LONDON METROPOLITAN UNIVERSITY

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(इस्लिङ्टन कलेज)

Module Code & Module Title

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1. Introduction

This report consists of the documentary of the XML file which was prepared during the second coursework of Emerging Programming Platforms and Technologies module. The main aim of this coursework was to implement the XML language for an online gift card shop which is located in London, United Kingdom. Visual studio code was used for coding and live server. A CSS file and schema file was also created with the help of visual studio code. The CSS file was created to have a better look for the xml file. Schema was created to define the document type for the xml file.

2. XML Document

2.1. List of Data

2.1.1.   List of Elements

List of Elements	Element Type	Element Data	Occurrence
NirayuCollection	Complex Type	Parent Element	Only Once
GiftCardStore	Complex Type	Child Element	Only Once
Header	Complex Type	Child Element	Only Once
StoreDetails	Complex Type	Child Element	Only Once
StoreName	Simple Type	String	Only Once
Logo	Simple Type	Empty Element	Only Once
StoreAddress	Simple Type	String	Only Once
StoreContactNo	Simple Type	String	Only Once
StoreWebsite	Simple Type	String	Only Once
Description	Simple Type	String	Only Once
Title	Simple Type	String	Only Once
GiftCards	Complex Type	Child Element	Only Once
GiftCard	Complex Type	Child Element	Once or More
GiftCardName	Simple Type	String	Once or More
Box	Complex Type	Child Element	Once or More
Image	Complex Type	Child Element	Once or More
Photo	Simple Type	Empty Element	Once or More
Text	Complex Type	Child Element	Once or More
Type	Simple Type	String	Once or More
Validity	Simple Type	String	Once or More
Price	Simple Type	String	Once or More
NoOfUsers	Simple Type	String	Once or More
DiscountVouchers	Simple Type	String	Once or More
Delivery	Simple Type	String	Once or More
Time	Simple Type	String	Once or More
CardInfo	Simple Type	String	Once or More

Table 1 List of Elements

2.1.2.   List of Attributes

List of Attributes	Data type	Use
StoreId	Integer	Optional
Code	Byte	Required

Table 2 List of Attributes

2.2. Tree Diagram

Figure 1 Tree Diagram of Nirayu Collection
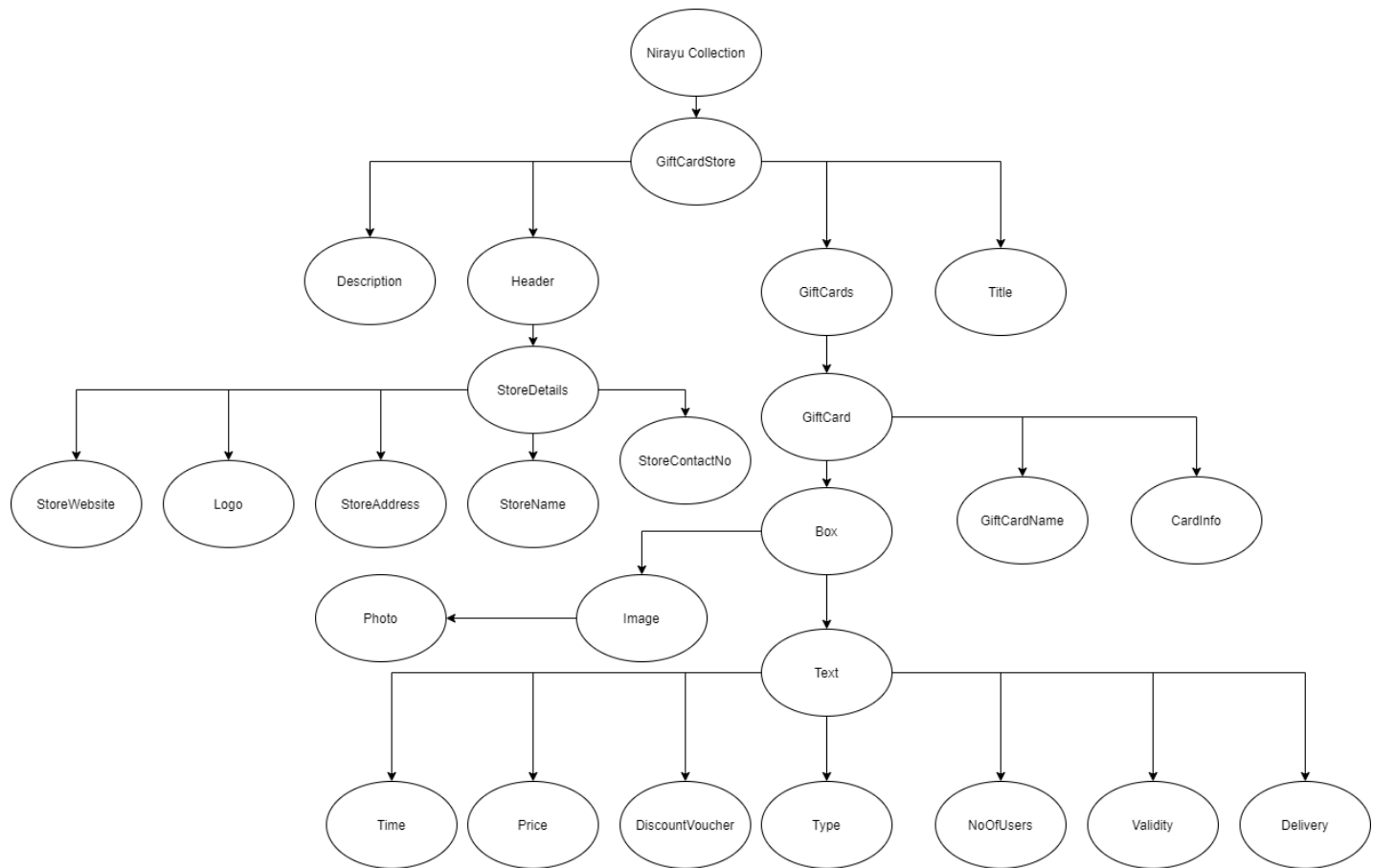
2.3. XML Code (must be color coded)

```xml
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet href="catalog_20048942.css"?>


<NirayuCollection xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="catalog_20048942.xsd">
    <GiftcardStore>
        <Header>
            <StoreDetails storeID="204172">
                <StoreName>Nirayu Collection</StoreName>
                <Logo/>
                <StoreAddress>Address: London,United Kingdom</StoreAddress>
                <StoreContactNo>Contact N0: +44 78664718002 </StoreContactNo>
                <StoreWebsite>Website: www.nirayucollection.co.uk</StoreWebsite>
            </StoreDetails>
        </Header>
        <Description>
            <![CDATA[
        Welcome to Nirayu Collection where you can find any items you want. You are currently in the gift card section. A gift
card is a prepaid debit card that contains a specific amount of money available for use for a variety of purchases.
            Store gift cards are designed to be used at specific merchants or retailers, while general-use prepaid gift cards are
not affiliated with any specific merchant and can also be used to withdraw cash at automated teller machines (ATMs).
            Following are the gift cards available in our store. Please contact us by email or phone to purchase gift cards or
know more about it.]]>
        </Description>
        <Title>
            Gift Cards
        </Title>
        <GiftCards>
            <GiftCard>
                <GiftCardName>Nike Gift Card</GiftCardName>
                <Box>
                    <Image>
                        <Photo code='1'/>
                    </Image>
                    <Text>
                        <Type>Type : Physical</Type>
                        <Validity>Valid Upto : 9th March 2024</Validity>
                        <Price>Price : &#163;3500</Price>
                        <NoOfUsers>Number of Users : 50</NoOfUsers>
                        <DiscountVouchers>Discount : 20% Discount for members</DiscountVouchers>
                        <Delivery>Delivery : Home delivery</Delivery>
                        <Time>Estimated Time : 3 Working Days</Time>
                    </Text>
                </Box>
                <CardInfo>
```

```xml
                <![CDATA[Gift your loved ones or your friends the Nike gift card on their birthday or some special occasion.
The Nike gift can be used to buy any accessories of Nike within price of £2000. ]]>
            </CardInfo>
        </GiftCard>


        <GiftCard>
            <GiftCardName>Steam Gift Card</GiftCardName>
            <Box>
                <Image>
                    <Photo code='2'/>
                </Image>
                <Text>
                    <Type>Type : Digital</Type>
                    <Validity>Valid Upto : 1st September 2023</Validity>
                    <Price>Price : &#163;100</Price>
                    <NoOfUsers>Number of Users : 100</NoOfUsers>
                    <DiscountVouchers>Discount : No discount available</DiscountVouchers>
                    <Delivery>Delivery : Through E-Mail</Delivery>
                    <Time>Estimated Time : 5 Minutes</Time>
                </Text>
            </Box>
            <CardInfo>
                <![CDATA[Gift your best friends the Steam gift card. The steam card can be redeemed at the steam store and the
balance will be added to your account. You can use to buy new games or purchase DLCs.]]>
            </CardInfo>
        </GiftCard>


        <GiftCard>
            <GiftCardName>Pizza Hut Gift Card</GiftCardName>
            <Box>
                <Image>
                    <Photo code='3'/>
                </Image>
                <Text>
                    <Type>Type : Physical</Type>
                    <Validity>Valid Upto : 3rd August 2023</Validity>
                    <Price>Price : &#163;500</Price>
                    <NoOfUsers>Number of Users : 250</NoOfUsers>
                    <DiscountVouchers>Discount : No discount available</DiscountVouchers>
                    <Delivery>Delivery : Home delivery</Delivery>
                    <Time>Estimated Time : 3 Working Days</Time>
                </Text>
            </Box>
            <CardInfo>
                <![CDATA[Gift your friends and family Pizza Hut Gift Card. The pizza hut gift card can be used to purchase any
pizza within the price range of £500 on any pizza hut outlet in your city.]]>
```

```xml
            </CardInfo>
        </GiftCard>
        <GiftCard>
            <GiftCardName>Mango Petroleum Gift Card</GiftCardName>
            <Box>
                <Image>
                    <Photo code='4'/>
                </Image>
                <Text>
                    <Type>Type : Physical</Type>
                    <Validity>Valid Upto : 22nd June 2024</Validity>
                    <Price>Price : &#163;2000</Price>
                    <NoOfUsers>Number of Users : 20</NoOfUsers>
                    <DiscountVouchers>Discount : Discount for purchase above £300</DiscountVouchers>
                    <Delivery>Delivery : Home delivery</Delivery>
                    <Time>Estimated Time : 3 Working Days</Time>
                </Text>
            </Box>
            <CardInfo>
                <![CDATA[Buy this gift card for your family and friends to buy petrol or diesel on your nearest local
petroleum. Just give this gift card and get the petroleum of the specified gift card.]]>
            </CardInfo>
        </GiftCard>
        <GiftCard>
            <GiftCardName>Playstation Gift Card</GiftCardName>
            <Box>
                <Image>
                    <Photo code='5'/>
                </Image>
                <Text>
                    <Type>Type : Digital</Type>
                    <Validity>Valid Upto : 31st December 2022</Validity>
                    <Price>Price : &#163;200</Price>
                    <NoOfUsers>Number of Users : 800</NoOfUsers>
                    <DiscountVouchers>Discount : 35% Discount for PS Plus Subscribers</DiscountVouchers>
                    <Delivery>Delivery : Through E-Mail</Delivery>
                    <Time>Estimated Time : 5 Minutes</Time>
                </Text>
            </Box>
            <CardInfo>
                <![CDATA[Gift your best friends the Steam gift card. The playstation gift card can be redeemed at the PS store
and the balance will be added to your account. You can use to buy new games or purchase DLCs.]]>
            </CardInfo>
        </GiftCard>
        <GiftCard>
            <GiftCardName>Google Play Gift Card</GiftCardName>
```

```xml
                <Box>
                    <Image>
                        <Photo code='6'/>
                    </Image>
                    <Text>
                        <Type>Type : Digital</Type>
                        <Validity>Valid Upto : 7th April 2023</Validity>
                        <Price>Price : &#163;100</Price>
                        <NoOfUsers>Number of Users : 4200</NoOfUsers>
                        <DiscountVouchers>Discount : No discount available</DiscountVouchers>
                        <Delivery>Delivery : Through E-Mail</Delivery>
                        <Time>Estimated Time : 5 Minutes</Time>
                    </Text>
                </Box>
                <CardInfo>
                    <![CDATA[Gift your friends and family the Google Play Gift Card. You can purchase any app or games after
redeeming it. You can also get in-app or in-game purchases through it.]]>
                </CardInfo>
            </GiftCard>
            <GiftCard>
                <GiftCardName>IKEA Gift Card</GiftCardName>
                <Box>
                    <Image>
                        <Photo code='7'/>
                    </Image>
                    <Text>
                        <Type>Type : Digital</Type>
                        <Validity>Valid Upto : 1st February 2024</Validity>
                        <Price>Price : &#163;10000</Price>
                        <NoOfUsers>Number of Users : 40</NoOfUsers>
                        <DiscountVouchers>Discount : No discount available</DiscountVouchers>
                        <Delivery>Delivery : Through E-Mail</Delivery>
                        <Time>Estimated Time : 5 Minutes</Time>
                    </Text>
                </Box>
                <CardInfo>
                    <![CDATA[Gift your family IKEA furniture on their special day. You can go to any of the IKEA stores and redeem
the IKEA gift card to purchase.]]>
                </CardInfo>
            </GiftCard>
        </GiftCards>
    </GiftcardStore>
</NirayuCollection>
```

3. Schema Document (Include schema code – must be color coded)

```xml
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="NirayuCollection">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="GiftcardStore">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Header">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="StoreDetails">
                      <xs:complexType>
                        <xs:sequence>
                          <xs:element type="xs:string" name="StoreName"/>
                          <xs:element type="xs:string" name="Logo"/>
                          <xs:element type="xs:string" name="StoreAddress"/>
                          <xs:element type="xs:string" name="StoreContactNo"/>
                          <xs:element type="xs:string" name="StoreWebsite"/>
                        </xs:sequence>
                        <xs:attribute type="xs:int" name="storeID" use="optional"/>
                      </xs:complexType>
                    </xs:element>
                  </xs:sequence>
                </xs:complexType>
              </xs:element>
              <xs:element type="xs:string" name="Description"/>
              <xs:element type="xs:string" name="Title"/>
              <xs:element name="GiftCards">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="GiftCard" maxOccurs="unbounded" minOccurs="0">
                      <xs:complexType>
                        <xs:sequence>
                          <xs:element type="xs:string" name="GiftCardName"/>
                          <xs:element name="Box">
                            <xs:complexType>
                              <xs:sequence>
                                <xs:element name="Image">
                                  <xs:complexType>
                                    <xs:sequence>
                                      <xs:element name="Photo">
                                        <xs:complexType>
                                          <xs:simpleContent>
                                            <xs:extension base="xs:string">
```

```xml
                                        <xs:attribute type="xs:byte" name="code" use="required"/>
                                    </xs:extension>
                                </xs:simpleContent>
                            </xs:complexType>
                        </xs:element>
                    </xs:sequence>
                </xs:complexType>
            </xs:element>
            <xs:element name="Text">
                <xs:complexType>
                    <xs:sequence>
                        <xs:element type="xs:string" name="Type"/>
                        <xs:element type="xs:string" name="Validity"/>
                        <xs:element type="xs:string" name="Price"/>
                        <xs:element type="xs:string" name="NoOfUsers"/>
                        <xs:element type="xs:string" name="DiscountVouchers"/>
                        <xs:element type="xs:string" name="Delivery"/>
                        <xs:element type="xs:string" name="Time"/>
                    </xs:sequence>
                </xs:complexType>
            </xs:element>
            <xs:element type="xs:string" name="CardInfo"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
 </xs:element>
</xs:schema>
```

4. Difference between Schema and DTD

Some of the differences between Schema and DTD are listed below:

Schema	DTD
Schema is used to help in generating XML document and defining rules of attributes and elements.	DTD is used to describe the attributes and structure.
Namespace is supported.	Namespace is not supported.
Datatypes are supported.	Datatypes are not supported.
Schema is extensible.	DTD is not extensible.
Schema is comparatively easier than DTD.	DTD is comparatively complex than Schema.
Schema provides us more control in structure of the XML file.	DTD does not provide us much control in structure of the XML file.
XML is used in writing XSD.	SGML syntax is used in writing DTD.
Schema is more flexible when dealing with different types of content.	DTD is less flexible when dealing with different types of content.

Table 3 Differences between Schema and DTD

5.   Testing

Test 1

Test No.	1
Objective	To validate the XML file without XSD
Action	XML file is uploaded for validation
Expected Result	The XML file should be validated without errors.
Actual Result	The XML file was validated without errors.
Conclusion	The test is successful.

Table 4 Test Table 1

Screenshots:

Figure 2 XML file is validated with XSD

Test 2

Test No.	2
Objective	To validate the xml along with XSD.
Action	XML file along with XSD file is uploaded for validation.
Expected Result	Both the files should be validated without errors.
Actual Result	Both the files were validated without errors.
Conclusion	The test is successful.

Table 5 Test Table 2

Screenshots:

Figure 3 XML file is validated along with XSD

Test 3

Test No.	3
Objective	To check for errors in the CSS file
Action	CSS file is uploaded for checking
Expected Result	No errors should be found.
Actual Result	No errors were found.
Conclusion	The test is successful.

Table 6 Test Table 3

Screenshots:

W3C CSS Validator results for TextArea (CSS level 3 + SVG)

Congratulations! No Error Found.

This document validates as CSS level 3 + SVG !

To show your readers that you've taken the care to create an interoperable Web page, you may display this icon on any page that validates. Here is the XHTML you could use to add this icon to your Web page:

```
<p>
    <a href="http://jigsaw.w3.org/css-validator/check/referer">
        <img style="border:0;width:88px;height:31px"
            src="http://jigsaw.w3.org/css-validator/images/vcss"
            alt="Valid CSS!" />
    </a>
</p>
```

```
<p>
<a href="http://jigsaw.w3.org/css-validator/check/referer">
    <img style="border:0;width:88px;height:31px"
        src="http://jigsaw.w3.org/css-validator/images/vcss-blue"
        alt="Valid CSS!" />
    </a>
</p>
```

Figure 4 CSS file is checked for errors.

Test 4

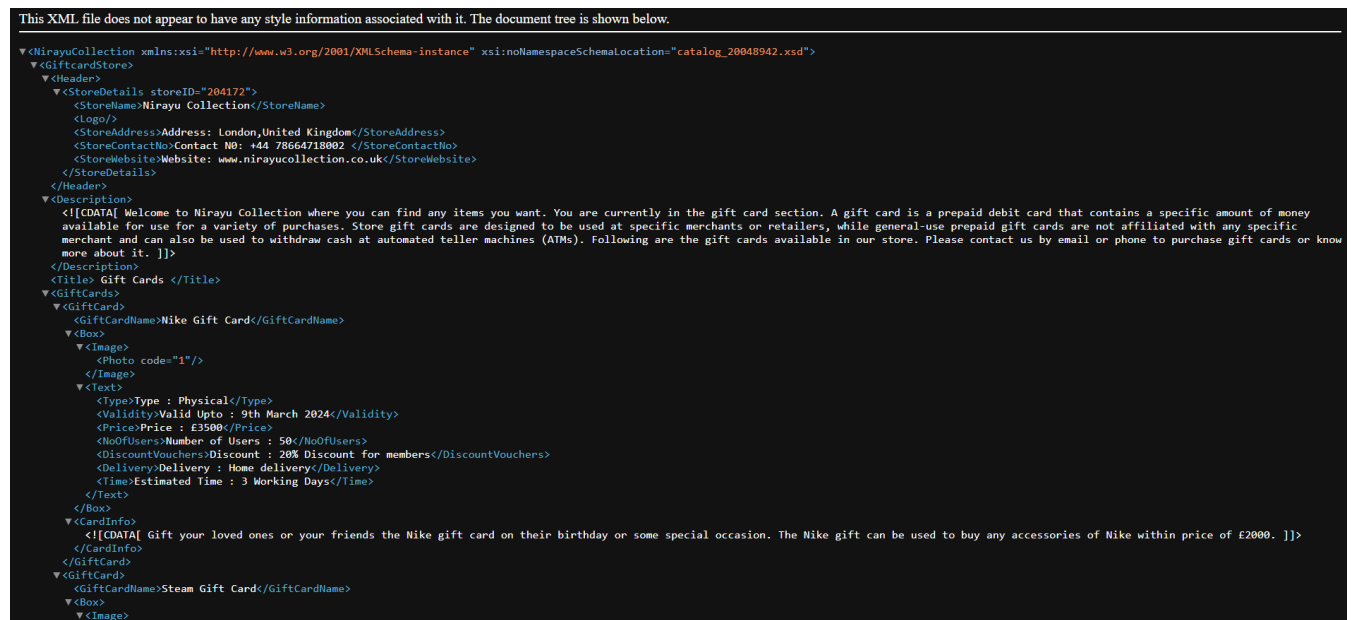| Test No.	4
Objective	To open the XML file without CSS linked.
Action	XML file is opened without CSS
Expected Result	The XML file should be opened showing a document tree with all the elements and data.
Actual Result	The XML file was opened showing a document tree with all the elements and data.
Conclusion	The test is successful.

Table 7 Test Table 4

Screenshots:

Figure 5 XML file is opened without CSS

Test 5

Test No.	5
Objective	To open the XML file with CSS linked.
Action	XML file is opened with CSS
Expected Result	The XML file should be opened with a design made through CSS.
Actual Result	The XML file was opened with a design made through CSS.
Conclusion	The test is successful.

Table 8 Test Table 5

Screenshots:

Figure 6 XML file is opened with CSS

6. Coursework Development

The xml model created in the coursework is for an online gift card shop named 'Nirayu Collection'. The coursework was built using XML, XSD and CSS. The gift card shop is located in London, United Kingdom. Before starting the coding in XML, the requirements for the model were studied and a tree diagram with all the elements was created. After creating a tree diagram, coding was started in Visual Studio Code. Some websites were researched before creating a CSS file. Websites with different designs were visited. After all the codes were finished, testing was done along with the documentation.

Some problems occurred during the coding phase of the coursework. The solution for the errors were found after consulting with my teachers and some of my friends. Some research were also done in the internet to solve the errors.

7.   Critical Analysis

For the given coursework, an XML model was implemented for an online gift card shop named Nirayu Collection using Visual Studio Code. This module focuses on XML and it has helped me learn about XML, XML Schema, XML DTD and its capability. I got to learn how to store data in XML for websites. After completing the coursework, my knowledge in XML has improved a lot. This coursework has helped me develop my skills about XML design. This was our first time learning about XML in our course. There was some confusion at first but it became clear after the doing some research. The coursework was completed after much struggle but I have gained much more knowledge on XML.

8.　Conclusion

In conclusion, after some struggles the coursework was completed. An XML model was successfully developed for an online gift shop. The XML stores the data of the available gift card in the store. The data of the gift card that are stored in the XML are the price, number of users, discount vouchers, validity, delivery, time, and card info. The CSS contains the design for the xml and images and logo for the xml.