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(इस्लिङ्टन कलेज)

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1. INTRODUCTION

As an XML developer we are required to model a system for a store which is situated in United Kingdom. The store sells the gift cards or the gift vouchers which is also a form of payment in different types of shops such as restaurants, retail stores and so on. The store's information includes the name, address, contact number, website, logo and so on. The shops sell two types of gift cards one of them is physical and another one is digital card which is also called as e-gift cards. Cards contain following properties such as price, its validity, users, discount vouchers, shipping location, rating and so on. Similarly, by examining the situation, the XML data is being prepared and further information is included as per their need. Furthermore, the structure of the document which is also known as tree diagram is drawn according to the scenario and further information is gathered. The information contains 15 unique data with 5 unique attributes and so on. After that, XML document along with scheme file has been created. Likewise, Validation has been done of the XML document to make sure the data flows correctly. Validation of the XML document along with Schema is done by using an online validator.

1.1. Extensible Markup Language (XML)

XML stands for Extensible Markup language which has been derived from Standard Generalized Markup Language (SGML). Unlike HTML tags which indicates how to display the information, XML tags helps to identify the data and it is used to store and organize the data rather than displaying the information. Some of the important features of the XML is it is extensible. XML allows user to create the self-descriptive tags which allows the user to suit their program which means user are free to use any tags on their own. Similarly, it allows the data to store them not how it will be displayed. Furthermore, it was developed by the World Web Consortium (W3C) which is available as the open standard (tutorialspoint, 2022).

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Figure 1: Logo of XML

Source: (lyfin360, 2022)

1.2.   XML Schema Definition (XSD)

XML Schema which is also known as XML Schema Definition (XSD). The main aim of this XSD is to describe and validate the structure and content of the XML data. It also defines about the elements, attributes, and data types. In XSD there are different types of definition types such as simple types, complex types, global types and so on.
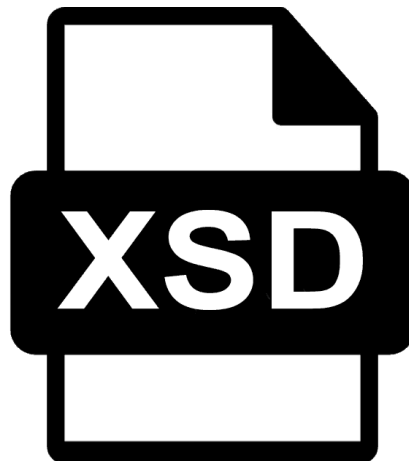
Figure 2: XSD logo

Source: (testdataautomation, 2022)

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1.3.   Cascading Style Sheet (CSS)

CSS stands for Cascading Style Sheets which was released in 17th of December in 1996. It was developed by World Wide Web Consortium. CSS is used for designing us webpages. It is especially used to make easier to design the webpages. We can also write the same content with different styles. It helps to style not write the content of the documents. There are three different types of CSS such as Inline CSS, Internal CSS and External CSS (webplatform, 2022). In this project external CSS has been used to style the XML file. Different types of CSS elements such as flex, blocks and so on.

Figure 3: Logo of CSS

Source: (cdn-icons-png.flaticon, 2022)

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2. XML Document

2.1. List of Data

2.1.1. List of Elements

List of Elements	Element Type	Element data	Occurrence
store	complexType	Child elements	Only once
store_Details	complexType	Child elements	Only once
storeName	simpleType	String	Only once
Logo	complexType	Empty element	Only once
Contact No	simpleType	Integer	Only once
Address	complexType	Child elements	Only once
Website	simpleType	String	Only Once
Gifts	complexType	Child elements	Only once
Gifts_Details	complexType	Child elements	One or more
Gift_Name	simpleType	String	Only once
giftNumber	complexType	String	Only once
Type	simpleType	String	Only once
Expiry_Date	simpleType	String	Only once
Price	complexType	decimal	Only once
Discount_Vouchers	simpleType	String	Zero or one
Production_company	simpleType	String	Only once
users	simpleType	String	Only once
code	simpleType	String	Zero or one
Payment_Method	complexType	String	Zero or one
Shipping_Charge	complexType	String	Zero or one
Shipping_Location	simpleType	String	Zero or one
Description	complexType	String	Zero or one
rating	simpleType	String	Only once
image	complexType	String	Only once

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Gift_id	simpleType	string	Only once
Footer	complexType	string	Only once

Table 1: List of Elements

2.1.2. List of Attributes

List of Attributes	Data Type	Default	Fixed	Use
ID (Gift)	ID	1	-	Required
Id (Logo)	String	1	-	Required
Id (gift_Number)	String	1	-	Required
currency	String	1	-	Required
ID (image)	ID	1	-	Required

Table 2: List of Attributes

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2.2.   Tree Diagram

A tree diagram is the visual representation of an XML document where it consists of root element including the document that consists of all the sub-element with its text and attributes. The tree diagram starts with the one main item which is known as the root element which has git a lot of branches into two or more than two branches and so on. Similarly, when the tree diagram will be finished it will be bear as a resemblance to a tree with a trunk and multiple branches (asq, 2021) .

In this project, Store is categorised as a root element which is being followed by three child elements: store_Details, Gifts and Footer.

- In the element store_Details it contains five elements which are as mentioned below: i.e., Name, logo, website, contact_No and address. Similarly, address contains three child elements which includes State, City and Street. The logo contains one attribute named "id".

- Gifts contains one child element which is named as gifts_Details. It contains multiple child elements due to which it has been denoted by + sign. Gift details contains one attribute named "id". The gifts_Details contains 15 child elements out of which 5 of them are optional elements which means those elements are not completely mandatory. Optional elements include code, discount_Vouchers, shipping_Charges, shipping_Location and description. These optional elements are represented by the "?" sign. Additionally, price contains one attribute named "currency". Moreover, giftNumber and images contains one attribute name "id" respectively.

- On the other hand, footer contains no child elements of its own. It consists of the information regarding the copyright.

The tree diagram of this project is illustrated below:
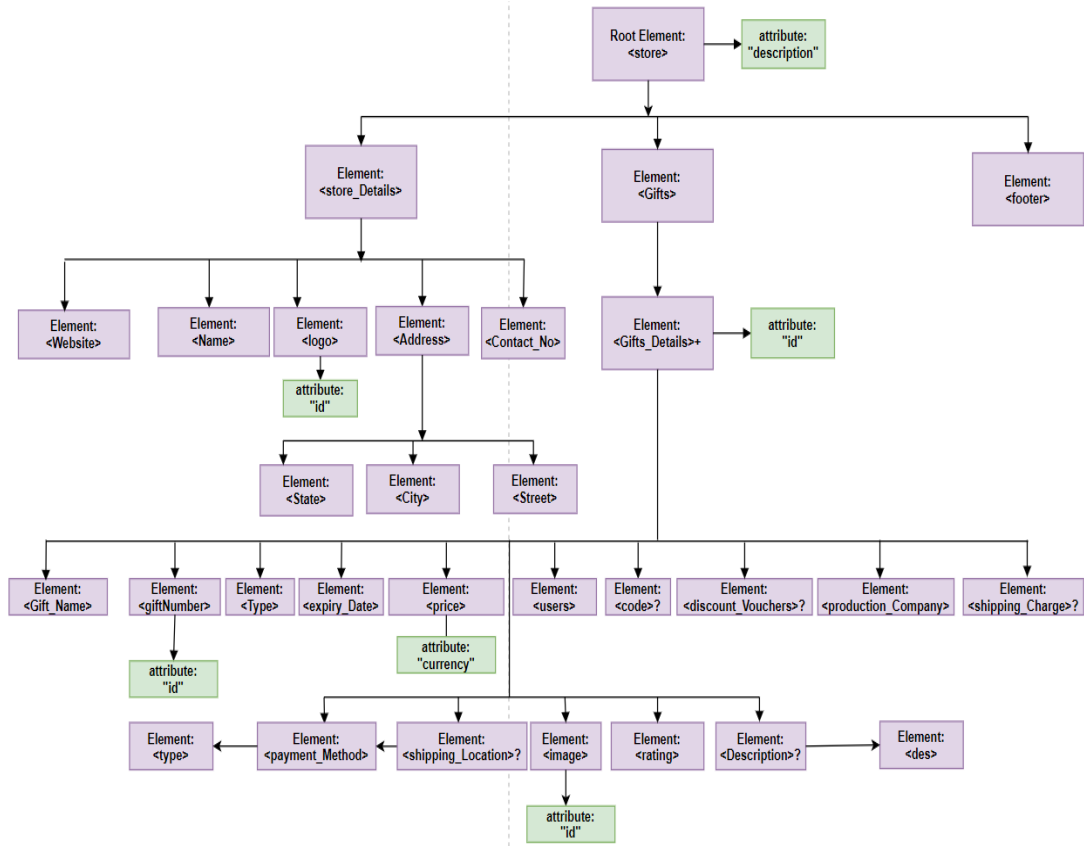
Figure 4: Tree Diagram

2.3.   XML Code

```xml
<?xml version="1.0" encoding="UTF-8"?>

<!--
    Name:Adarsha Pandey
    London ID: 20048813
    Date: 23 May 2022
-->

<?xml-stylesheet href="catalog_20048813.css" type="text/css"?>
<store xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="catalog_20048813.xsd">
    <store_Details>
        <Name>Archies Gallery</Name>
        <logo id="Image"/>
        <Contact_No>9851071225</Contact_No>

        <Address>
            <State>Pokhara</State>
            <City>Lakeside</City>
            <Street>Liverpool Road</Street>
        </Address>

        <Website>https://www.archiesonline.com/</Website>


    </store_Details>

    <Gifts>

        <Gifts_Details gift_id="gift_01">

            <gift_Name>Netflix Gift Card</gift_Name>
            <giftNumber id="gift_01">01</giftNumber>
            <Type>Digital Card</Type>
            <expiry_Date>23/04/2026</expiry_Date>
            <price currency="euro">100</price>
            <discount_Vouchers>10% Off</discount_Vouchers>
            <production_Company>Netflix</production_Company>
            <users>3</users>
            <code>1388</code>
            <payment_Method>
                <type>Esewa</type>
            </payment_Method>
```

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```xml
        <rating>4.5</rating>
        <Image id="img_01"/>

    </Gifts_Details>


    <Gifts_Details gift_id="gift_02">

        <gift_Name>Netflix Gift Card</gift_Name>
        <giftNumber id="gift_02">02</giftNumber>
        <Type>Digital Card</Type>
        <expiry_Date>23/04/2026</expiry_Date>
        <price currency="euro">100</price>
        <discount_Vouchers>30% Off till 30th March</discount_Vouchers>
        <production_Company>Netflix</production_Company>
        <users>2</users>
        <code>1424</code>
        <payment_Method>
            <type>Esewa,khaliti,ATM Card</type>
        </payment_Method>
        <rating>4.5</rating>
        <Image id="img_02"/>

    </Gifts_Details>

    <Gifts_Details gift_id="gift_03">

        <gift_Name>Starbucks Treat</gift_Name>
        <giftNumber id="gift_03">03</giftNumber>
        <Type>Digital Card</Type>
        <expiry_Date>12/01/2023</expiry_Date>
        <price currency="euro">50</price>
        <discount_Vouchers>20% Off</discount_Vouchers>
        <production_Company>Starbucks</production_Company>
        <users>1</users>
        <code>1423</code>
        <payment_Method>
            <type>khalti,phonepay</type>
        </payment_Method>
        <Description>
            <des>Starbuck has made a announcement that those who buy this
card will get free re-fill until 10 days.</des>
        </Description>
        <rating>5.0</rating>
        <Image id="img_03"/>
```

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```xml
        </Gifts_Details>

        <Gifts_Details gift_id="gift_04">

            <gift_Name>Teachers Day</gift_Name>
            <giftNumber id="gift_04">04</giftNumber>
            <Type>Physical Card</Type>
            <expiry_Date>12/01/2023</expiry_Date>
            <price currency="Rs.">200</price>
            <discount_Vouchers>10% off from Nabil Bank Card</discount_Vouchers>
            <production_Company>Gandaki School</production_Company>
            <users>3</users>
            <payment_Method>
                <type>khalti,phonepay,Credit Card</type>
            </payment_Method>
            <shipping_Charge currency="Rs.">20</shipping_Charge>
            <shipping_Location>Ilam</shipping_Location>
            <Description>
                <des>This card will help students to buy gifts for their teachers
on the ocassion of Teacher's day.</des>
            </Description>
            <rating>3.0</rating>
            <Image id="img_04"/>
        </Gifts_Details>

        <Gifts_Details gift_id="gift_05">

            <gift_Name>Mother's Day</gift_Name>
            <giftNumber id="gift_05">05</giftNumber>
            <Type>Physical Card</Type>
            <expiry_Date>20/04/2022</expiry_Date>
            <price currency="Rs.">50.08</price>
            <discount_Vouchers>40% Off from Nic Asia</discount_Vouchers>
            <production_Company>ING Group</production_Company>
            <users>1</users>
            <shipping_Charge currency="Rs.">20</shipping_Charge>
            <shipping_Location>Lakeside</shipping_Location>
            <Description>
                <des>This card will help the kids to get beautiful present for
their caring mom. </des>
            </Description>
            <rating>5.0</rating>
            <Image id="img_05"/>
        </Gifts_Details>
```

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```xml
<Gifts_Details gift_id="gift_06">

    <gift_Name>Amazon Card</gift_Name>
    <giftNumber id="gift_06">06</giftNumber>
    <Type>Digital Card</Type>
    <expiry_Date>20/12/2025</expiry_Date>
    <price currency="euro">140</price>
    <discount_Vouchers>15% Off until 2024 </discount_Vouchers>
    <production_Company>Amazon</production_Company>
    <users>6</users>
    <code>1490</code>
    <payment_Method>
        <type>Esewa,khaliti,ATM Card</type>
    </payment_Method>
    <rating>3.6</rating>
    <Image id="img_06"/>


</Gifts_Details>


<Gifts_Details gift_id="gift_07">

    <gift_Name>Google Gift Card</gift_Name>
    <giftNumber id="gift_07">07</giftNumber>
    <Type>Digital Card</Type>
    <expiry_Date>30/10/2030</expiry_Date>
    <price currency="euro">170</price>
    <discount_Vouchers>20% from HBL bank</discount_Vouchers>
    <production_Company>Google</production_Company>
    <users>8</users>
    <code>1328</code>
    <payment_Method>
        <type>Esewa,phonepay,khalti,ATM Card</type>
    </payment_Method>
    <rating>3.1</rating>
    <Image id="img_07"/>

</Gifts_Details>

<Gifts_Details gift_id="gift_08">

    <gift_Name>Birthday Celebration</gift_Name>
    <giftNumber id="gift_08">08</giftNumber>
    <Type>Physical Card</Type>
```

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```xml
            <expiry_Date>03/09/2023</expiry_Date>
            <price currency="Rs.">25.00</price>
            <production_Company>Hotel Barahi</production_Company>
            <users>3</users>
            <payment_Method>
                <type>Esewa,phonepay,khalti,ATM Card</type>
            </payment_Method>
            <shipping_Charge currency="Rs.">20</shipping_Charge>
            <shipping_Location>Thamel</shipping_Location>
            <Description>
                <des>This card will help everyone to stay one night stay with
friends to celebrate birthday in hotel Barahi.  </des>
            </Description>
            <rating>5.0</rating>
            <Image id="img_08"/>
        </Gifts_Details>

        <Gifts_Details gift_id="gift_09">

            <gift_Name>Fifa 14</gift_Name>
            <giftNumber id="gift_09">09</giftNumber>
            <Type>Digital Card</Type>
            <expiry_Date>01/01/2029</expiry_Date>
            <price currency="euro">114</price>
            <discount_Vouchers>5% discount from esewa</discount_Vouchers>
            <production_Company>E-sports</production_Company>
            <users>2</users>
            <code>1562</code>
            <payment_Method>
                <type>Esewa,phonepay,khalti,ATM Card,connectIPS</type>
            </payment_Method>
            <rating>5.0</rating>
            <Image id="img_09"/>

        </Gifts_Details>

        <Gifts_Details gift_id="gift_010">

            <gift_Name>PUBG Mobile</gift_Name>
            <giftNumber id="gift_010">10</giftNumber>
            <Type>Digital Card</Type>
            <expiry_Date>02/05/2026</expiry_Date>
            <price currency="euro">300</price>
            <discount_Vouchers>20% from Phonepay</discount_Vouchers>
            <production_Company>PUBG</production_Company>
```

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```xml
    <users>1</users>
    <code>3904</code>
    <payment_Method>
        <type>phonepay</type>
    </payment_Method>
    <rating>4.2</rating>
    <Image id="img_010"/>

</Gifts_Details>

<Gifts_Details gift_id="gift_011">

    <gift_Name>Free Meal</gift_Name>
    <giftNumber id="gift_011">11</giftNumber>
    <Type>Physical Card</Type>
    <expiry_Date>09/3/2023</expiry_Date>
    <price currency="Rs.">50.00</price>
    <production_Company>Trishara &amp; Mantra</production_Company>
    <users>1</users>
    <payment_Method>
        <type>Cash</type>
    </payment_Method>
    <shipping_Charge currency="Rs.">20</shipping_Charge>
    <shipping_Location>Banasthali</shipping_Location>
    <rating>4.9</rating>
    <Image id="img_011"/>
</Gifts_Details>

<Gifts_Details gift_id="gift_012">

    <gift_Name>X-Box</gift_Name>
    <giftNumber id="gift_012">12</giftNumber>
    <Type>Digital Card</Type>
    <expiry_Date>02/12/2029</expiry_Date>
    <price currency="euro">30</price>
    <discount_Vouchers>10% from Nabil</discount_Vouchers>
    <production_Company>X-Box</production_Company>
    <users>3</users>
    <code>5000</code>
    <payment_Method>
        <type>ATM Card</type>
    </payment_Method>
    <rating>3.95</rating>
    <Image id="img_012"/>
```

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```xml
        </Gifts_Details>

        <Gifts_Details gift_id="gift_013">

            <gift_Name>Free Uber Ride</gift_Name>
            <giftNumber id="gift_013">13</giftNumber>
            <Type>Digital Card</Type>
            <expiry_Date>01/12/2022</expiry_Date>
            <price currency="euro">90</price>
            <production_Company>Uber</production_Company>
            <users>4</users>
            <code>1820</code>
            <payment_Method>
                <type>khalti</type>
            </payment_Method>
            <Description>
                <des>This card helps the user to get free ride around the
city.  </des>
            </Description>
            <rating>5.0</rating>
            <Image id="img_013"/>
        </Gifts_Details>

        <Gifts_Details gift_id="gift_014">

            <gift_Name>PES 2022</gift_Name>
            <giftNumber id="gift_014">14</giftNumber>
            <Type>Physical Card</Type>
            <expiry_Date>09/04/2023</expiry_Date>
            <price currency="Rs.">120.00</price>
            <production_Company>Steam Games</production_Company>
            <users>1</users>
            <payment_Method>
                <type>Cash</type>
            </payment_Method>
          <rating>5.0</rating>
          <Image id="img_014"/>
        </Gifts_Details>

        <Gifts_Details gift_id="gift_015">

            <gift_Name>Freefire</gift_Name>
            <giftNumber id="gift_015">15</giftNumber>
            <Type>Digital Card</Type>
            <expiry_Date>29/09/2025</expiry_Date>
```

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```xml
        <price currency="euro">130</price>
        <discount_Vouchers>50% Off from NIBL</discount_Vouchers>
        <production_Company>Freefire</production_Company>
        <users>3</users>
        <code>9023</code>
        <payment_Method>
            <type>khalti,phonepay,Paypal,ATM Card</type>
        </payment_Method>
        <rating>5.0</rating>
        <Image id="img_015"/>
    </Gifts_Details>


    <Gifts_Details gift_id="gift_016">

        <gift_Name>Mountain Flights</gift_Name>
        <giftNumber id="gift_016">16</giftNumber>
        <Type>Physical Card</Type>
        <expiry_Date>30/08/2022</expiry_Date>
        <price currency="Rs.">30000</price>
        <production_Company>Neapl Tourism Industry</production_Company>
        <users>2</users>
        <payment_Method>
            <type>ATM Card</type>
        </payment_Method>
        <shipping_Charge currency="Rs.">20</shipping_Charge>
        <shipping_Location>Balaju</shipping_Location>
        <Description>
            <des> This card helps people to sight seeing mountains. </des>
        </Description>
        <rating>4.5</rating>
        <Image id="img_016"/>
    </Gifts_Details>


</Gifts>

<!-- Footer element stores information regrading Copyright-->
<footer>
    2022 Copyright by Archies Gallery | Copyright  &#xA9; 2022
</footer>


</store>
```

3. Schema Code

```xml
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="store">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="store_Details">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Name" type="xs:string" />
              <xs:element name="logo">
                <xs:complexType>
                  <xs:attribute name="id" type="xs:string" use="required" />
                  </xs:complexType>
                    </xs:element>
              <xs:element name="Contact_No" type="xs:integer" />
              <xs:element name="Address">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="State" type="xs:string" />
                    <xs:element name="City" type="xs:string" />
                    <xs:element name="Street" type="xs:string" />
                  </xs:sequence>
                </xs:complexType>
              </xs:element>
              <xs:element name="Website" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="Gifts">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="Gifts_Details" minOccurs="1"
maxOccurs="unbounded">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="gift_Name" type="xs:string" />
                    <xs:element name="giftNumber">
                      <xs:complexType>
                        <xs:simpleContent>
                          <xs:extension base="xs:string">
                            <xs:attribute name="id" use="required" />
                          </xs:extension>
                        </xs:simpleContent>
```

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```xml
              </xs:complexType>
            </xs:element>
            <xs:element name="Type" type="xs:string" />
            <xs:element name="expiry_Date" type="xs:string" />
            <xs:element name="price">
              <xs:complexType>
                <xs:simpleContent>
                  <xs:extension base="xs:decimal">
                    <xs:attribute name="currency" use="required">
                      <xs:simpleType>
                        <xs:restriction base="xs:string">
                          <xs:enumeration value="Rs." />
                          <xs:enumeration value="euro" />
                        </xs:restriction>
                      </xs:simpleType>
                    </xs:attribute>
                  </xs:extension>
                </xs:simpleContent>
              </xs:complexType>
            </xs:element>
            <xs:element name="discount_Vouchers" minOccurs="0"
maxOccurs="1" type="xs:string" />
            <xs:element name="production_Company" type="xs:string" />
            <xs:element name="users" type="xs:string" />
            <xs:element name="code" minOccurs="0" maxOccurs="1"
type="xs:string" />
            <xs:element name="payment_Method" minOccurs="0"
maxOccurs="1">
              <xs:complexType>
                <xs:sequence>
                  <xs:element name="type" type="xs:string" />
                </xs:sequence>
              </xs:complexType>
            </xs:element>
            <xs:element name="shipping_Charge" minOccurs="0"
maxOccurs="1">
              <xs:complexType>
                <xs:simpleContent>
                  <xs:extension base="xs:string">
                    <xs:attribute name="currency" use="required"
fixed="Rs." />
                  </xs:extension>
                </xs:simpleContent>
              </xs:complexType>
            </xs:element>
```

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```xml
                    <xs:element name="shipping_Location" minOccurs="0"
maxOccurs="1" type="xs:string" />
                    <xs:element name="Description" minOccurs="0" maxOccurs="1">
                      <xs:complexType>
                        <xs:sequence>
                          <xs:element name="des" type="xs:string" />
                        </xs:sequence>
                      </xs:complexType>
                    </xs:element>
                    <xs:element name="rating" type="xs:string" />
                    <xs:element name="Image">
                      <xs:complexType>
                        <xs:attribute name="id" type="xs:ID" use="required" />
                      </xs:complexType>
                    </xs:element>
                  </xs:sequence>
                  <xs:attribute name="gift_id" type="xs:ID" use="required" />
                </xs:complexType>
              </xs:element>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="footer" type="xs:string" />
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

4. Difference between DTD and Schema

DTD	Schema
Document Type Definition (DTD) is a document which defines the structure of an XML document which has been derived by SGML syntax (Standard Generalized Markup Language).	XML Schema Definition (XSD) is defined as the rules of all the attributes and elements in an XML document. No need to learn about syntax in XSD.
It does not support datatype in DTD.	It can create and use datatypes in Schema for elements and attributes.
It does not support namespace.	It supports namespace. It is a collection of a group where element and attribute which is being identified by URI (Uniform Resource Identifiers) (tutorialspoint, 2022).
It does not define order for child elements.	It defines order for child elements.
It is not extensible	It is extensible (askanydifference, 2022)
It does not provide control on XML structure.	It provides more control on XML structure.
In comparison to XSD it is very hard to learn.	It is comparatively easier to learn in comparison to DTD.
It can be used to define the structure of an XML document.	It is used to define the structure and content of the XML (ypsjnv2013, 2020).

Table 3: Difference between DTD and Schema

5. TESTING:

Test 1: Running XML in browser

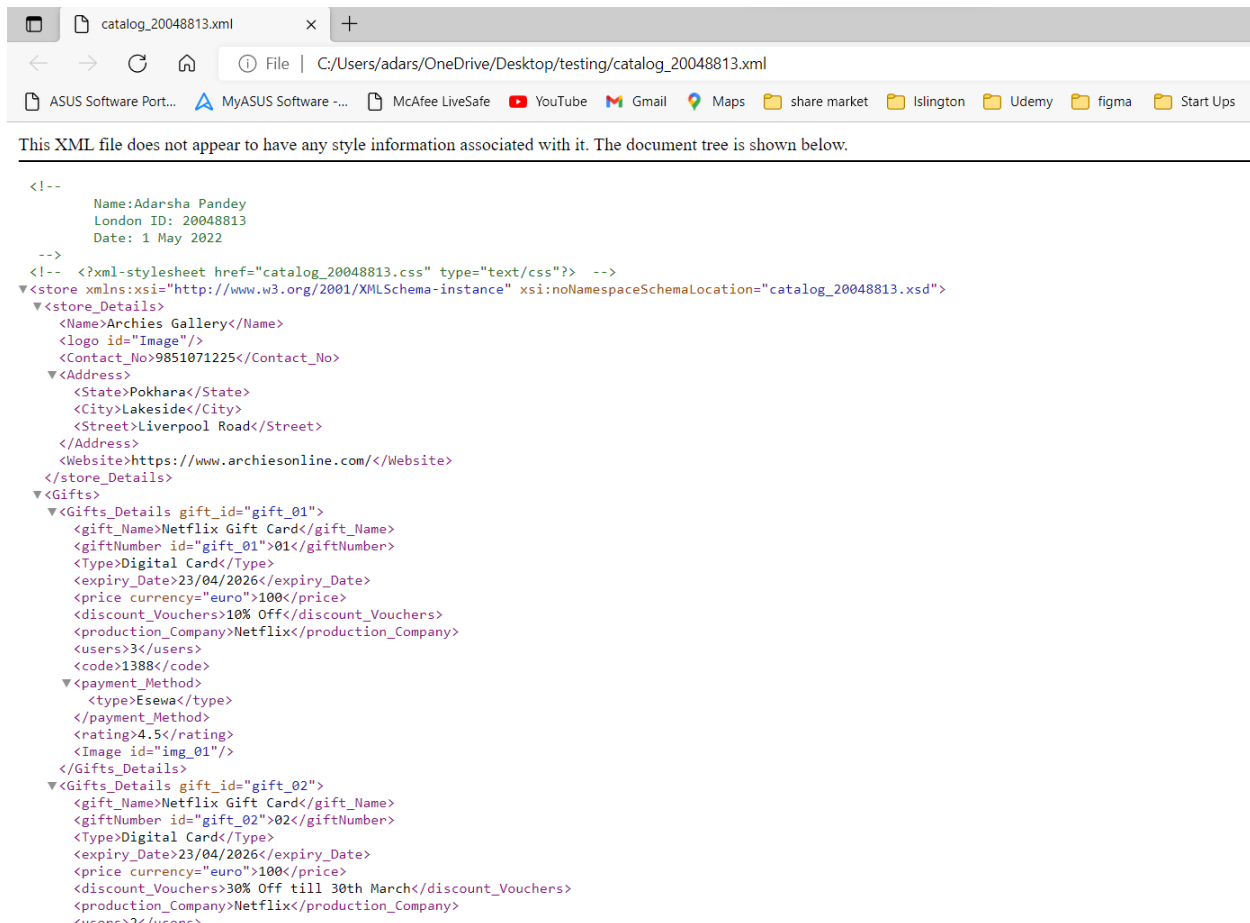| Test	1
Action	First, Run XML file for checking if XML document is well-formed or not.
Expected Result	XML file should be well formed.
Actual Result	XML file is in well-formed.
Test Result	Successful

Table 4: Running XML in browser

Figure 5: Running XML in browser

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Test 2: XML validation along with schema

Test	2
Action	Validate the XML file along with XML schema file using XML validator.
Expected Result	Both the XML file and schema file will be validated successfully.
Actual Result	Both the XML file and schema file is validated successfully.
Test Result	Successful

Table 5: XML validation along with Schema
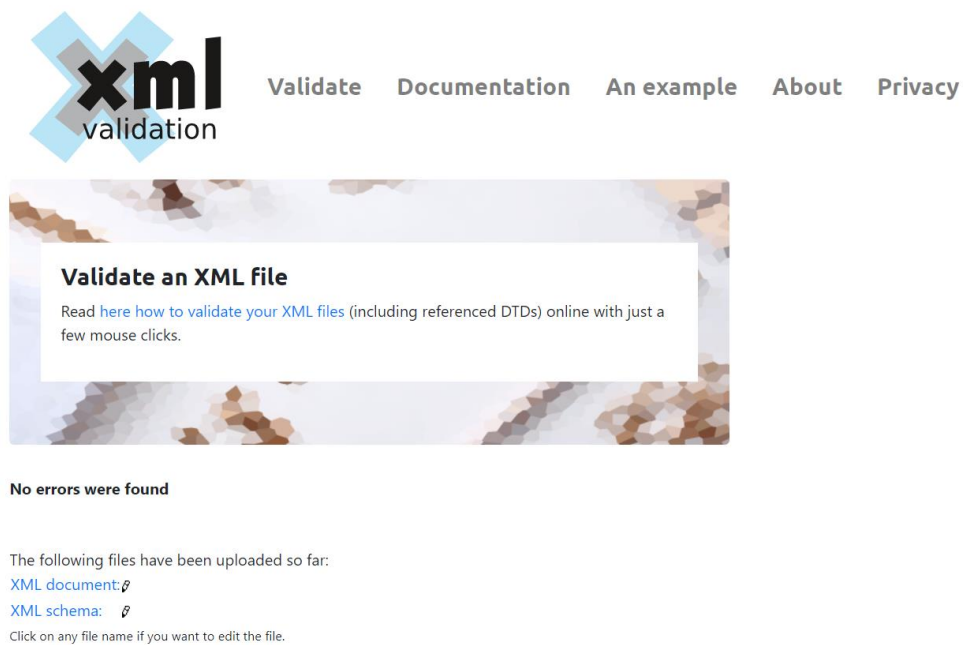
Figure 6: XML validation along with Schema

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Test 3: Running XML document in a browser after connecting with CSS

Test	3
Action	Previewing XML file in a browser.
Expected Result	Browser should render the CSS file.
Actual Result	CSS file was properly rendered by the browser.
Test Result	Successful

Table 6: Running XML with CSS

Figure 7: Running XML with CSS

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Test 4: To enter wrong data against schema

Test	4
Action	In the beginning enter wrong data in the element contact_No where there is restriction in schema and finally validate it using XML validator.
Expected Result	Two error messages will be displayed about cvc - datatype valid.
Actual Result	Two error messages are displayed about cvc- datatype valid.
Test Result	Successful

Table 7: Entering wrong data against Schema
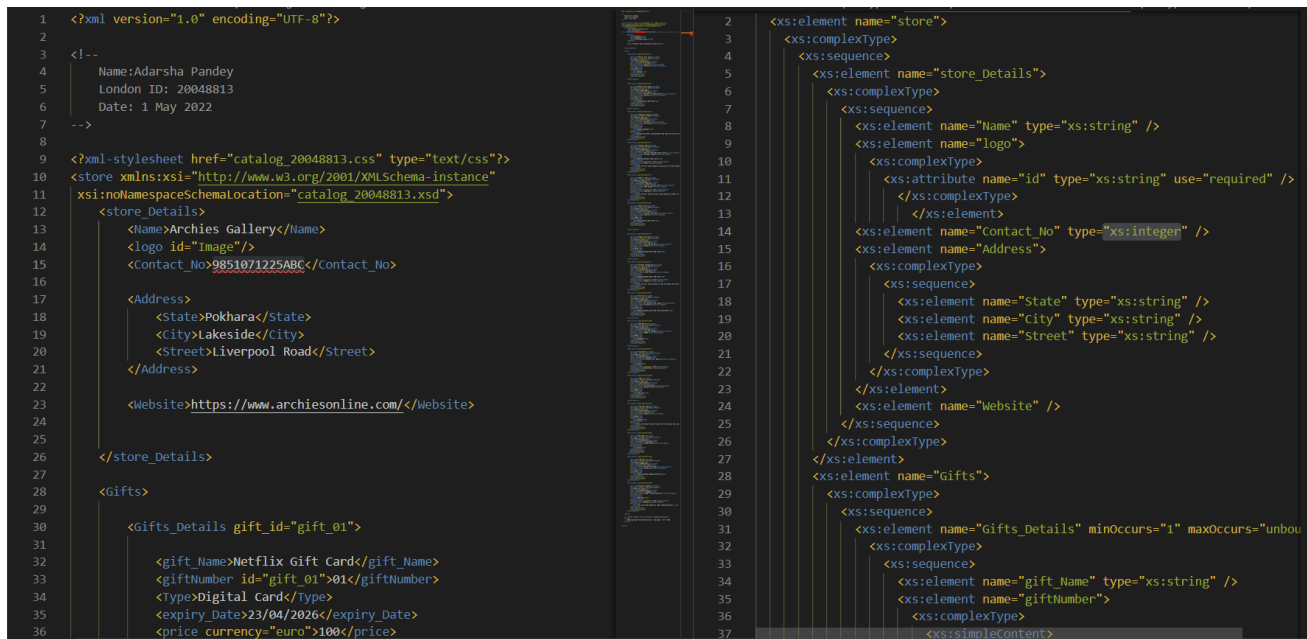
Figure 8: Entering wrong data against Schema

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2 errors have 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:
↰⊗ 15:47 cvc-datatype-valid.1.2.1: '9851071225ABC' is not a valid value for 'integer'.
↰⊗ 15:47 cvc-type.3.1.3: The value '9851071225ABC' of element 'Contact_No' is not valid.

XML document:
```
 1 <?xml version="1.0" encoding="UTF-8"?>
 2
 3 <!--
 4 Name:Adarsha Pandey
 5 London ID: 20048813
 6 Date: 1 May 2022
 7 -->
 8
 9 <?xml-stylesheet href="catalog_20048813.css" type="text/css"?>
10 <store xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
11 xsi:noNamespaceSchemaLocation="catalog_20048813.xsd">
12    <store_Details>
13        <Name>Archies Gallery</Name>
14        <logo id="Image"/>
         <Contact_No>9851071225ABC</Contact_No>
15 ⊗
   ⊗
16
17        <Address>
```

Figure 9: Errors after wrong data against schema

Test 5: To check whether CSS file is working out or not.

Test	5
Action	XML file is opened in the browser without linking CSS file and in another phrase link with the CSS file.
Expected Result	CSS file will be seen after linking the CSS design.
Actual Result	CSS file is rendered in the browser.
Test Result	Successful

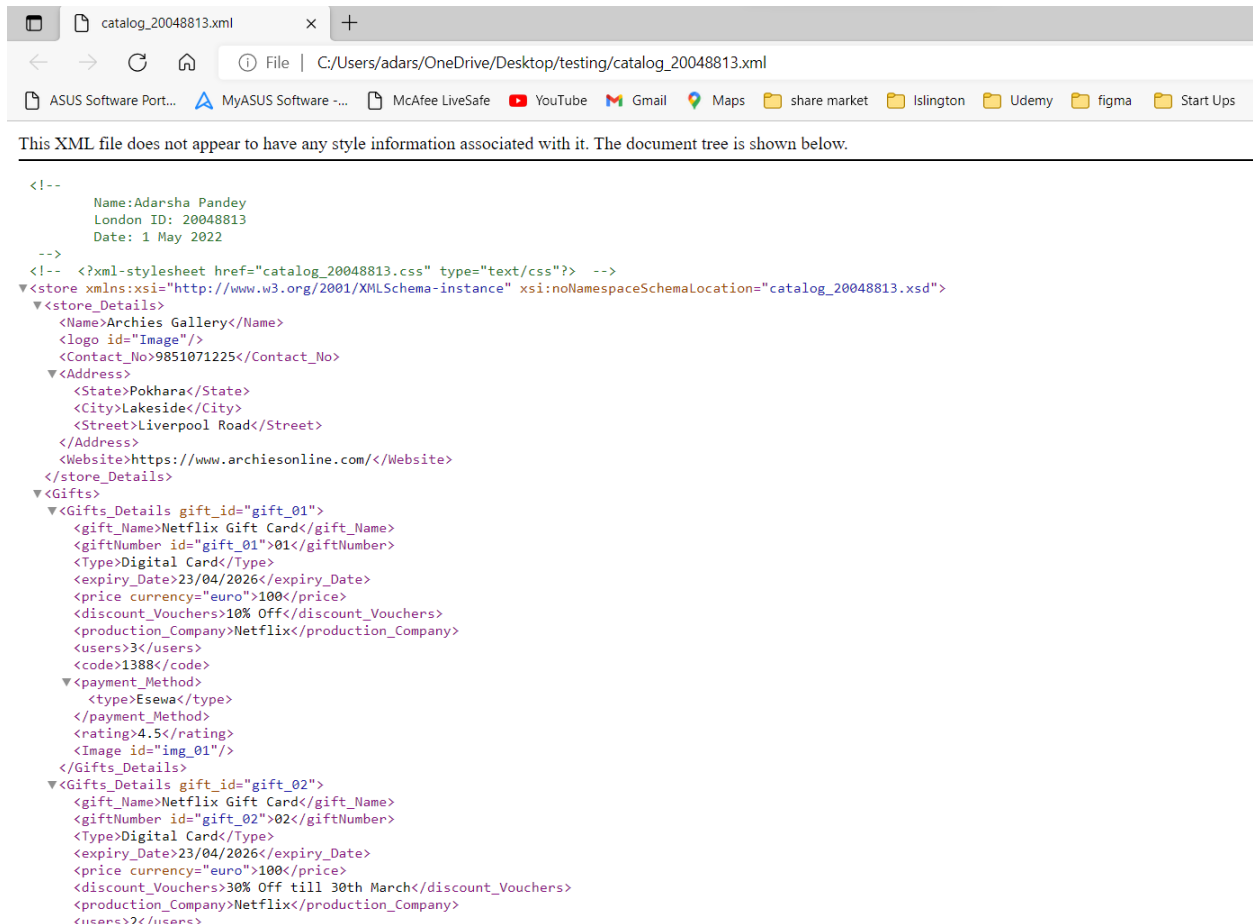Table 8: Checking whether CSS is working or not

Figure 10: XML file without connecting CSS

Figure 11: XML file linking with CSS

Figure 12: XML after connecting with CSS

Test 6: To check whether the hover effect is working out or not.

Test	6
Action	XML file is opened in the browser and cursor is pointed in one of the images.
Expected Result	Hover effect will be seen after putting cursor into the images.
Actual Result	Hover effect is seen after putting cursor into the images.
Test Result	Successful

Table 9: Checking whether hover effect is working or not
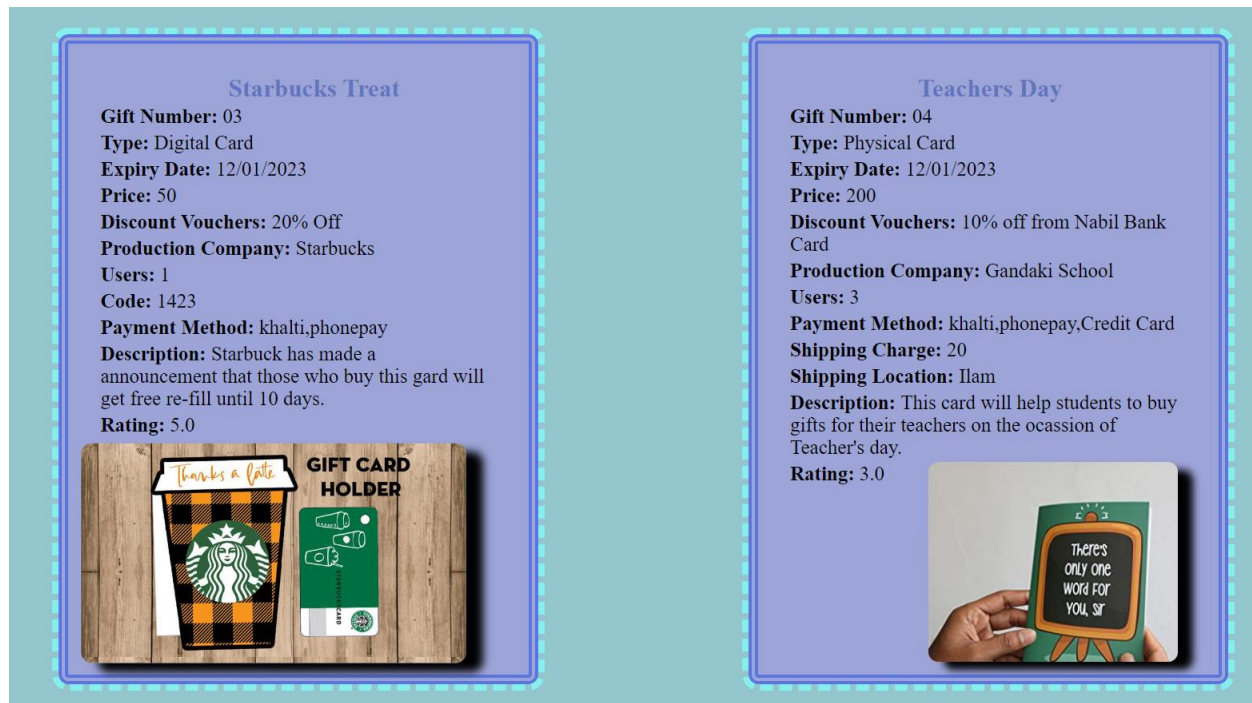
Figure 13: Checking hover effect

6. Coursework Development:

In the beginning, tree diagram was drawn using draw.io website. It is one of the free online diagram software for creating flowcharts, diagrams, UML and so on. The software contains massive choices of shapes where the user can easily draw what ever user wants. This software helps the user to draw tree diagram which can be really helpful while doing XML.
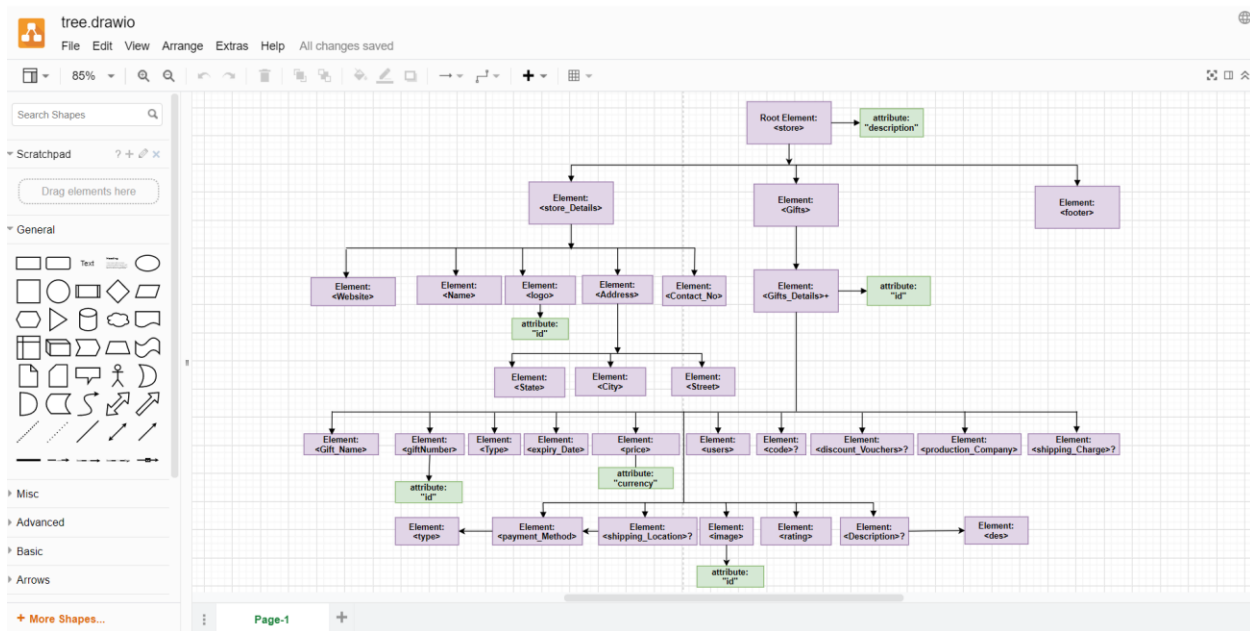

Figure 14: Tree diagram in draw.io

After finishing the tree diagram, I started doing this project by starting with XML in Visual Studio Code.

Visual Studio Code (VSC):

Visual Source Code is a powerful source code editor which runs in every platform such as Windows, MacOS, Linux etc. It was built in April 19, 2015 by Microsoft and it was released on November 18 ,2015. I have used visual studio code because it is an open-source software, and it is completely free for all the people around the world. VSC is very simple from downloading and writing the code of XML, Schema, CSS and so on.

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Visual Studio Code is used because it detects the mistake immediately. If there is any syntaxes or variables which has not written in the correct way it can detect easily. Because, of its colourful design the coder will also feel exciting to code with VSC. It helps to load multiple files at once which can make our work even easier (Pedamkar, 2022). It is one of the lightweight software so that many people prefer to write the codes of XML, Schema, CSS and so on. Similarly, XML has been designed in a unique way where a user can use their own tags and create their own report structures. Therefore, XML is very clean to understand every code by others which helps even more to all of us.
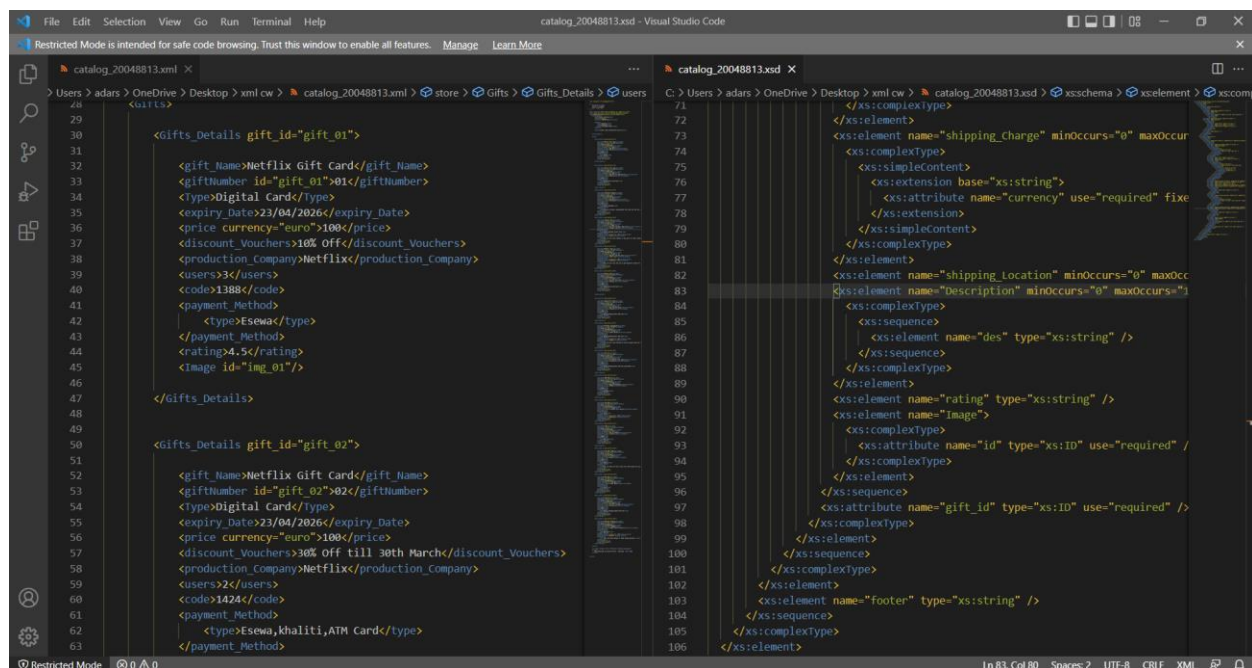

Figure 15: Visual Studio Code

After the XML and Schema was developed it was the time to give the design to the website. This was done by using CSS to make the XML document even more beautiful and the user can use in a friendly way. CSS will help XML to give layout o the document so that document will look magnificent. This includes colours, layout, fonts and so on. CSS helps to give a proper design to the data which has been by using XML and Schema. Therefore, by using CSS the data will be kept in a proper way so that user will get good user experience.
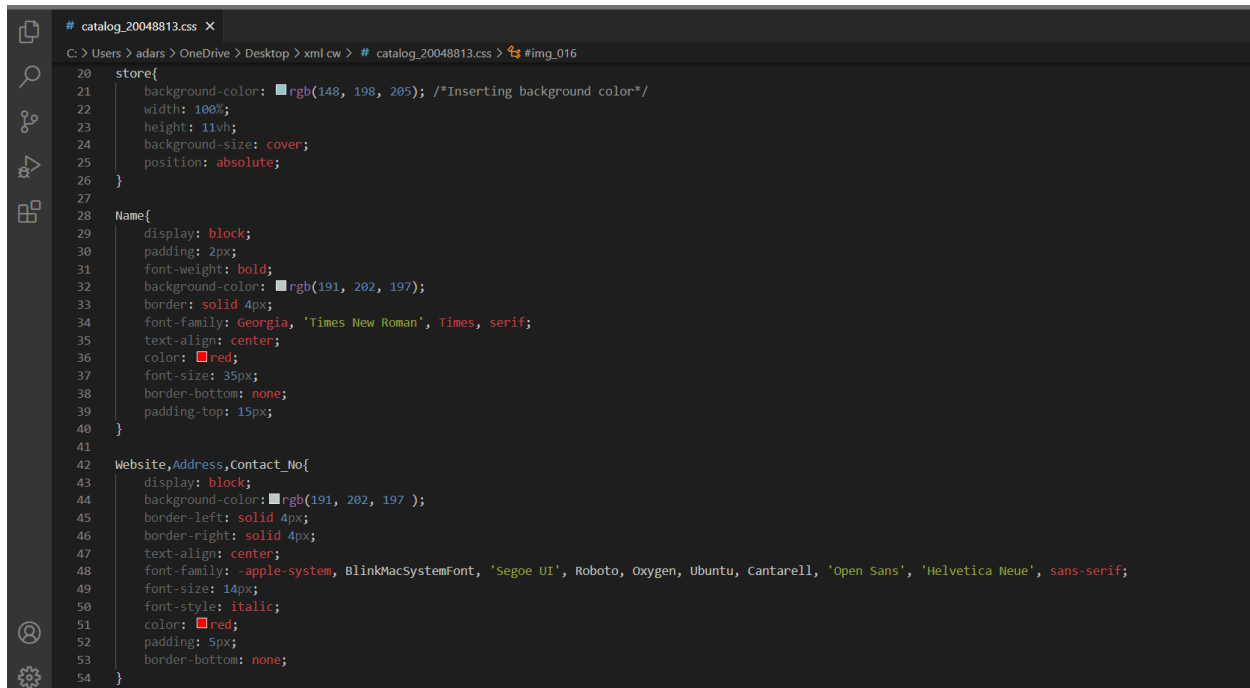
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Figure 16: Working In CSS

After that, we have to user if all the things are working properly or not. So, there are a lot of Online validation where we can know about the errors which will give use advantage know about our mistakes. If all the validation is done and there is no error, then our job is done, and the project will eventually complete. However, this coursework was not an easy task but with a lot of difficulties I successfully overcome every problem.
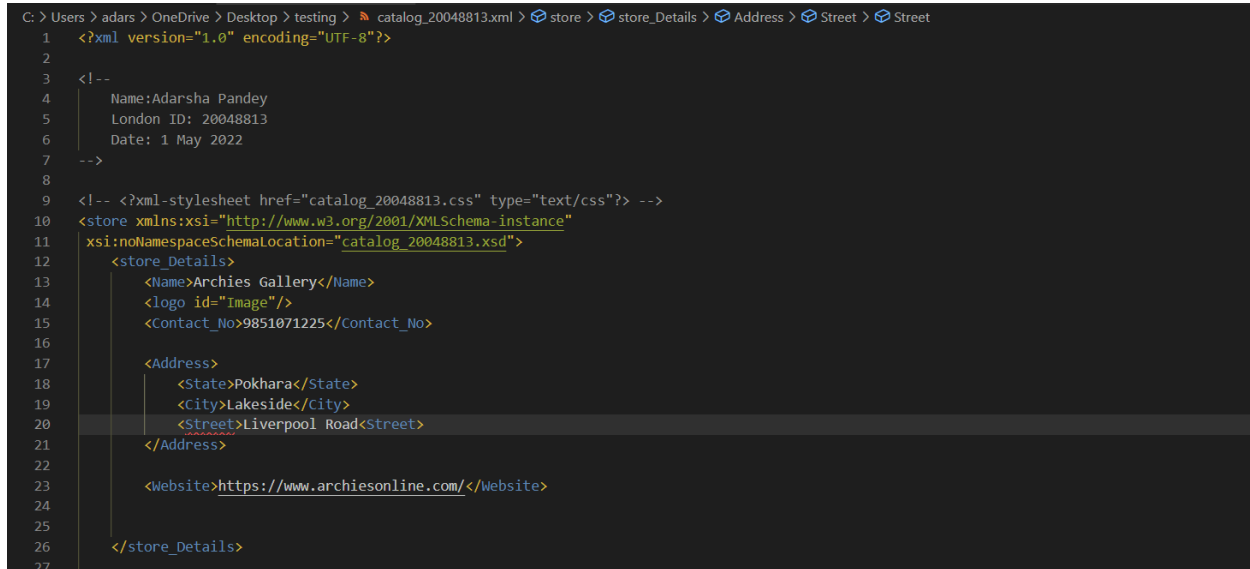
Figure 17: Online Validator

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7. Critical Analysis:

While doing this project I found lots of interesting things which has been demonstrated below because of the missing of the backslash (/) there was an error in tag. The backslash denotes the completion of every tag however in the given XML document I have not used backslash due to which there was error in my website.

```
C: > Users > adars > OneDrive > Desktop > testing > ᴂ catalog_20048813.xml > ⬡ store > ⬡ store_Details > ⬡ Address > ⬡ Street > ⬡ Street
 1   <?xml version="1.0" encoding="UTF-8"?>
 2
 3   <!--
 4        Name:Adarsha Pandey
 5        London ID: 20048813
 6        Date: 1 May 2022
 7   -->
 8
 9   <!-- <?xml-stylesheet href="catalog_20048813.css" type="text/css"?> -->
10   <store xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
11    xsi:noNamespaceSchemaLocation="catalog_20048813.xsd">
12       <store_Details>
13           <Name>Archies Gallery</Name>
14           <logo id="Image"/>
15           <Contact_No>9851071225</Contact_No>
16
17           <Address>
18               <State>Pokhara</State>
19               <City>Lakeside</City>
20               <Street>Liverpool Road<Street>
21           </Address>
22
23           <Website>https://www.archiesonline.com/</Website>
24
25
26       </store_Details>
27
```

Figure 18: Problem faced in Critical Analysis

In the above figure there is a tag named "street" which has not been closed by backslash due to which there is an error which is showed by Visual Studio Code.

This page contains the following errors:

error on line 21 at column 19: Opening and ending tag mismatch: Street line 20 and Address

Below is a rendering of the page up to the first error.

Archies Gallery 9851071225 Pokhara Lakeside Liverpool Road

Figure 19: Output due to XML content

In the above figure error was showing in the address tag. Due to backslash, there is an error showing up in the website.

Figure 20: Screenshot of solving problem in XML content

In the above figure error was solved by using backslash in the street tag as a result website easily rendered in the browser.

Another problem which is faced by me was the portion of the XSD of the project. The problem is shown below:

Figure 21: Problem faced in XML content

In the above figure it says that instead of Store_Details there should have been a logo element. While taking a closer look at schema their logo seems to be appearing first which is followed by Store_Details which is opposite to that of the XML file.

```
C: > Users > adars > OneDrive > Desktop > testing >  catalog_20048813.xsd > {} Grammars >  file:/C:/Users/adars/
1    <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
2      <xs:element name="store">
3        <xs:complexType>
4          <xs:sequence>
5            <xs:element name="logo">
6              <xs:complexType>
7                <xs:sequence>
8                  <xs:element name="Name" type="xs:string" />
9                  <xs:element name="store_Details">
10                   <xs:complexType>
11                     <xs:attribute name="id" type="xs:string" use="required" />
12                   </xs:complexType>
13                 </xs:element>
14                 <xs:element name="Contact_No" type="xs:integer" />
15                 <xs:element name="Address">
16                   <xs:complexType>
```

Figure 22: Screenshot of problem in XML content

In the above figure logo seems to be appear first due to which there was an error. To solve problem user needs to swap the logo and store_Details which will solve the problem.

```
: > Users > adars > OneDrive > Desktop > testing >  catalog_20048813.xsd >  xs:schema >  xs:element >  xs:complexType
1    <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
2      <xs:element name="store">
3        <xs:complexType>
4          <xs:sequence>
5            <xs:element name="store_Details">
6              <xs:complexType>
7                <xs:sequence>
8                  <xs:element name="Name" type="xs:string" />
9                  <xs:element name="logo">
10                   <xs:complexType>
11                     <xs:attribute name="id" type="xs:string" use="required" />
12                   </xs:complexType>
13                 </xs:element>
14                 <xs:element name="Contact_No" type="xs:integer" />
15                 <xs:element name="Address">
16                   <xs:complexType>
```
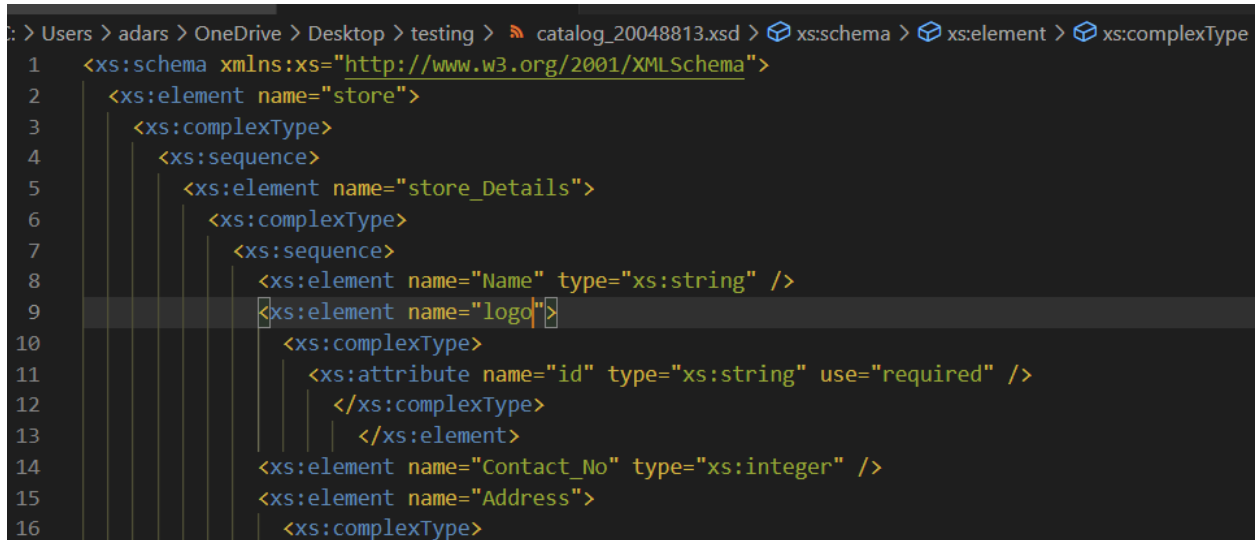
Figure 23: Screenshot of solved XML content

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Another problem which I faced during doing this coursework was in CSS which is given below:

```css
gift_Name{
    display: block;
    font-size: 25px;
    padding-left: 130px;
    font-weight: bold;
    color: rgb(100, 117, 191);
}

giftNumber,Type,expiry_Date,price,discount_Vouchers,production_Company,users,code,payment_Method,rating,Description,shipping_Chargeshipping_Location{
    display: block;
    font-family: Incos;
    font-size: 20px;
    padding: 2px;
}

giftNumber::before{
    content: "Gift Number: ";
    font-weight: bold;
```

Figure 24: Screenshot of problem in CSS

In the above figure I did not mention comma in between the shipping charge and shipping location. However visual studio code did not show any errors.
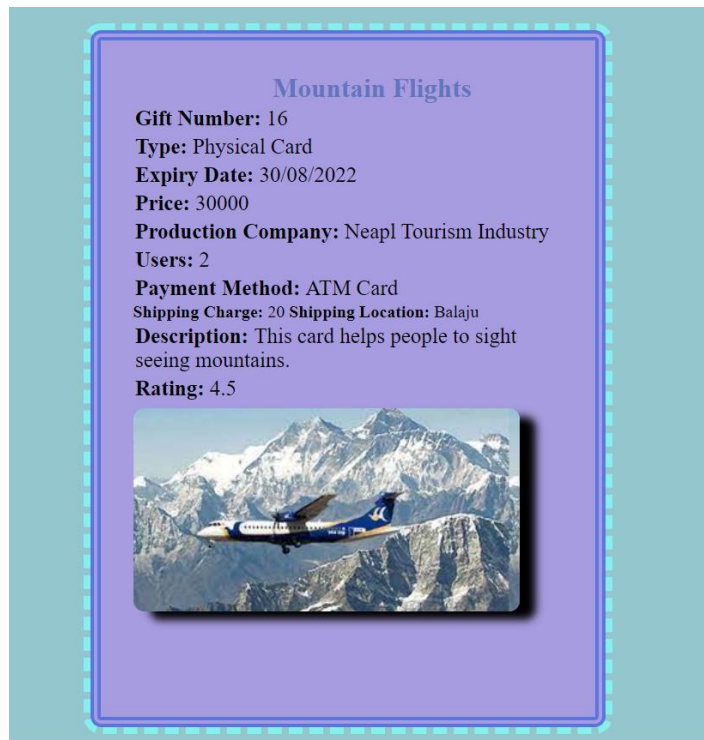

Figure 25: Screenshot of problem in CSS

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In the above figure the attributes shipping charge and shipping location comes in the same line due to which there was an error in the website. To solve this program we have to keep coma in between the shiiping charge and shipping location.

```css
gift_Name{
    display: block;
    font-size: 25px;
    padding-left: 130px;
    font-weight: bold;
    color: rgb(100, 117, 191);
}

giftNumber,Type,expiry_Date,price,discount_Vouchers,production_Company,users,code,payment_Method,rating,Description,shipping_Charge,shipping_Location{
    display: block;
    font-family: Incos;
    font-size: 20px;
    padding: 2px;
}
```

Figure 26: Screenshot of solved problem of CSS

8. Conclusion:

In a nutshell, this project was finished with a lot of hard work and dedication. In the beginning to develop this project a tree diagram was made for the XML which gave me a visual representation of the XML development. Root element which was named as store which consist of three different child elements named as store_Details, Gfts and footer. There is the basic information of the shop such as name, address, contact number, website and so on. Similarly, there is 15 child elements of gifts_Details which includes the information abut the gifts cards. After developing the tree diagram XML file has been created along with XML schema. To give the proper designing CSS has been used which has given a good user experience. In CSS different properties such as flex, margin, align and so on properties has been used to decorate the website.

When the semester was started my lecturer and tutorial teachers taught me about the XML which seems to be very easy, and I thought I could easily get through this. But I was wrong when I started doing this project this was lots of problems which I have to faced. In one point I was very worried that if I will finish this project or not. But, when I started doing research in different websites such as geeksforgeeks, tutorialpoint i was able to solve every problem which were ahead of me. I also want to thank my lecturer

and tutorial teachers who guided me and helped me in every situation to finish this project in a successful way.

The second coursework of emerging programming platforms and techniques gave me a clear idea about different terms of XML, Schema and CSS. It has enhanced my knowledge even more which will surely help me in the future days. By learning such type of skills, we can easily broad our knowledge in the coming days. At last, but not the least I want to thank everyone who helped me to finish this project.

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APPENDIX

CSS Content

```css
/*importing Font */

@font-face{
    src: url(Font/GoblinOne-Regular.ttf);
    font-family: Goblin;
}
@font-face{

    src: url(Font/OriginalSurfer-Regular.ttf);
    font-family: Sufer;
}


@font-face{

    src: url(Font/FjallaOne-Regular.ttf);
    font-family: Incos;
}

store{
    background-color: rgb(148, 198, 205); /*Inserting background color*/
    width: 100%;
    height: 11vh;
    background-size: cover;
    position: absolute;
}

Name{
    display: block;
    padding: 2px;
    font-weight: bold;
    background-color: rgb(191, 202, 197);
    border: solid 4px;
    font-family: Georgia, 'Times New Roman', Times, serif;
    text-align: center;
    color: red;
    font-size: 35px;
    border-bottom: none;
    padding-top: 15px;
}
```

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```css
Website,Address,Contact_No{
    display: block;
    background-color:rgb(191, 202, 197 );
    border-left: solid 4px;
    border-right: solid 4px;
    text-align: center;
    font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto, Oxygen,
Ubuntu, Cantarell, 'Open Sans', 'Helvetica Neue', sans-serif;
    font-size: 14px;
    font-style: italic;
    color: red;
    padding: 5px;
    border-bottom: none;
}

@keyframes css {
    from {background-color:rgb(103, 211, 174);}
    to {background-color: rgb(172, 153, 227);}
}

Gifts_Details{
    display: block;
    float: left;
    margin-right: 10px;
    font-family: Anton;
    margin-top: 70px;
    border-radius: 10px 10px 10px 10px;
    border-color: rgb(92, 118, 225);
    border-style: double;
    border-width: 10px;
    margin-left: 200px;
    width: 400px;
    height: 570px;
    padding: 30px;
    outline:rgb(135, 240, 239) dashed 7px;
    background-color: rgb(103, 211, 174);
    animation-name: css;
    animation-duration: 4s;
    animation-delay: -3s;
    animation-iteration-count: infinite;
}

gift_Name{
    display: block;
    font-size: 25px;
```

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```css
    padding-left: 130px;
    font-weight: bold;
    color: rgb(100, 117, 191);
}

giftNumber,Type,expiry_Date,price,discount_Vouchers,production_Company,users,code
,payment_Method,rating,Description,shipping_Charge,shipping_Location{
    display: block;
    font-family: Incos;
    font-size: 20px;
    padding: 2px;
}

giftNumber::before{
    content: "Gift Number: ";
    font-weight: bold;
}

Type::before{
    content: "Type: ";
    font-weight: bold;
}

expiry_Date::before{
    content: "Expiry Date: ";
    font-weight: bold;
}

price::before{
    content: "Price: ";
    font-weight: bold;
}

discount_Vouchers::before{
    content: "Discount Vouchers: ";
    font-weight: bold;
}

production_Company::before{
    content: "Production Company: ";
    font-weight: bold;
}

users::before{
    content: "Users: ";
```

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```css
    font-weight: bold;
}

code::before{
    content: "Code: ";
    font-weight: bold;
}

payment_Method::before{
    content: "Payment Method: ";
    font-weight: bold;
}

rating::before{
    content: "Rating: ";
    font-weight: bold;
}

des::before{
    content: "Description: ";
    font-weight: bold;
}

shipping_Charge::before{
    content: "Shipping Charge: ";
    font-weight: bold;
}

shipping_Location::before{
    content: "Shipping Location: ";
    font-weight: bold;
}

#Image {
    background-image: url(./images/logo.jfif);
    /*displaying logo image*/
    width: 290px;
    height: 130px;
    background-size: 290px;
    position: absolute;
    top: 11px;
    left: 2%;
    margin-bottom: 300px;
}
```

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```css
#img_01 {
    background-image: url(./images/netflix.jfif);
    background-size: 350px;
    width: 350px;
    height: 250px;
    position: absolute;
    margin-top: 15px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_02 {
    background-image: url(./images/netflix\ card.jpg);
    background-size: 350px;
    width: 350px;
    height: 200px;
    position: absolute;
    margin-top: 15px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_03 {
    background-image: url(./images/latte\ starbucks.jpg);
    background-size: 350px;
    width: 350px;
    height: 200px;
    position: absolute;
    margin-top: 15px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_04 {
    background-image: url(./images/teachers\ day.jpg);
    background-size: 350px;
    width: 250px;
    height: 200px;
    position: absolute;
    margin-left: 140px;
    margin-top: -25px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;

}
```

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```css
#img_05 {
    background-image: url(./images/mothers\ day.jpg);
    background-size: 350px;
    width: 350px;
    height: 200px;
    position: absolute;
    margin-top: 15px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_06 {
    background-image: url(./images/amazon.jpg);
    background-size: 350px;
    width: 350px;
    height: 200px;
    position: absolute;
    margin-top: 15px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_07 {
    background-image: url(./images/goggle\ gift.jpg);
    background-size: 350px;
    width: 350px;
    height: 200px;
    position: absolute;
    margin-top: 15px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_08 {
    background-image: url(./images/birthday.jpg);
    background-size: 350px;
    width: 350px;
    height: 200px;
    position: absolute;
    margin-top: 5px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}
```

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```css
#img_09 {
    background-image: url(./images/fifa\ 14.jfif);
    background-size: 550px;
    width: 400px;
    height: 280px;
    position: absolute;
    margin-top: auto;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_010 {
    background-image: url(./images/PUBG.png);
    background-size: 350px;
    width: 350px;
    height: 300px;
    position: absolute;
    margin-top: auto;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_011{
    background-image: url(./images/thakali.jfif);
    background-size: 400px;
    width: 350px;
    height: 300px;
    position: absolute;
    margin-top: auto;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_012 {
    background-image: url(./images/x-box.jfif);
    background-size: 400px;
    width: 380px;
    height: 300px;
    position: absolute;
    margin-top: auto;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_013 {
```

ADARSHA PANDEY

```css
    background-image: url(./images/uber.jfif);
    background-size: 450px;
    width: 350px;
    height: 250px;
    position: absolute;
    margin-top: 5px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}


#img_014 {
    background-image: url(./images/pes\ 2022.png);
    background-size: 350px;
    width: 350px;
    height: 350px;
    position: absolute;
    margin-top: 05px;
    box-shadow: 15px 8px 8px;
    border-radius: 15px;
}

#img_015 {
    background-image: url(./images/free\ fire.png);
    background-size: 370px;
    width: 360px;
    height: 250px;
    position: absolute;
    margin-top: 05px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}

#img_016 {
    background-image: url(./images/flights.jfif);
    background-size: 350px;
    width: 360px;
    height: 190px;
    position: absolute;
    margin-top: 05px;
    box-shadow: 15px 8px 8px;
    border-radius: 10px;
}
```

ADARSHA PANDEY

```css
#img_01:hover, #img_02:hover, #img_03:hover, #img_04:hover, #img_05:hover,
#img_06:hover, #img_07:hover, #img_08:hover, #img_09:hover, #img_010:hover,
#img_011:hover,
#img_012:hover, #img_013:hover, #img_014:hover, #img_015:hover, #img_016:hover,
#Image:hover  {
    transform: scale(1.1);
    transition: 0.5s;
    cursor: pointer;
}

footer{
    padding: 20px 582px;
    margin-top: 361rem;
    background-color: black;
    color: #f4f4f4;
    display: flex;
    justify-content: center;
    position: absolute;
}
```

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