          <xs:complexType>
            <xs:sequence>
              <xs:element type="xs:string" name="NameofShop"/>
              <xs:element type="xs:string" name="ShopAddress"/>
              <xs:element type="xs:string" name="TelephoneNumber"/>
              <xs:element type="xs:string" name="WebsiteAddress"/>
              <xs:element type="xs:string" name="Logo"/>
              <xs:element name="Item" maxOccurs="unbounded" minOccurs="1">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element type="xs:string" name="ItemNumber"/>
                    <xs:element name="CarImg">
                      <xs:complexType>
                        <xs:simpleContent>
                          <xs:extension base="xs:string">
                            <xs:attribute type="xs:string" name="id" use="requ
ired"/>
                          </xs:extension>
                        </xs:simpleContent>
                      </xs:complexType>
                    </xs:element>
                    <xs:element type="xs:string" name="BrandName"/>
                    <xs:element type="xs:string" name="Quantity"/>
                    <xs:element type="xs:string" name="Price"/>
                    <xs:element name="Description">
                      <xs:complexType mixed="true">
                        <xs:sequence>
                          <xs:element type="xs:string" name="Manufacturer"/>
                          <xs:element name="CarTypes">
                            <xs:simpleType>
                              <xs:restriction base="xs:string">
```

```
                            <xs:enumeration value="Electric"/>
                            <xs:enumeration value="Fuel"/>
                            <xs:enumeration value="Hybrid"/>
                          </xs:restriction>
                        </xs:simpleType>
                    </xs:element>
                                <xs:element type="xs:string" name="Color"/>
                                <xs:element type="xs:string" name="Dimension"/>
                                <xs:element name="Features">
                                  <xs:complexType mixed="true">
                                    <xs:sequence>
                                      <xs:element type="xs:string" name="DriveType"/
>
                                      <xs:element type="xs:string" name="Engine"/>
                                      <xs:element name="Seats">
                                        <xs:complexType>
                                          <xs:simpleContent>
                                            <xs:extension base="xs:string">
                                              <xs:attribute type="xs:string" name="S
eats" use="optional"/>
                                            </xs:extension>
                                          </xs:simpleContent>
                                        </xs:complexType>
                                      </xs:element>
                                      <xs:element type="xs:string" name="Capacity"/>
                                    </xs:sequence>
                                  </xs:complexType>
                                </xs:element>
                              </xs:sequence>
                            </xs:complexType>
                          </xs:element>
                        </xs:sequence>
                      </xs:complexType>
                    </xs:element>
                  </xs:sequence>
                </xs:complexType>
              </xs:element>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

4. Testing (Including screenshot- at least 5)

Testing is a very important part in the coursework. Testing is done to detect the failures of an application so that it can be corrected. The required testing done for this project are listed below;

a. Testing no. 1

To check in google chrome whether the XML is running or not

This testing was done to check whether the XML file is running in the google chrome or not. The expected result was that the XML file shall run with design that was created using CSS. The actual result was that XML file did run with the correct design created. Testing was done successfully.

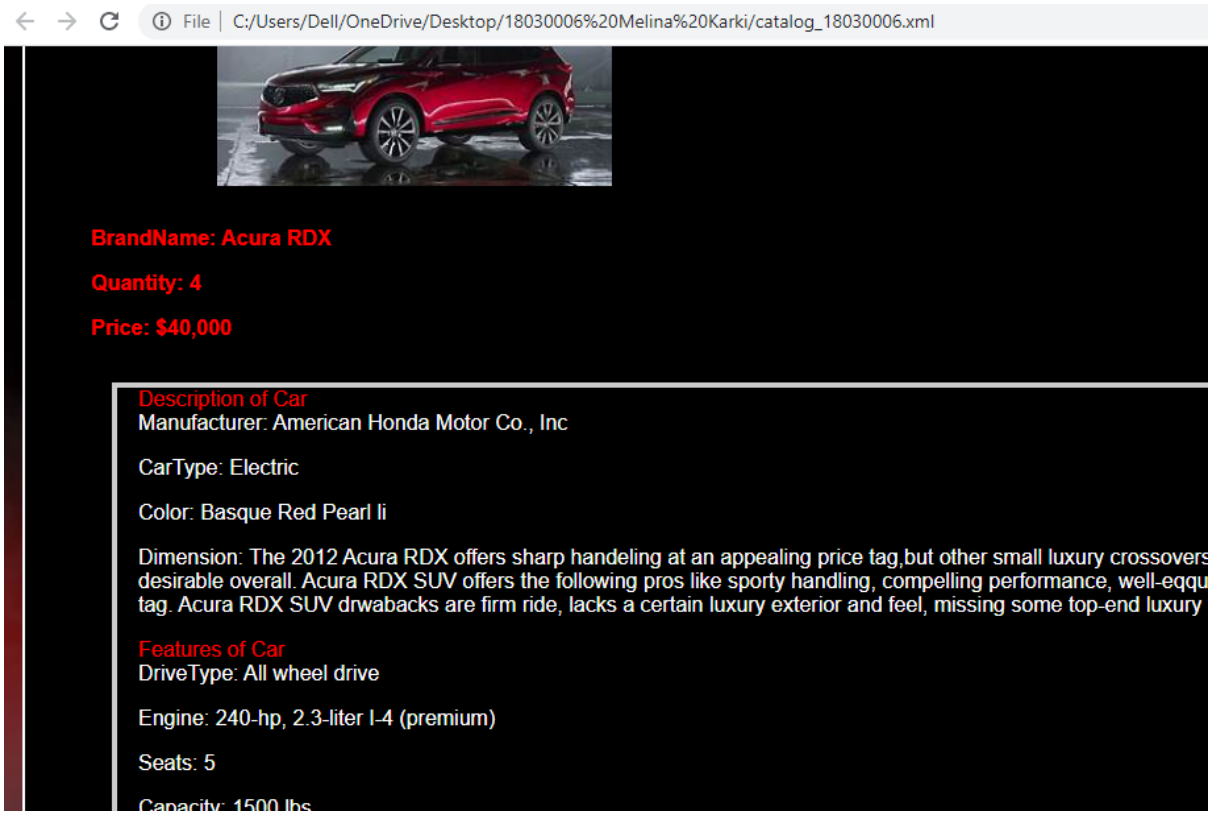

Figure 2 Testing no. 1

b. Testing no. 2

To validate an XML file along with schema

This testing was done to check the validation of XML file along with schema. The expected result was that no errors should be found. The actual result was no errors were found which concluded that the testing was successful.

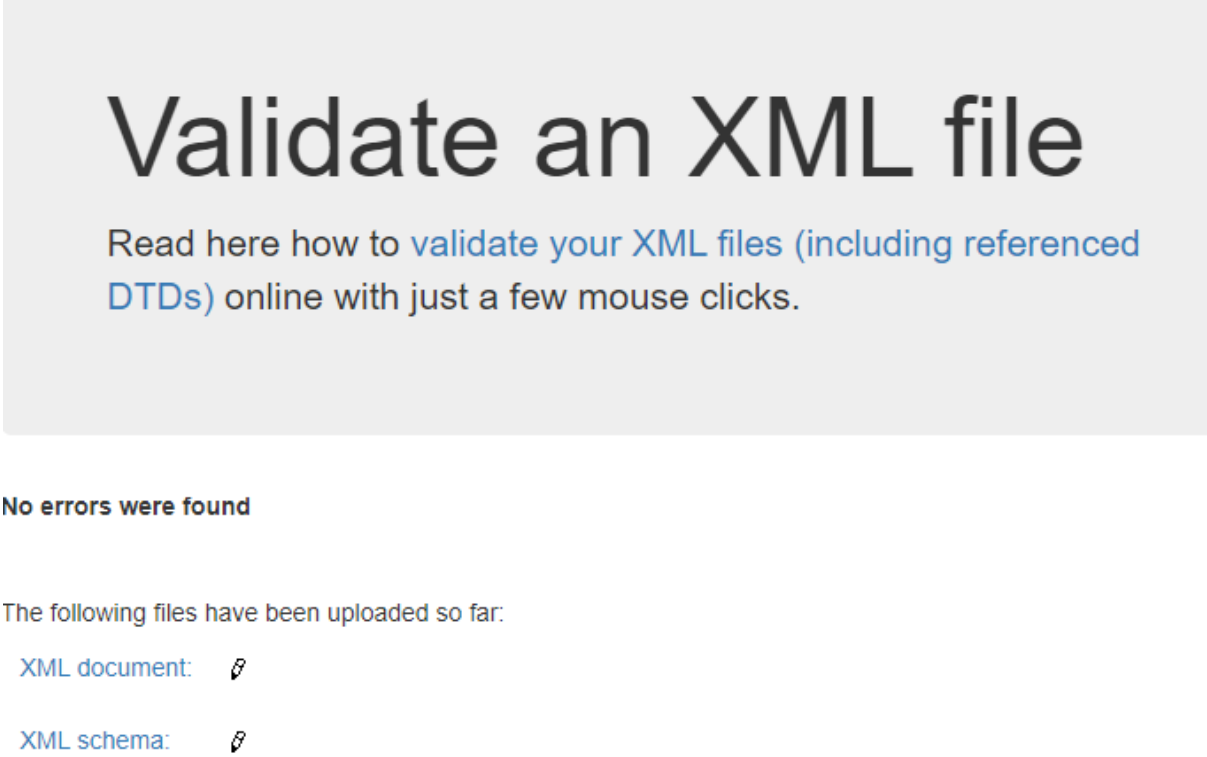

Figure 3 Testing no. 2

c. Testing no. 3

Create a List

This testing was done to check whether the list is created or not. The expected result was that list should be created. The actual result was that list was created and the testing was successful.

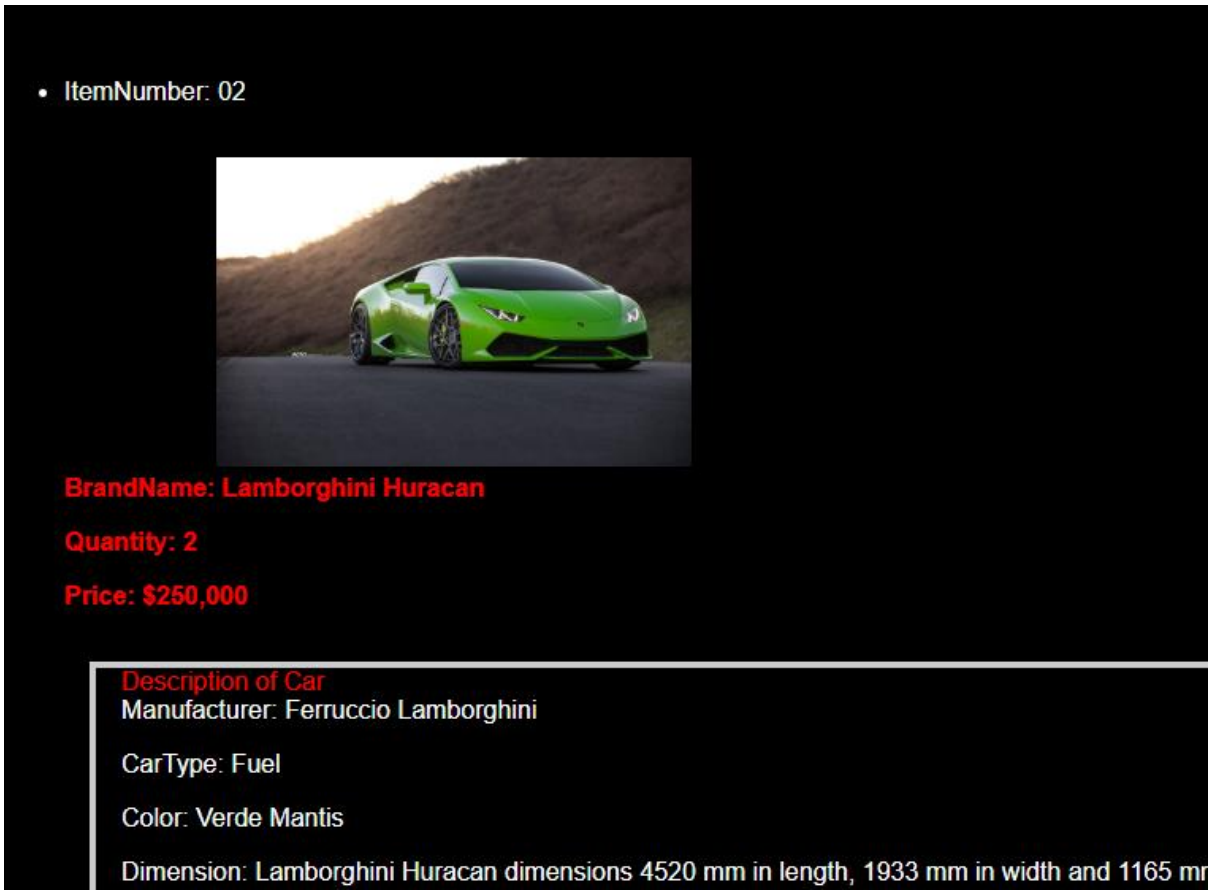

Figure 4 Testing no. 3

d. Testing no. 4

Create at least one border

This testing was done to check whether the border is created or not. The expected result was that border should be created. The actual result was border was created as asked in the question. The testing was done successfully.

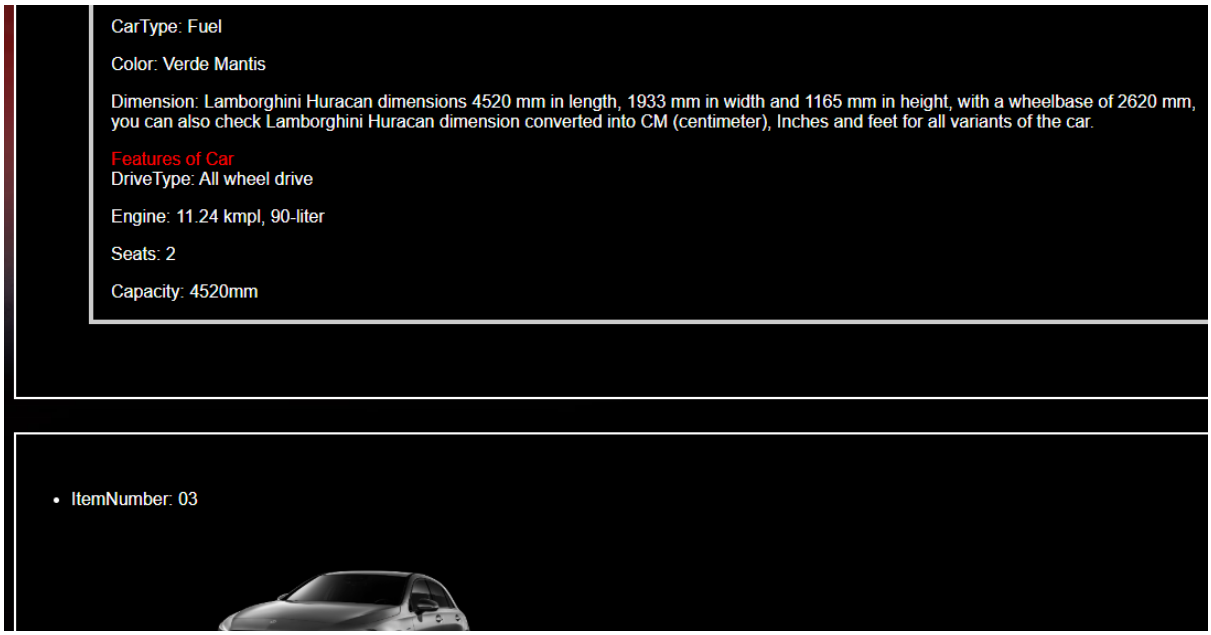

Figure 5 Testing no. 4

e. Testing no. 5

Display the logo image

This testing was done to check whether the logo image was displayed or not. As we can see the image below, the logo was displayed and the testing was done successfully.

Figure 6 Testing no. 5

f. Testing no. 6

Use at least one floating box

This testing was done to check whether the floating box was used or not. As seen the image below, floating box was used in the design and the testing was successful.

Figure 7 Testing no. 6

5. How you developed the coursework (Mention tools that you have used to develop coursework)

This coursework has given us task that requires to model a system for an online used vehicle shop. After understanding the scenario, I have chosen Steals n' Deals as an online used vehicle shop for this project. All the information that was needed on this online company was gathered and I also assumed some of valid content for this shop. After the information and assumptions were done, Tree diagram was created to replicate the information. Then, XML content was created on the basis of the tree diagram. After that, a schema file was created based on the structure of XML content and then the CSS file was created to render the XML file in a web browser.

a. Draw.io

Draw.io is used in this project to make tree diagram. It helps to create a concept for the model of this system. Draw.io helps in making a versatile tree diagram which makes the design understandable to proceed with the project.

b. Visual Studio Code

Visual studio Code is used in this system to do all the coding. The XML, schema and CSS coding were all done in the visual studio code. Visual studio code helped in making the coding faster and easier since it is lightweight source code editor and super-fast.

c. XML Validation

XML validation is an online validator that is used for validating the XML document against our schema. In this project, XML validation was used for validating the contents of schema to make sure that it was free of errors and provide versatile content.

6. Limitation of DTD and CSS

DTD

"DTD stands for "Document Type Definition". DTD is used for defining the structure and the legal elements and attributes of an XML document." (w3schools, 2020)

Limitations of DTD

"The limitations of DTD (Document Type Definition) are mentioned below;

a. DTD are not written in XML syntax, which mean new syntax should be learn in order to write them.
b. DTD does not support Namespaces.
c. Large DTDs are hard to maintain and read.
d. Data typing is not possible in DTD as there are no constraints imposed on the kind of character data allowed.
e. There is minimal support for code modularity and none for inheritance in DTD.
f. There are no default values for elements and attribute defaults must be specified when they are declared in DTD.
g. DTD attribute value models and Id attribute mechanism are simplistic.
h. There is limited documentation support, as the structured documentation features available for schema notation cannot be used in DTD." (sharat, 2007)

CSS

"CSS stands for "Cascading Style Sheets". CSS can be used for adding style and displaying information to an XML document. The whole XML document can be formatted using CSS." (javatpoint, 2020)

Limitations of CSS

"The limitations of CSS (Cascading Style Sheets) are mentioned below;

a. CSS has Cross-Browser Issues.
b. Confusion arises in CSS due to its many levels.

c. CSS does not have the built-in security that means anyone can access to a website and can change the CSS file, alter the links whether by accident or design.
d. CSS lacks of column declaration.
e. Pseudo-class dynamic behaviour is not controllable in CSS.
f. In CSS, what works with one browser may not always work with another." (Chief, 2016)

7. Critical Evaluation (Challenges that you faced during coursework)

This coursework assigned us the task to model a system for an online used vehicle shop. So, I decided to model a car company as an online used vehicle shop. The coursework was really tough in beginning as I needed to collect all the information about online used vehicle shop and made assumptions about how it works. The assumptions and information collected for an online used vehicle shop was needed to be implemented on tree diagram. At first, creating a tree diagram was little confusing but after going through different modules and websites it was easier to make a tree diagram.

After the tree diagram was done, I started XML coding on the basis of tree diagram. When I started coding I faced a little difficulty as it was complex. I researched and check the modules related to it and solved the problem. XML schema and CSS was a little time consuming as schema contains errors and the design was not perfectly done. But after going through the subject again and again I solved the errors and then the validation was done using online XML validation.

Even though, I faced lots of problems in this coursework, I think that it has given me the opportunity to learn through my trials and errors. This project made me realize that with constant effort, hard work, dedication, time, research and patience you could achieve anything in your life. I have gained a valuable experience working on this project as it taught me many things related to the topics.

8. Conclusion

All the assigned tasks given in the coursework were final completed after days of hard works and efforts. Each task was carried out in steps as it required patience, dedication and time management. Study and research were done on the relevant topics and many websites were explored for the detailed information related to the coursework. Lecture slides, Tutorial sessions and workshop sessions also provided many information that helped in the completion of the project.

After many research and studies, the system was modeled with all the information gained from websites, modules and so on. The information gathered were first studied and then implemented on the system. Then, the system was coded on Visual Studio Code including all the information requirements in the project. It was found that modeling a system is a tough task. Skills, dedication and time management are required to accomplish fully functioning system. After the system was modeled, testing was done to make sure that system was free of errors and met the criteria. After the completion of the assigned tasks, final review of coursework was done and project was finally ready for submission.

The completion of the coursework helped in learning, gaining knowledge and developing various skills. This project increased the curiosity to learn more about the XML and topics related to it. Valuable experiences have been gained working in this project. It provided me a platform that will surely be helpful in pursue of development of career. This coursework can be of great usage to the people who are interested to learn about XML, schema and CSS. This project was intended for successful submission and the system was designed for the future usability. This coursework still has the place for improvement which could be done with more hard work and dedication.

9. References

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