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*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

This is the second Coursework of the "Emerging Programming Platforms and Technologies" module. We are an XML developer in this assignment, and we must model a system for a Gift card shop. The store manager gave us with the store's name, address, phone number, internet URL, and logo. We need to design a system that looks like a website that uses XML and CSS to convey the data from various songs. We also need a well-formed XML document, as well as the ability to validate the XML document using DTD and Schema.

The Extensible Mark-up Language (XML) is a simple and adaptable text format evolved from SGML. XML was established to solve difficulties with large-scale electronic publication, but it's now becoming more important in the exchange of a wide range of data on the Internet and elsewhere. (<http://www.w3.org/>, 2016)

The XML Document Type Declaration, or DTD, is a technique of defining the XML language precisely. DTDs evaluate XML documents' vocabulary and structure by comparing them to the applicable XML language's grammatical rules. An XML DTD can be specified either within the XML document itself or in a separate document that is referenced afterwards. ( [www.tutorialspoint.com](http://www.tutorialspoint.com), 2021)

Another term for XML Schema Definition is XML Schema (XSD). It's used to specify and validate the structure and content of XML data. The XML schema specifies the components, properties, and data types. The Schema element can support namespaces. It's comparable to a database schema, which describes how data is structured in a database. (2021, [www.tutorialspoint.com](http://www.tutorialspoint.com))

CSS (Cascading Style Sheets) is a stylesheet language for expressing how an HTML or XML document should be displayed. CSS describes how elements should appear on a computer, on paper, in text, and in other media. CSS is one of the essential languages of the open web, according to W3C standards, and it is standardized across Web browsers. 2021 ([developer.mozilla.org](http://developer.mozilla.org))

# Tree Diagram

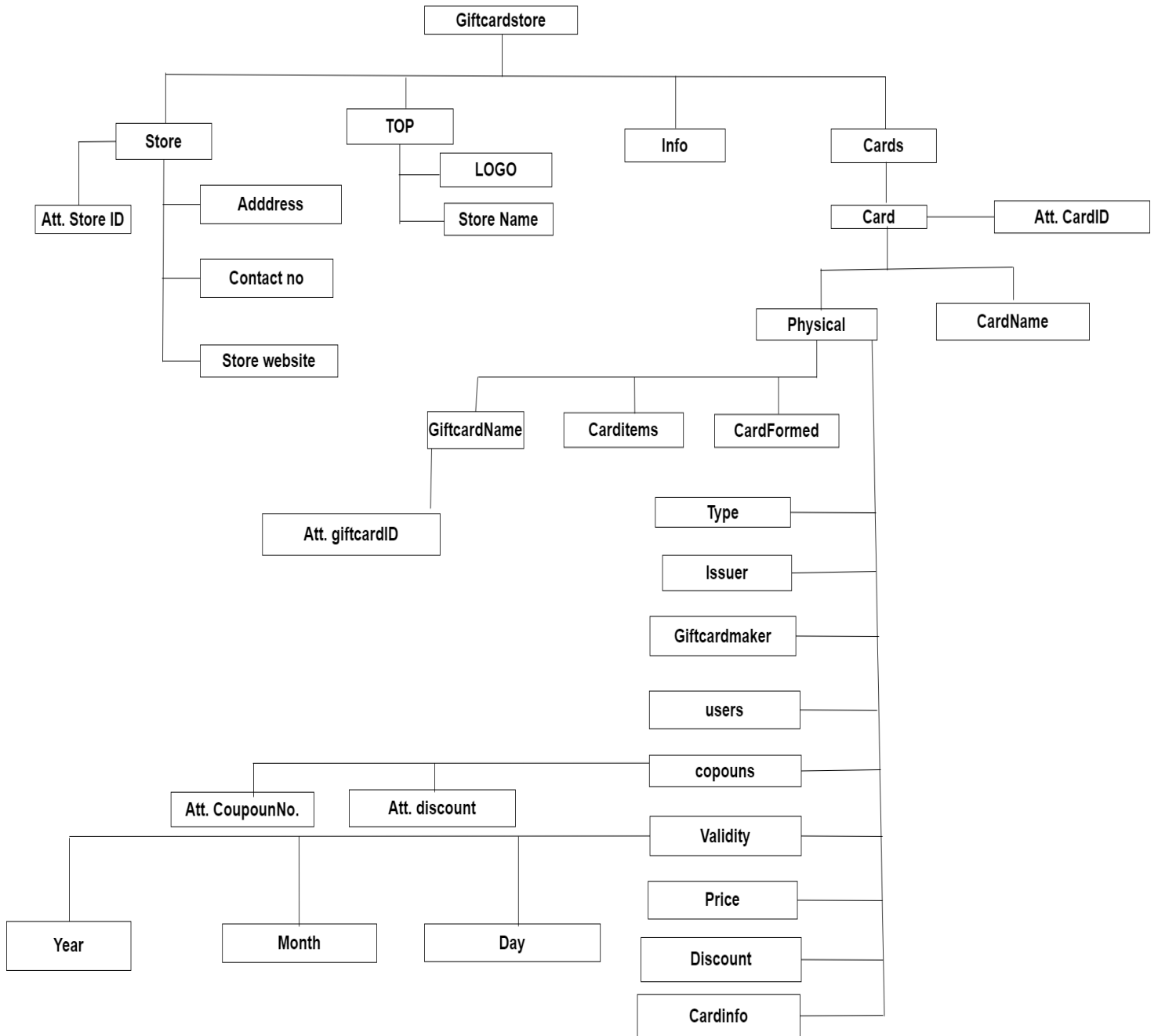


Figure 1 Tree diagram

## XML Content

```
1. <?xml version="1.0" encoding="utf-8" standalone="no"?>
2. <?xml-stylesheet type="text/css" href="catelog_20049417.css"?>
3. <!-- Rhythm Sapkota -->
4. <!-- 04/20/2022 -->
5. <!-- London Met ID: 20049417 -->
6.
7. <GiftcardStore xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
8.     xsi:noNamespaceSchemaLocation="catelog_20049417.xsd" >
9.     <Store storeID="881122">
10.         <StoreAddress>Address: London,United Kingdom</StoreAddress>
11.         <StoreContactNo>Contact N0: +44 2234718002 </StoreContactNo>
12.         <StoreWebsite>Website: www.Amazinggiftingcoupons.de</StoreWebsite>
13.
14.
15.     </Store>
16.     <top>
17.         <logo></logo>
18.         <StoreName>Store Name: Amaze gift cards</StoreName>
19.     </top>
20.     <info> Our available copouns and gift vouchers.</info>
21.
22. <Cards>
23.     <card cardID="001">
24.         <cardName>Card name: Physical gift cards</cardName>
25.         <physical>
26.             <GiftcardName giftcardID="101">Gift Card Name: Mysty
27.             222</GiftcardName>
28.             <Carditems> Item 1: XBOX GAMES </Carditems>
29.             <Carditems> Item 2: Playstation Games</Carditems>
30.             <Carditems> Item 3: Microsoft/Windows PC Games</Carditems>
31.             <CardFormed>2020</CardFormed>
32.         </physical>
33.         <Type>Discount Card</Type>
34.         <Issuer>Issued by: AllonlineGames.co </Issuer>
35.         <Giftcardmaker>Maker: AllonlineGames.co</Giftcardmaker>
36.         <users>no of users: 2 </users>
37.         <Coupons CouponNo="722003" discount="50.60">Coupon:
38.         Giftcard</Coupons>
39.         <Validity ReleasedCentury="21st">
40.         <Year>Valid till Year: 2022</Year>
```

```

39.                <Month>September</Month>
40.                <Day>16</Day>
41.            </Validity>
42.            <Price>Price: 500$</Price>
43.            <Discount>discount percent: 50% ON ALL ITEMS</Discount>
44.            <Cardinfo>
45.                A gift card, also known as a gift certificate in the United
                States or a gift voucher or gift token in the United Kingdom, is a prepaid stored-value
                money card provided by a merchant or bank to be used as an alternative to cash for purchases
                inside a certain store or connected companies.
46.            </Cardinfo>
47.        </card>
48.        <card cardID="002">
49.            <cardName>Card name: Physical gift cards</cardName>
50.            <physical>
51.                <GiftcardName giftcardID="102">Gift Card Name: Rusty
                300</GiftcardName>
52.                <Carditems> Item 1: FOOD VOUCHERS </Carditems>
53.                <Carditems> Item 2: Zara Voucher</Carditems>
54.                <Carditems> Item 3: Fitness Centers</Carditems>
55.                <CardFormed>2020</CardFormed>
56.            </physical>
57.            <Type>Discount Card</Type>
58.            <Issuer>Issued by: Modernfranchise.co </Issuer>
59.            <Giftcardmaker>Maker: Modernfranchise.co</Giftcardmaker>
60.            <users>no of users: 1 </users>
61.            <Coupons CouponNo="889003" discount="70.60">Coupon:
                Giftcard</Coupons>
62.            <Validity ReleasedCentury="21st">
63.                <Year>Valid till Year: 2022</Year>
64.                <Month>April</Month>
65.                <Day>12</Day>
66.            </Validity>
67.            <Price>Price: 600$</Price>
68.            <Discount>discount percent: 70% ON ALL ITEMS</Discount>
69.            <Cardinfo>
70.                This card provides discount on all items of ZARA, all items
                of KFC, all items of MCdonalds, including all fitness centres in london, United Kingdom up
                to 70%. This card can be used multiple times by using the same coupon codes for heavy
                discounts.
71.            </Cardinfo>
72.        </card>
73.        <card cardID="003">

```

```

74.          <cardName>Card name: Digital gift cards</cardName>
75.          <physical>
76.              <GiftcardName giftcardID="403">Gift Card Name: Daily
Golds</GiftcardName>
77.              <Carditems> Item 1: Valorant points </Carditems>
78.              <Carditems> Item 2: Steam Store</Carditems>
79.              <Carditems> Item 3: Origin/EA store</Carditems>
80.              <CardFormed>2020</CardFormed>
81.          </physical>
82.          <Type>Discount Card</Type>
83.          <Issuer>Issued by: Worldgames.org </Issuer>
84.          <Giftcardmaker>Maker: ALLONLINEGAMES.co</Giftcardmaker>
85.          <users>no of users: 1 </users>
86.          <Coupons CouponNo="00029455113" discount="80.60"> Digitalcard: e-
Giftcards</Coupons>
87.          <Validity ReleasedCentury="21st">
88.              <Year>Valid till Year: 2021</Year>
89.              <Month>May</Month>
90.              <Day>06</Day>
91.          </Validity>
92.          <Price>Price: 300$</Price>
93.          <Discount>discount percent: 80% ON ALL ITEMS</Discount>
94.          <Cardinfo>
95.              This gift card is a discount offer for various gaming
platforms. This card can be used in getting upto 79% discount in many items and games of
ORIGIN/EA SPORTS and Steam. This card also gives discount on In-game Valorant Points.
96.              This card is offically launched by Worldgames.com.uk
97.          </Cardinfo>
98.      </card>
99.      <card cardID="004">
100.          <cardName>Card name: Digital gift cards</cardName>
101.          <physical>
102.              <GiftcardName giftcardID="404">Gift Card Name: Meta
222</GiftcardName>
103.              <Carditems> Item 1: Amazon </Carditems>
104.              <Carditems> Item 2: Ebay</Carditems>
105.              <Carditems> Item 3: Alibabaexpress</Carditems>
106.              <CardFormed>2019</CardFormed>
107.          </physical>
108.          <Type>Amount Card with discounts</Type>
109.          <Issuer>Issued by: Amazon.com </Issuer>
110.          <Giftcardmaker>Maker: Allstarsshops.co</Giftcardmaker>
111.          <users>no of users: 4 </users>

```



```

112.          <Coupons CouponNo="000223441123"
discount="5.60">Digitalcard: e-Giftcards</Coupons>
113.          <Validity ReleasedCentury="21st">
114.              <Year>Valid till Year: 2021</Year>
115.              <Month>December</Month>
116.              <Day>27</Day>
117.          </Validity>
118.          <Price>Price: 1000$</Price>
119.          <Discount>Amount : 990 discount percent: 5% ON ALL
ITEMS</Discount>
120.          <Cardinfo>
121.              This is a rechargeable digital gift card. The
maximum amount in this card is 990 and provides 5% discount on all items in various online
stores in UK.
122.          </Cardinfo>
123.      </card>
124.      <card cardID="005">
125.          <cardName>Card name: Digital gift cards</cardName>
126.          <physical>
127.              <GiftcardName giftcardID="404">Gift Card Name:
Foodforlife</GiftcardName>
128.              <Carditems> Item 1: KOL </Carditems>
129.              <Carditems> Item 2: Paradise</Carditems>
130.              <Carditems> Item 3: Luca</Carditems>
131.              <CardFormed>2020</CardFormed>
132.          </physical>
133.          <Type>Amount Card with discounts</Type>
134.          <Issuer>Issued by: Foodslondon.com </Issuer>
135.          <Giftcardmaker>Maker: Paradise.co</Giftcardmaker>
136.          <users>no of users: 2 </users>
137.          <Coupons CouponNo="266485290993"
discount="10.60">Digitalcard: e-Giftcards</Coupons>
138.          <Validity ReleasedCentury="21st">
139.              <Year>Valid till Year: 2021</Year>
140.              <Month>April</Month>
141.              <Day>09</Day>
142.          </Validity>
143.          <Price>Price: 300$</Price>
144.          <Discount>Amount : 300 discount percent: 10% ON ALL
ITEMS</Discount>
145.          <Cardinfo>

```

146. This is a rechargeable digital gift card. The maximum amount in this card is 300 and provides 10% discount on all items in Londons top 3 restaurants i.e Luca, Paradise, KOL </Cardinfo>

147. </card>

148. <card cardID="006">

149. <cardName>Card name: Physical gift cards</cardName>

150. <physical>

151. <GiftcardName giftcardID="104">Gift Card Name: Sportyy 2022</GiftcardName>

152. <Carditems> Item 1: NIKE </Carditems>

153. <Carditems> Item 2: ADIDAS</Carditems>

154. <Carditems> Item 3: PUMA</Carditems>

155. <CardFormed>2020</CardFormed>

156. </physical>

157. <Type>Discount Card</Type>

158. <Issuer>Issued by: sports24.co </Issuer>

159. <Giftcardmaker>Maker: sports24.co</Giftcardmaker>

160. <users>no of users: 1 </users>

161. <Coupons CouponNo="0012773" discount="65.60">Coupon: Giftcard</Coupons>

162. <Validity ReleasedCentury="21st">

163. <Year>Valid till Year: 2022</Year>

164. <Month>November</Month>

165. <Day>30</Day>

166. </Validity>

167. <Price>Price: 300\$</Price>

168. <Discount>discount percent: upto 66% ON ALL ITEMS</Discount>

169. <Cardinfo>

170. This card offers 66% discounts on all items of different sports stores like Nike Addidas and Puma. And also provides a lifetime 3% discount on some items.

171. </Cardinfo>

172. </card>

173. <card cardID="007">

174. <cardName>Card name: Physical gift cards</cardName>

175. <physical>

176. <GiftcardName giftcardID="105">Gift Card Name: Shoppingfopping </GiftcardName>

177. <Carditems> Item 1: Westfield London </Carditems>

178. <Carditems> Item 2: Carnaby London</Carditems>

179. <Carditems> Item 3: Harrods </Carditems>

180. <CardFormed>2021</CardFormed>

181. </physical>

```

182.          <Type>Discount Card</Type>
183.          <Issuer>Issued by: Westfield.co </Issuer>
184.          <Giftcardmaker>Maker: Harrods.co</Giftcardmaker>
185.          <users>no of users: 4 </users>
186.          <Coupons CouponNo="1188394" discount="70.60">Coupon:
      Giftcard</Coupons>
187.          <Validity ReleasedCentury="21st">
188.              <Year>Valid till Year: 2022</Year>
189.              <Month>September</Month>
190.              <Day>16</Day>
191.          </Validity>
192.          <Price>Price: 700$</Price>
193.          <Discount>discount percent: 70% ON ALL ITEMS</Discount>
194.          <Cardinfo>
195.              This card offers discount of 70% in shopping
      complex like Wesrfield, carnaby and harrods for all of their items. You also get a free
      membership from this card.
196.          </Cardinfo>
197.      </card>
198.      <card cardID="008">
199.          <cardName>Card name: Physical gift cards</cardName>
200.          <physical>
201.              <GiftcardName giftcardID="106">Gift Card Name: OIL
      2022</GiftcardName>
202.              <Carditems> Item 1: Shell </Carditems>
203.              <Carditems> Item 2: Texaco </Carditems>
204.              <Carditems> Item 3: Uptown Oil</Carditems>
205.              <CardFormed>2020</CardFormed>
206.          </physical>
207.          <Type>Discount Card</Type>
208.          <Issuer>Issued by: Londonoilcorporations.uk </Issuer>
209.          <Giftcardmaker>Maker:
      Londonoilcorporations.uk</Giftcardmaker>
210.          <users>no of users: 1 </users>
211.          <Coupons CouponNo="66458123" discount="20.60">Coupon:
      Giftcard</Coupons>
212.          <Validity ReleasedCentury="21st">
213.              <Year>Valid till Year: 2022</Year>
214.              <Month>October</Month>
215.              <Day>13</Day>
216.          </Validity>
217.          <Price>Price: 40$</Price>

```

```

218.                <Discount>discount percent: 20% ON All Petroleum
products.</Discount>
219.                <Cardinfo>
220.                    This card offers 20%discount on all types of
petrolium products of diffrent service providers such as Shell, Texaco, Uptown Oil.
221.                </Cardinfo>
222.            </card>
223.            <card cardID="009">
224.                <cardName>Card name: Digital gift cards</cardName>
225.                <physical>
226.                    <GiftcardName giftcardID="405">Gift Card Name:
Libertyhouse</GiftcardName>
227.                    <Carditems> Item 1: Liberty London </Carditems>
228.                    <Carditems> Item 2: Selfridges</Carditems>
229.                    <Carditems> Item 3: John Lewis</Carditems>
230.                    <CardFormed>2020</CardFormed>
231.                </physical>
232.                <Type>Amount Card with discounts</Type>
233.                <Issuer>Issued by: Liberty London </Issuer>
234.                <Giftcardmaker>Maker: Selfridges.co</Giftcardmaker>
235.                <users>no of users: 1 </users>
236.                <Coupons CouponNo="" discount="">
ValidationNo="66235819293" discount="15.60">Digitalcard: e-Giftcards</Coupons>
237.                <Validity ReleasedCentury="21st">
238.                    <Year>Valid till Year: 2021</Year>
239.                    <Month>June</Month>
240.                    <Day>22</Day>
241.                </Validity>
242.                <Price>Price: 1000$</Price>
243.                <Discount>Amount : 1000 Discount percent: 15% ON ALL
ITEMS</Discount>
244.            <Cardinfo>
245.                This is a rechargeable digital gift card. The
maximum amount in this card is 1000 and provides 15% discount on all items in Londons top 3
retailers i.e Liberty London, Selfridges and Johnlewis.                </Cardinfo>
246.            </card>
247.
248.
249.
250.        </Cards>
251.
252.
253. </GiftcardStore>

```

## Schema Content

```

1. <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
2.
3.   <xs:element name="GiftcardStore">
4.     <xs:complexType>
5.       <xs:sequence>
6.         <xs:element name="Store" type="storeType" />
7.         <xs:element name="top" type="topType" />
8.         <xs:element name="info" type="xs:string" />
9.         <xs:element name="Cards" type="CardsType" />
10.      </xs:sequence>
11.    </xs:complexType>
12.  </xs:element>
13.  <xs:complexType name="storeType">
14.    <xs:group ref="storeElements"/>
15.    <xs:attributeGroup ref="storeAtt"/>
16.  </xs:complexType>
17.  <xs:group name="storeElements">
18.    <xs:sequence>
19.      <xs:element name="StoreAddress" type="xs:string"/>
20.      <xs:element name="StoreContactNo" type="xs:string"/>
21.      <xs:element name="StoreWebsite" type="xs:string"/>
22.    </xs:sequence>
23.  </xs:group>
24.  <xs:attributeGroup name="storeAtt">
25.    <xs:attribute name="storeID" type="xs:string" />
26.  </xs:attributeGroup>
27.  <xs:complexType name="topType">
28.    <xs:group ref="topElements" />
29.  </xs:complexType>
30.  <xs:group name="topElements" >
31.    <xs:sequence>
32.      <xs:element name="logo" type="xs:string" minOccurs="0" maxOccurs="1"/>
33.      <xs:element name="StoreName" type="xs:string"/>
34.    </xs:sequence>
35.  </xs:group>
36.  <xs:complexType name="CardsType">

```

```

37.         <xs:sequence>
38.             <xs:element name="card" type="cardType" minOccurs="1"
maxOccurs="unbounded" />
39.         </xs:sequence>
40.     </xs:complexType>
41.     <xs:complexType name="cardType">
42.         <xs:group ref="cardElements" />
43.         <xs:attributeGroup ref="cardAtt"/>
44.     </xs:complexType>
45.     <xs:group name="cardElements">
46.         <xs:sequence>
47.             <xs:element name="cardName" type="xs:string"/>
48.             <xs:element name="physical" type="physicalType"/>
49.             <xs:element name="Type" type="xs:string" />
50.             <xs:element name="Issuer" type="xs:string" />
51.             <xs:element name="Giftcardmaker" type="xs:string"/>
52.             <xs:element name="users" type="xs:string"/>
53.             <xs:element name="Coupouns" type="CoupounsType"/>
54.             <xs:element name="Validity" type="ValidityType"/>
55.             <xs:element name="Price" type="xs:string"/>
56.             <xs:element name="Discount" type="xs:string" minOccurs="0"
maxOccurs="1"/>
57.             <xs:element name="Cardinfo" type="xs:string"/>
58.         </xs:sequence>
59.     </xs:group>
60.     <xs:attributeGroup name="cardAtt">
61.         <xs:attribute name="cardID" type="xs:string"/>
62.     </xs:attributeGroup>
63.     <xs:complexType name="physicalType">
64.         <xs:group ref="physicalElements"/>
65.     </xs:complexType>
66.     <xs:group name="physicalElements">
67.         <xs:sequence>
68.             <xs:element name="GiftcardName" type="GiftcardNameType" />
69.             <xs:element name="Carditems" type="xs:string" minOccurs="1"
maxOccurs="unbounded" />
70.             <xs:element name="CardFormed" type="xs:string" minOccurs="0"
maxOccurs="1" />
71.         </xs:sequence>
72.     </xs:group>
73.     <xs:complexType name="CoupounsType" >
74.         <xs:simpleContent>
75.             <xs:extension base="xs:string">

```

```

76.                <xs:attribute name="CoupounNo" type="xs:string"
                    use="required"/>
77.                <xs:attribute name="discount" type="xs:string"
                    use="required"/>
78.            </xs:extension>
79.        </xs:simpleContent>
80.    </xs:complexType>
81.    <xs:complexType name="ValidityType">
82.        <xs:group ref="ValidityElements"/>
83.        <xs:attributeGroup ref="ValidityAtt"/>
84.    </xs:complexType>
85.    <xs:group name="ValidityElements">
86.        <xs:sequence>
87.            <xs:element name="Year" type="xs:string"/>
88.            <xs:element name="Month" type="xs:string" minOccurs="0"
                maxOccurs="1"/>
89.            <xs:element name="Day" type="xs:integer" minOccurs="0" maxOccurs="1"
                />
90.        </xs:sequence>
91.    </xs:group>
92.    <xs:attributeGroup name="ValidityAtt">
93.        <xs:attribute name="ReleasedCentury" type="xs:string" />
94.    </xs:attributeGroup>
95.    <xs:complexType name="GiftcardNameType" >
96.        <xs:simpleContent>
97.            <xs:extension base="xs:string">
98.                <xs:attribute name="giftcardID" type="xs:string"
                    use="required"/>
99.            </xs:extension>
100.        </xs:simpleContent>
101.    </xs:complexType>
102.
103. </xs:schema>
104.

```

## DTD content

```

1. <!ELEMENT GiftcardStore (Store,top,info,Cards)>
2.
3. <!ELEMENT Store (StoreAddress,StoreContactNo,StoreWebsite)>
4. <!ATTLIST Store storeID CDATA #REQUIRED>
5.

```

```

6. <!ELEMENT StoreAddress (#PCDATA)>
7. <!ELEMENT StoreContactNo (#PCDATA)>
8. <!ELEMENT StoreWebsite (#PCDATA)>
9.
10. <!ELEMENT top (logo?,StoreName)>
11. <!ELEMENT logo (#PCDATA)>
12. <!ELEMENT StoreName (#PCDATA)>
13.
14. <!ELEMENT info (#PCDATA)>
15.
16. <!ELEMENT Cards (card+)>
17. <!ELEMENT card
    (cardName,physical,Type,Issuer,Giftcardmaker,users,Coupouns,Validity,Price,Discount,Cardinfo
    )>
18. <!ATTLIST card cardID CDATA #REQUIRED>
19.
20. <!ELEMENT cardName (#PCDATA)>
21.
22. <!ELEMENT physical (GiftcardName,Carditems+,CardFormed?)>
23. <!ELEMENT GiftcardName (#PCDATA)>
24. <!ATTLIST GiftcardName giftcardID CDATA #REQUIRED>
25. <!ELEMENT Carditems (#PCDATA)>
26. <!ELEMENT CardFormed (#PCDATA)>
27.
28. <!ELEMENT Type (#PCDATA)>
29. <!ELEMENT Issuer (#PCDATA)>
30. <!ELEMENT Giftcardmaker (#PCDATA)>
31. <!ELEMENT users (#PCDATA)>
32. <!ELEMENT Coupouns (#PCDATA)>
33. <!ATTLIST Coupouns CouponNo CDATA #REQUIRED
34.                                discount CDATA #REQUIRED>
35.
36. <!ELEMENT Validity (Year,Month?,Day?)>
37. <!ATTLIST Validity ReleasedCentury CDATA #REQUIRED>
38.
39. <!ELEMENT Year (#PCDATA)>
40. <!ELEMENT Month (#PCDATA) >
41. <!ELEMENT Day (#PCDATA) >
42. <!ELEMENT Price (#PCDATA)>
43. <!ELEMENT Discount (#PCDATA) >
44. <!ELEMENT Cardinfo (#PCDATA)>

```



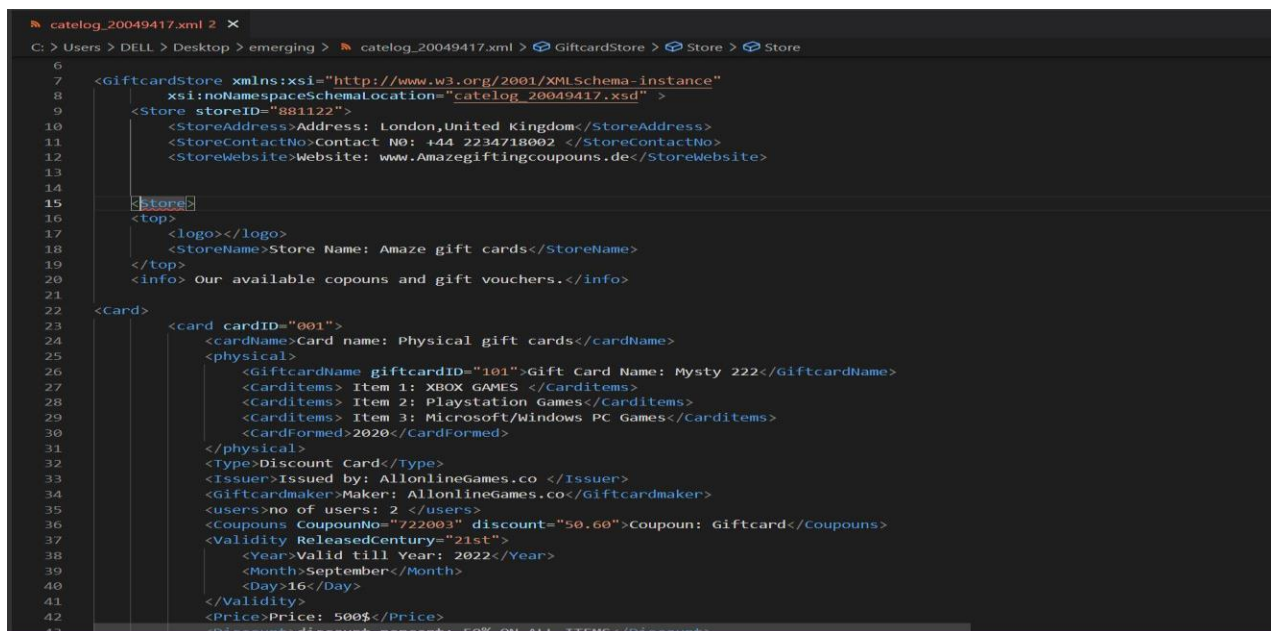
# Testing

## Test 1:

Test no:	1
Test done:	Checking the formness of the XML document.
Expected Result:	No error should be shown.
Actual Result:	Error Shown.
Result:	Unsuccessful.

Table 1 Test 1

## Screenshots:



```
6
7 <GiftcardStore xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
8   xsi:noNamespaceSchemaLocation="catelog_20049417.xsd" >
9   <Store storeID="881122">
10    <StoreAddress>Address: London,United Kingdom</StoreAddress>
11    <StoreContactNo>Contact N0: +44 2234718002 </StoreContactNo>
12    <StoreWebsite>Website: www.Amazegiftingcoupons.de</StoreWebsite>
13
14   </Store>
15   <top>
16    <logo></logo>
17    <StoreName>Store Name: Amaze gift cards</StoreName>
18    </top>
19    <info> Our available copouns and gift vouchers.</info>
20
21  <Card>
22    <card cardID="001">
23      <cardName>Card name: Physical gift cards</cardName>
24      <physical>
25        <GiftcardName giftcardID="101">Gift Card Name: Mysty 222</GiftcardName>
26        <Carditems> Item 1: XBOX GAMES </Carditems>
27        <Carditems> Item 2: Playstation Games</Carditems>
28        <Carditems> Item 3: Microsoft/Windows PC Games</Carditems>
29        <CardFormed>2020</CardFormed>
30      </physical>
31      <Type>Discount Card</Type>
32      <Issuer>Issued by: AllonlineGames.co </Issuer>
33      <Giftcardmaker>Maker: AllonlineGames.co</Giftcardmaker>
34      <users>no of users: 2 </users>
35      <Coupons> CouponNo="722003" discount="50.60">Coupon: Giftcard</Coupons>
36      <Validity> ReleasedCentury="21st">
37        <Year>Valid till Year: 2022</Year>
38        <Month>September</Month>
39        <Day>16</Day>
40      </Validity>
41      <Price>Price: 500%</Price>
42    </card>
43  </Card>
44</GiftcardStore>
```

Figure 2: Test 1



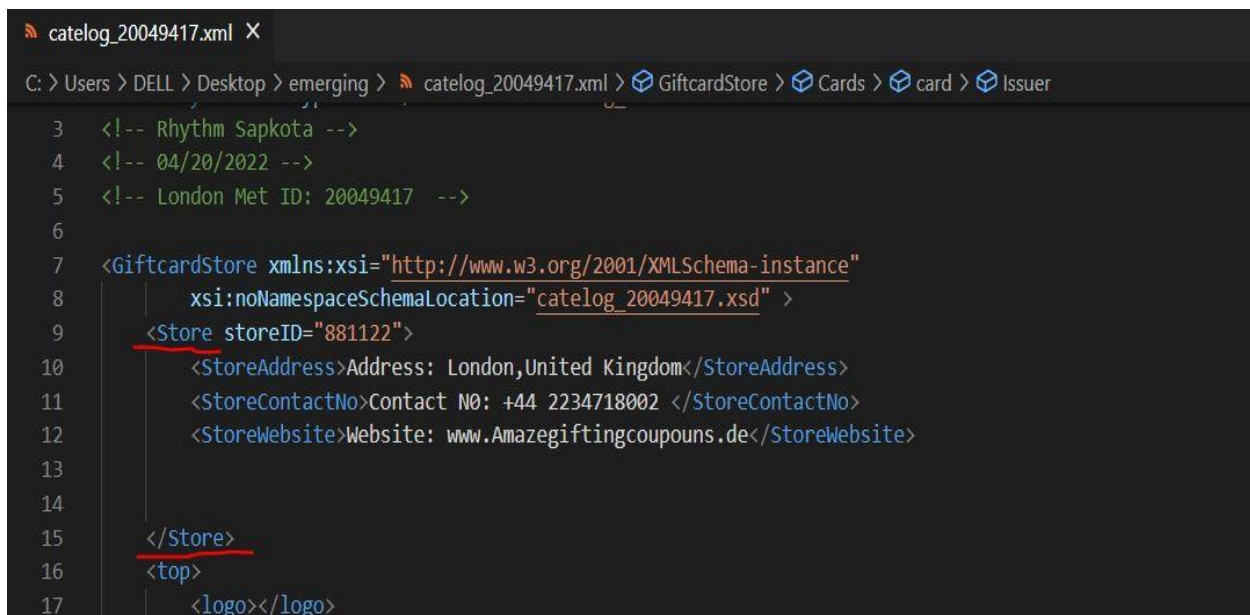
Figure 3: Error of test 1

## Test 2:

Test no:	2
Test done:	Finding the error in Test 1 which was the improper closing tag of the element Store.
Expected Result:	Finding the error of task 1 and solving it.
Actual Result:	Found the error solved it and checked the formness of the XML document.
Result:	Successful

Table 2 Test 2

## Screenshots:



```
catelog_20049417.xml X
C: > Users > DELL > Desktop > emerging > catelog_20049417.xml > GiftcardStore > Cards > card > Issuer
3 <!-- Rhythm Sapkota -->
4 <!-- 04/20/2022 -->
5 <!-- London Met ID: 20049417 -->
6
7 <GiftcardStore xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
8 | xsi:noNamespaceSchemaLocation="catelog_20049417.xsd" >
9 | <Store storeID="881122">
10 | | <StoreAddress>Address: London,United Kingdom</StoreAddress>
11 | | <StoreContactNo>Contact N0: +44 2234718002 </StoreContactNo>
12 | | <StoreWebsite>Website: www.Amazegiftingcoupouns.de</StoreWebsite>
13 | |
14 | |
15 | </Store>
16 | <top>
17 | <logo></logo>
```

Figure 4: Finding error of test 2

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<!-- <xml-stylesheet type="text/css" href="catalog_20049417.css"?>
-->
<!-- Rhythm Sapkota -->
<!-- 04/20/2022 -->
<!-- London Met ID: 20049417 -->
▼<GiftcardStore xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="catalog_20049417.xsd">
  ▼<Store storeID="881122">
    <StoreAddress>Address: London,United Kingdom</StoreAddress>
    <StoreContactNo>Contact N0: +44 2234718002 </StoreContactNo>
    <StoreWebsite>Website: www.Amazinggiftingcoupons.de</StoreWebsite>
  </Store>
  ▼<top>
    <logo/>
    <StoreName>Store Name: Amaze gift cards</StoreName>
  </top>
  <info> Our available copouns and gift vouchers.</info>
  ▼<Cards>
    ▼<card cardID="001">
      <cardName>Card name: Physical gift cards</cardName>
      ▼<physical>
        <GiftcardName giftcardID="101">Gift Card Name: Mysty 222</GiftcardName>
        <Carditems> Item 1: XBOX GAMES </Carditems>
        <Carditems> Item 2: Playstation Games</Carditems>
        <Carditems> Item 3: Microsoft/Windows PC Games</Carditems>
        <CardFormed>2020</CardFormed>
      </physical>
      <Type>Discount Card</Type>
      <Issuer>Issued by: AllonlineGames.co </Issuer>
      <Giftcardmaker>Maker: AllonlineGames.co</Giftcardmaker>
      <users>no of users: 2 </users>
      <Coupons CouponNo="722003" discount="50.60">Coupon: Giftcard</Coupons>
    ▼<Validity ReleasedCentury="21st">
      <Year>Valid till Year: 2022</Year>
      <Month>September</Month>
      <Day>16</Day>
    </Validity>
    <Price>Price: 500$</Price>
    <Discount>discount percent: 50% ON ALL ITEMS</Discount>
    <Cardinfo> A gift card, also known as a gift certificate in the United States or a gift voucher or gift token in the United Kingdom, is a prepaid stored-value money card provided by a merchant or bank to be used as an alternative to cash for purchases inside a certain store or connected companies. </Cardinfo>
  </card>
  ▼<card cardID="002">
    <cardName>Card name: Physical gift cards</cardName>
```

Figure 5: Test 2 successful

### Test 3:

Test no:	3
Test done:	Checking CSS by linking it to the XML document.
Expected Result:	CSS working properly.
Actual Result:	CSS worked properly.
Result:	Successful

Table 3: Test 3

## Screenshots:

```
C: > Users > DELL > Desktop > emerging > catalog_20049417.xml > GiftcardStore > Store > StoreContactNo
1  <?xml version="1.0" encoding="utf-8" standalone="no"?>
2  <?xml-stylesheet type="text/css" href="catalog_20049417.css"?>
3  <!-- Rhythm Sapkota -->
4  <!-- 04/20/2022 -->
5  <!-- London Met ID: 20049417 -->
6
7  <GiftcardStore xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
8      xsi:noNamespaceSchemaLocation="catalog_20049417.xsd" >
9      <Store storeID="881122">
10         <StoreAddress>Address: London,United Kingdom</StoreAddress>
11         <StoreContactNo>Contact NO: +44 2234718002 </StoreContactNo>
12         <StoreWebsite>Website: www.Amazinggiftingcoupons.de</StoreWebsite>
13
14
```

Figure 6: Test 3 CSS Linking

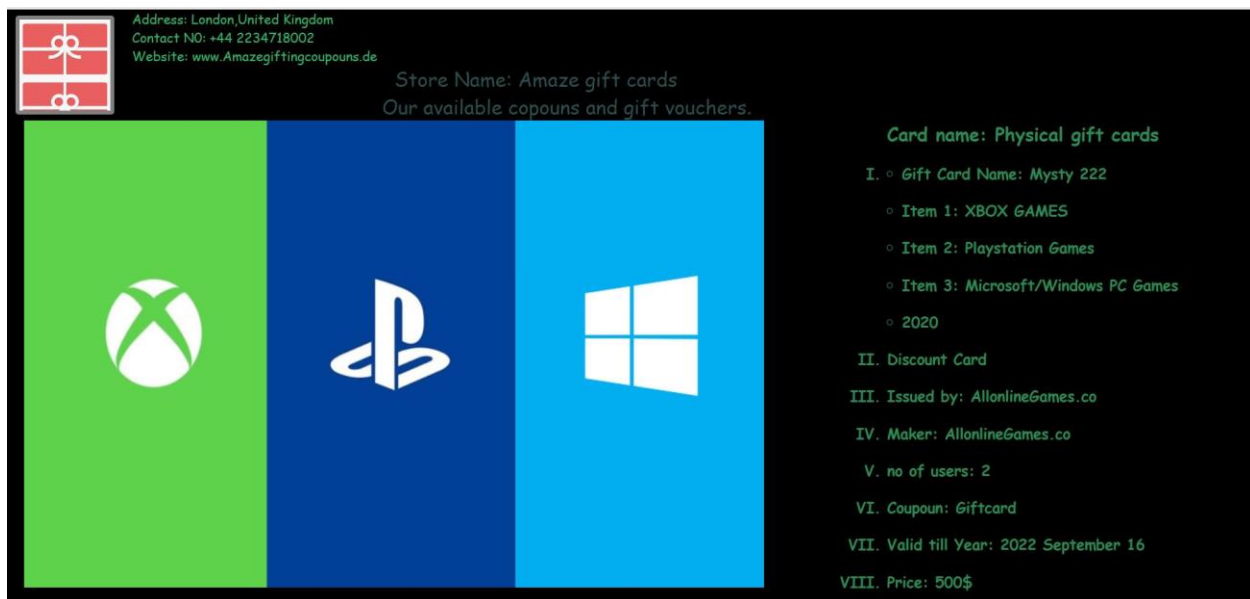


Figure 7: Test 3 CSS linked Successful

#### Test 4:

Test no:	4
Test done:	Validating the XML with DTD in XML validation site.
Expected Result:	Validation should be successful.
Actual Result:	Validation was unsuccessful.
Result:	Unsuccessful.

Table 4: Test 4

#### Screenshots:

```
1 <?xml version="1.0" encoding="utf-8" standalone="no"?>
2 <?xml-stylesheet type="text/css" href="catelog_20049417.css"?>
3 <!-- Rhythm Sapkota -->
4 <!-- 04/20/2022 -->
5 <!-- London Met ID: 20049417 -->
6 <!DOCTYPE GiftcardStore SYSTEM "catelog_20049417.dtd">
7
```

Figure 8: Test 4 Linking DTD

Please copy your XML document in here:

Or upload it:

Choose File catelog\_20049417.xml

The validation check is performed against any XML schema or DTD declared inside the XML document.  
If neither an XML schema nor a DTD is declared, only a syntax check is performed.

To validate the XML document against an external XML schema, click below.

☐ Validate against external XML schema

validate

Close

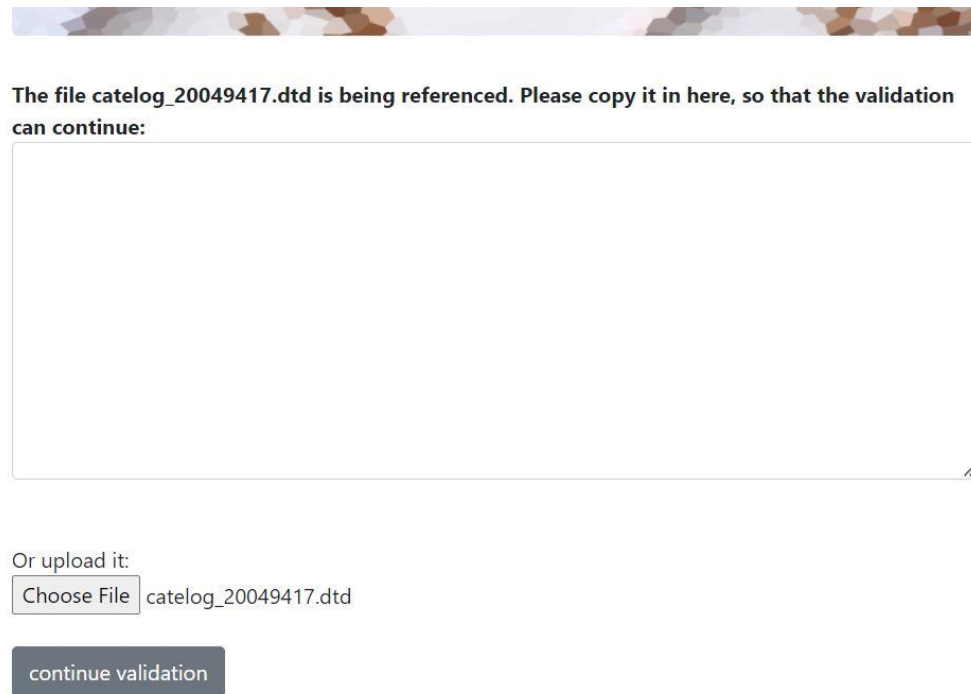
COUPONS AVAILABLE

CONTINUE →

Ads by clic

Amazon  
LinkedIn's T  
for Care

Figure 9: Test 4 inserting XML file in XML validation Website.



The file catalog\_20049417.dtd is being referenced. Please copy it in here, so that the validation can continue:



Or upload it:

Choose File catalog\_20049417.dtd

continue validation

Figure 10: Test 4 Inserting referenced DTD file in Validation site

### An error has been found!

Click on  to jump to the error. In the document, you can point at  with your mouse to see the error message.

#### Errors in the XML document:

- ✖ 17:3 The markup in the document following the root element must be well-formed.

.....

Figure 11: Test 4 error encountered.

## Test 5:

Test no:	5
Test done:	Fixed the error of test 4 and checked for validation again in XML document with DTD.
Expected Result:	Validation should be successful.
Actual Result:	Validation was successful.
Result:	Successful.

Table 5:Test 5

## Screenshots:

```

1  <?xml version="1.0" encoding="utf-8" standalone="no"?>
2  <?xml-stylesheet type="text/css" href="catelog_20049417.css"?>
3  <!-- Rhythm Sapkota -->
4  <!-- 04/20/2022 -->
5  <!-- London Met ID: 20049417 -->
6  <!DOCTYPE GiftcardStore SYSTEM "catelog_20049417.dtd">
7
8  <!--<GiftcardStore xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
9      xsi:noNamespaceSchemaLocation="catelog_20049417.xsd" >-->
10     <GiftcardStore>
11         <Store storeID="881122">
12             <StoreAddress>Address: London,United Kingdom</StoreAddress>
13             <StoreContactNo>Contact NO: +44 2234718002 </StoreContactNo>
14             <StoreWebsite>Website: www.Amazegiftingcoupons.de</StoreWebsite>
15
16         </Store>
17         <top>
18             <logo></logo>
19             <StoreName>Store Name: Amaze gift cards</StoreName>
20         </top>
21         <info> Our available copouns and gift vouchers.</info>
22
23     </GiftcardStore>
24
25     <Cards>
26         <card cardID="001">
27             <cardName>Card name: Physical gift cards</cardName>
28             <physical>
29                 <GiftcardName giftcardID="101">Gift Card Name: Mysty 222</GiftcardName>
30                 <Carditems> Item 1: XBOX GAMES </Carditems>
31                 <Carditems> Item 2: Playstation Games</Carditems>
32                 <Carditems> Item 3: Microsoft/Windows PC Games</Carditems>
33             </physical>
34         </card>
35     </Cards>
36 </GiftcardStore>

```

Figure 12: Fixing Error of test 4.



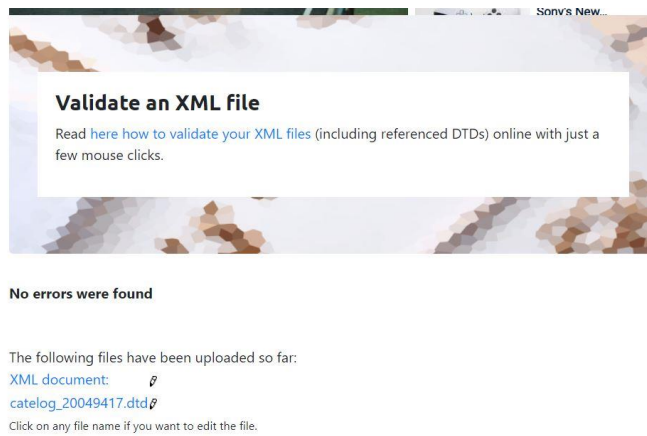


Figure 13: Errors of test 4 fixed and no errors were found.

## Test 6:

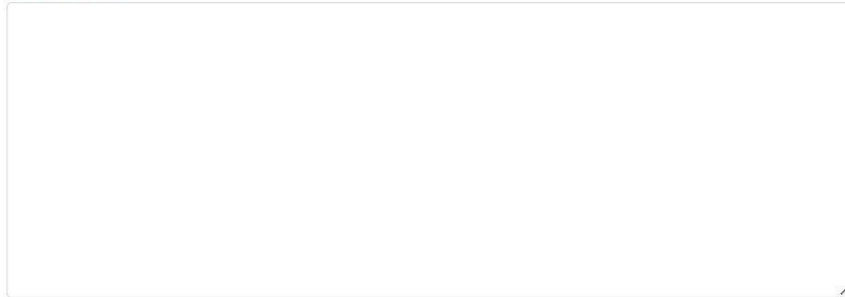
Test no:	7
Test done:	Validating the XML with Schema in XML validation site.
Expected Result:	Validation should be successful.
Actual Result:	Validation was successful.
Result:	Successful

Table 6: Test 6



## Screenshots:

The file catalog\_20049417.xsd is being referenced. Please copy it in here, so that the validation can continue:



Or upload it:

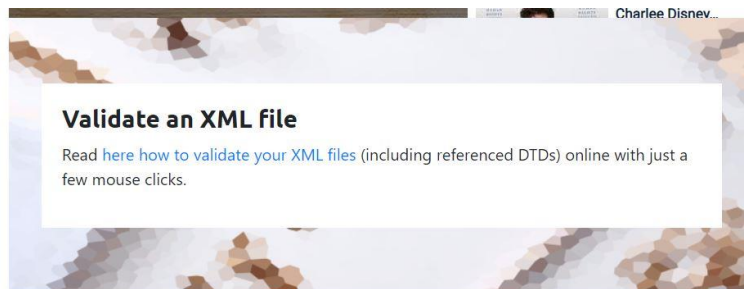
catalog\_20049417.xsd

The following files have been uploaded so far:

[XML document:](#) 

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

Figure 14: Inserting XSD file referenced by XML file in Validation Site



**No errors were found**

The following files have been uploaded so far:

[XML document:](#) 

[catalog\\_20049417.xsd](#) 

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

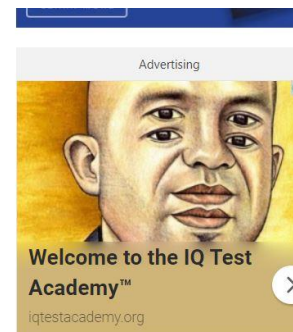


Figure 15: No errors were found

## Development

I had to go through several stages in the preparation of this coursework.

First, I had to pick which Gift cards I wanted to offer, and then I had to gather information about the Gift cards by visiting several websites. Then I had to gather the images of the cards that were linked. Then I had to design appropriate components to contain the data I had gathered, as well as appropriate datatypes for the elements I had chosen, as well as the order in which I should arrange the data. I also had to identify appropriate attributes to include in appropriate parts.

Then I generated an XML document by placing all of the data in appropriate elements with appropriate datatypes. Then I ran the XML document via a browser to ensure that it was well-formed. I encountered certain issues, which I corrected, and the XML document was then well-formed. Then, to validate the XML document and check the data sequence order, I generated the DTD and Schema document. I had some questions about the creation schema, which I was able to resolve by contacting my teacher. There were numerous structural options for generating a Schema document, but I decided to go with venation blind. Then, after finishing the DTD and Schema, I tested for XML file validity using the DTD and Schema and encountered some errors. Then I tried to fix those errors and the problem was solved and validation was successful.

Then, to make the data in the XML file representable, I built a CSS file and used basic CSS. I looked at some websites and watched some CSS tutorials online to get a better understanding of the language. After that, I was able to use CSS to make the XML document readable. After installing CSS, I constructed a tree diagram to highlight the elements' hierarchical structure. I had to record everything with a well-written report and submit it after all the coding and part.

## Difference Between Schema and DTD

DTD	Schema
The syntax rule of SGML is used to write DTD.	The XML syntax is the syntax used to write Schema.
Datatypes often used in programming languages are not supported.	It supports the most common datatypes seen in programming languages.
Namespace isn't supported.	It has a namespace feature.
We don't have much control over the structure of the XML document when we utilize DTD.	We have a lot more control over the structure of an XML document when we apply Schema.
We can declare either within the XML document (internal) or in a separate document (external) (external).	Schema can be written in a variety of ways.
Its nature does not allow for extension.	It has a versatile nature.
In DTD, we can't specify the number or order of child items.	In Schema, we can specify the number and order of child elements.
There is only one structural way of writing DTD.	There are many structural way of writing Schema. Some of them are Russian doll, Venation blind, etc.
For text-intensive applications, DTD is preferable.	For data-intensive operations, schema is preferred.

Table 7: Differences between DTD AND Schema

## Critical Evaluation

I encountered several difficulties when completing this coursework. This coursework taught me a lot of new things, and the process of finishing it was not simple at all. My teacher's guidance and effort allow me to solve all of the difficulties and complete this assignment. While creating the XML, DTD, and Schema documents, I found several issues. I was able to detect and fix the bugs by debugging slowly and carefully. Every lesson, the teacher explained the idea, allowing me to understand the assignment in greater depth and finish the coursework on time.

Another huge obstacle for me throughout this coursework was to review and apply CSS that we had studied earlier in the semester to an XML document. It wasn't a simple undertaking, but with some research and practice, I was able to apply CSS to the XML file and make it presentable. The assignment for the module "Emerging Programming Platforms and Technologies" was finally finished after a lot of research and hard work.

## Conclusion

I learned a lot from this coursework, such as how to create an XML document to express data in a proper way. I learnt how to choose appropriate data to store in an XML document and assign appropriate datatypes to it. To validate the XML document, I learnt how to develop a DTD and a Schema document. Then I learnt how to use some basic CSS in an XML document to make the data that the XML presented look a bit more presentable and appealing to the eye. I discovered how to draw a tree diagram. The major differences between Schema and DTD were seen by me. For example russian doll, venation blind, and others, I learnt the various structural approaches of creating schema.

## References

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