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I perceive as this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in a best possible way and I will continue to work on the project for best output.

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1.   Introduction:

This coursework is the second coursework of this module which carries 20% weight throughout the module. In this coursework, a model of music store system is going to be developed. The whole system is coded in XML. The details of the store including store name, address, telephone number, website address (URL), and logo are inserted to make the system more attractive. Simply to design the provided model XML, DTD schema and CSS is used. CSS is used to make the system more attractive. Little explanation of this topic is done below;

XML stands for extensible Markup Language which is markup language much similar to HTML. A markup language is a collection of codes, also known as tags, that define the text in a digital document. Hypertext markup language (HTML) is the most well-known markup language, and it is used to format Web pages. XML, a more compact relative of HTML, enables complex business to be conducted over the Internet.

DTD stands for Document Type Definition The tags and attributes used in an XML or HTML document are described by a DTD. Any elements specified in a DTD, as well as the predefined tags and attributes of each markup language, can be used in these documents. It provides elements to define the models of the automobiles. "#PCDATA" and "ATTLIST" tag are used in DTD which means any text value and next line option for a specific element respectively (TechTerms, 2021).

XML Schema Definition is another name for XML Schema (XSD). It's used to define and verify XML data's structure and content. The components, attributes, and data types are described by the XML schema. Namespaces are supported by the Schema element. It's similar to a database schema, which explains how the data in a database is organized (TutorialPoint, 2021).

CSS stands for Cascading style sheet which is mainly used to decorate the skeleton body of the program and give the output more attractive. After the coding CSS is done to make the system more attractive and more efficient.

2.   Tree Diagram:

A tree diagram is a new management planning tool that depicts the hierarchy of tasks and subtasks needed to complete and objective. The tree diagram starts with one item that branches into two or more, each of which branch into two or more, and so on.
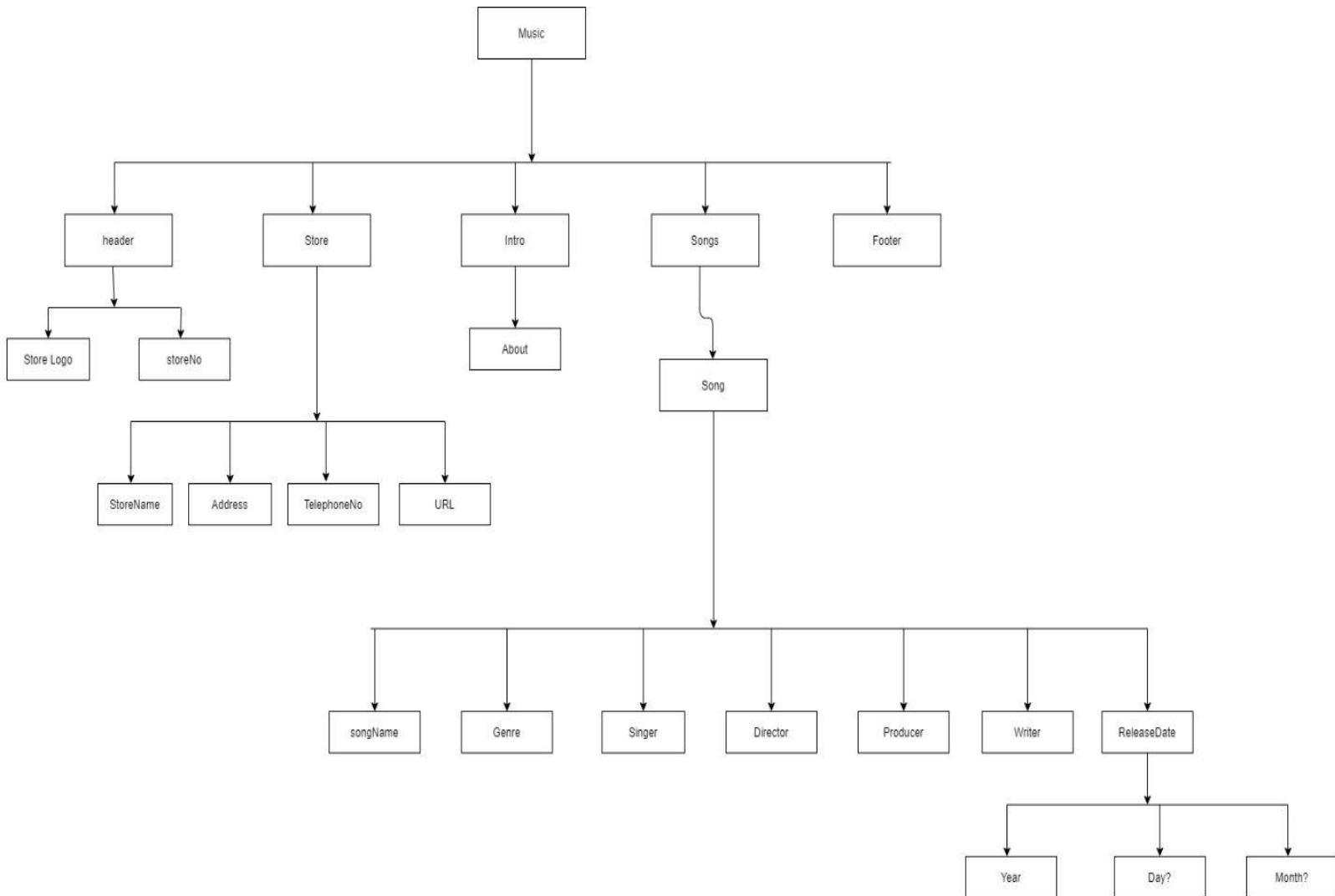

Figure 1: Tree Diagram

3. XML CONTENT:

```
?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<?xml-stylesheet type="text/css" href="catalog_19031464.css"?>
<!--<!DOCTYPE music SYSTEM "catalog_19031464.dtd"> -->

<music xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
                        xsi:noNamespaceSchemaLocation="schema">

  <header>
    <storeLogo></storeLogo>
  </header>

  <store>
    <storeName>Nepal Music store</storeName>
    <address>Lazimpat, Kathmandu</address>
    <telephoneNo>9843623409</telephoneNo>
    <storeURL>https://musicgallery.com.np</storeURL>
  </store>

  <intro int_type="about">
        <h1>About</h1>
        Nepal Musis Gallery was established in the beginning of the year 2002. Nepal music
gallery aims to introduce traditional nepalese musical instruments
        all over the world such as the Sarangi, Madal, Tabala, Sitar, Bamboo, Classical Flute
etc among those who love different type of musical instruments.
  </intro>

  <songs>
    <song songID="s01">
                    <songName>Godzilla</songName>
      <genre>Hip-Pop Music</genre>
      <singer>Eminem</singer>
      <director>Cole Bennett</director>
      <producers>Joe Grayem</producers>
      <writer>Cole Bennett</writer>
      <releaseYear>
        <year>2020</year>
        <month>10</month>
                                <day>2</day>
      </releaseYear>
    </song>

    <song songID="s02">
                    <songName>let her go</songName>
      <genre>Folk rock Music</genre>
      <singer>Passenger</singer>
      <director>Stu Larsen</director>
      <producers>Mike Rosenberg</producers>
```

```xml
    <writer>Passenger</writer>
    <releaseYear>
       <year>2012</year>
       <month>07</month>
       <day>22</day>
    </releaseYear>
</song>

<song songID="s03">
                    <songName>Kholai Khola</songName>
    <genre>Pop</genre>
    <singer>NJK</singer>
    <director>Diveej Shah</director>
    <producers>Mr. Brownie</producers>
    <writer>NJK</writer>
    <releaseYear>
       <year>2021</year>
       <month>02</month>
       <day>01</day>
    </releaseYear>
</song>

<song songID="s04">
                    <songName>Memories</songName>
    <genre>Pop Music</genre>
    <singer>Adam Levine</singer>
    <director>Stefan Johnson</director>
    <producers>The Monsters and the Srangerz</producers>
    <writer>Jordon Johnson</writer>
    <releaseYear>
       <year>2019</year>
       <month>09</month>
    </releaseYear>
</song>


<song songID="s05">
                    <songName>Junkeri</songName>
    <genre>Nepali Folk</genre>
    <singer>Bipul Chettri</singer>
    <album>Maya</album>
    <director>Anindo Bose</director>
    <producers>Bipul Chettri</producers>
    <writer>Bipul Chettri</writer>
    <releaseYear>
       <year>2016</year>
       <month>09</month>
    </releaseYear>
</song>
```

```xml
<song songID="s06">
                <songName>Juni Vari Lai</songName>
    <genre>Neapli Folk</genre>
    <singer>Oasis Thapa</singer>
    <director>Breezendra</director>
    <producers>Foeseal</producers>
    <writer>Oasis Thapa</writer>
    <releaseYear>
        <year>2021</year>
        <month>03</month>
    </releaseYear>
</song>


<song songID="s07">
                <songName>Kathamandu Bazar</songName>
    <genre>Rock Music</genre>
    <singer>Uday Raj Paudel</singer>
    <director>Sabin Karki</director>
    <producers>Sanjay Karki</producers>
    <writer>Sabin Ektaare</writer>
    <releaseYear>
        <year>2021</year>
        <month>03</month>
        <day>25</day>
    </releaseYear>
</song>


<song songID="s08">
                <songName>The Sky is Crying</songName>
    <genre>Jazz</genre>
    <singer>Gary B.B. Coleman</singer>
    <director>Label Worx</director>
    <producers>Label Worx</producers>
    <writer>Gary B.B. Coleman</writer>
    <releaseYear>
        <year>2017</year>
        <month>04</month>
    </releaseYear>
</song>


<song songID="s09">
                <songName>In Case You Didn't Know</songName>
    <genre>Coutry Music</genre>
    <singer>Brett Young</singer>
    <director>Warner Chappell</director>
    <producers>Brett Young</producers>
    <writer>Brett Young</writer>
    <releaseYear>
```

```xml
      <year>2017</year>
      <month>01</month>
    </releaseYear>
 </song>



 <song songID="s10">
                <songName>Take Your Time</songName>
    <genre>Country Music</genre>
    <singer>Sam Hunt</singer>
    <album>Montevallo</album>
    <director>Joanna Rowland</director>
    <producers>Zach Crowell</producers>
    <writer>Sam Hunt</writer>
    <releaseYear>
      <year>2014</year>
    </releaseYear>
 </song>



 <song songID="s11">
                <songName>El Chapo</songName>
    <genre>Dubstep</genre>
    <singer singerType="singer1">Skrillex</singer>
    <singer singerType="singer2">Alvin Risk</singer>
    <director>Nastradomas</director>
    <producers>Skrillex</producers>
    <writer>The Game</writer>
    <releaseYear>
      <year>2015</year>
      <month>10</month>
      <day>09</day>
    </releaseYear>
 </song>



 <song songID="s12">
                <songName>Maya</songName>
    <genre>Folk</genre>
    <singer>Ayush Gauchan</singer>
    <director>Mr. GM</director>
    <producers>Abiral Bhujel</producers>
    <writer>Ayush Gauchan</writer>
    <releaseYear>
      <year>2021</year>
      <month>01</month>
    </releaseYear>
 </song>
```

```xml
<song songID="s13">
            <songName>Tujhe Kitna Chahne lage</songName>
   <genre>Country Music</genre>
   <singer>Arijit Singh</singer>
   <director>Mithoon</director>
   <producers>Bhusan Kumar</producers>
   <writer>Mithoon</writer>
   <releaseYear>
     <year>2019</year>
     <month>05</month>
   </releaseYear>
</song>



<song songID="s14">
            <songName>Sathi</songName>
   <genre>Country Music</genre>
   <singer>Susant KC</singer>
   <director>Abin Bho</director>
   <producers>Rajat Khadka</producers>
   <writer>Susant KC</writer>
   <releaseYear>
     <year>2019</year>
     <month>07</month>
   </releaseYear>
</song>



<song songID="s15">
            <songName>Timi mero pailo maya</songName>
   <genre>Drama</genre>
   <singer>Kamal Khatri </singer>
   <director>Simpal Kharel</director>
   <producers>Dil Raju</producers>
   <writer>Sudip Lamsal</writer>
   <releaseYear>
     <year>2019</year>
     <month>09</month>
                          <day>16</day>
   </releaseYear>
</song>

        <song songID="s16">
            <songName>Tere sang Yara</songName>
   <genre>Drama</genre>
   <singer>Atif Aslam</singer>
   <director>Tinu Suresh Desai</director>
   <producers>Aditya Dev</producers>
   <writer>Himesh Reshammiya</writer>
   <releaseYear>
```

```
        <year>2016</year>
        <month>06</month>
                            <day>6</day>
    </releaseYear>
</song>

        <song songID="s17">
            <songName>Seeti Maar</songName>
    <genre>Drama</genre>
    <singer>Jaspreet jasz</singer>
    <director>A.R. Rahman</director>
    <producers>Dil Raju</producers>
    <writer>Balaji</writer>
    <releaseYear>
        <year>2017</year>
        <month>10</month>
    </releaseYear>
</song>

  </songs>

</music>
```

4.   DTD content:

```
<!DOCTYPE music[
<!ELEMENT music (header,store,intro,songs)>
<!ELEMENT header (storeLogo,storeNo)>
<!ELEMENT storeLogo (#PCDATA)>
<!ELEMENT storeNo (#PCDATA)>
<!ELEMENT store (storeName,address,telephoneNo,storeURL)>
<!ELEMENT storeName (#PCDATA)>
<!ELEMENT address (#PCDATA)>
<!ELEMENT telephoneNo (#PCDATA)>
<!ELEMENT storeURL (#PCDATA)>
<!ELEMENT intro (#PCDATA)>
<!ELEMENT songs (song+)>
<!ELEMENT song (genre,singer,album?,director,producers,writer,composer?,releaseYear)>
<!ELEMENT genre (#PCDATA)>
<!ELEMENT singer (#PCDATA)>
<!ELEMENT album (#PCDATA)>
<!ELEMENT director (#PCDATA)>
<!ELEMENT producers (#PCDATA)>
<!ELEMENT writer (#PCDATA)>
<!ELEMENT composer (#PCDATA)>
<!ELEMENT releaseYear (year,month?,day?)>
<!ELEMENT year (#PCDATA)>
<!ELEMENT month (#PCDATA)>
<!ELEMENT day (#PCDATA)>


<!ATTLIST telephoneNo phoneType (primary|secondary) #IMPLIED>
<!ATTLIST intro int_type CDATA #FIXED "about">
<!ATTLIST song songName CDATA #REQUIRED>
<!ATTLIST song songID ID #REQUIRED>
<!ATTLIST singer singerType (singer1|singer2) #IMPLIED>
<!ATTLIST producers producerType (producer|coProducer) #IMPLIED>

]>
```

5. Schema Content:

```
xs:schema attributeFormDefault="unqualified" elementFormDefault="qualified"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
 <xs:element name="music">
  <xs:complexType>
   <xs:sequence>
    <xs:element name="header">
     <xs:annotation>
      <xs:documentation><music xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

        xsi:noNamespaceSchemaLocation="schema"></xs:documentation>
     </xs:annotation>
     <xs:complexType>
      <xs:sequence>
       <xs:element type="xs:string" name="storeLogo"/>
       <xs:element type="xs:byte" name="storeNo"/>
      </xs:sequence>
     </xs:complexType>
    </xs:element>
    <xs:element name="store">
     <xs:complexType>
      <xs:sequence>
       <xs:element type="xs:string" name="storeName"/>
       <xs:element type="xs:string" name="address"/>
       <xs:element type="xs:long" name="telephoneNo"/>
       <xs:element type="xs:anyURI" name="storeURL"/>
      </xs:sequence>
     </xs:complexType>
    </xs:element>
    <xs:element name="intro">
     <xs:complexType>
      <xs:simpleContent>
       <xs:extension base="xs:string">
        <xs:attribute type="xs:string" name="int_type"/>
       </xs:extension>
      </xs:simpleContent>
     </xs:complexType>
    </xs:element>
    <xs:element name="songs">
     <xs:complexType>
      <xs:sequence>
       <xs:element name="song" maxOccurs="unbounded" minOccurs="0">
        <xs:complexType>
         <xs:sequence>
          <xs:element type="xs:string" name="genre"/>
          <xs:element name="singer" maxOccurs="unbounded" minOccurs="0">
           <xs:complexType>
            <xs:simpleContent>
```

```xml
              <xs:extension base="xs:string">
                <xs:attribute type="xs:string" name="singerType" use="optional"/>
              </xs:extension>
            </xs:simpleContent>
          </xs:complexType>
        </xs:element>
        <xs:element type="xs:string" name="album" minOccurs="0"/>
        <xs:element type="xs:string" name="director"/>
        <xs:element name="producers" maxOccurs="unbounded" minOccurs="0">
          <xs:complexType>
            <xs:simpleContent>
              <xs:extension base="xs:string">
                <xs:attribute type="xs:string" name="producerType" use="optional"/>
              </xs:extension>
            </xs:simpleContent>
          </xs:complexType>
        </xs:element>
        <xs:element type="xs:string" name="writer"/>
        <xs:element type="xs:string" name="composer" minOccurs="0"/>
        <xs:element name="releaseYear">
          <xs:complexType>
            <xs:sequence>
              <xs:element type="xs:short" name="year"/>
              <xs:element type="xs:byte" name="month" minOccurs="0"/>
              <xs:element type="xs:byte" name="day" minOccurs="0"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute type="xs:string" name="songName" use="optional"/>
      <xs:attribute type="xs:string" name="songID" use="optional"/>
    </xs:complexType>
  </xs:element>
    </xs:sequence>
   </xs:complexType>
  </xs:element>
 </xs:sequence>
 </xs:complexType>
 </xs:element>
</xs:schema>
```

6.   CSS content:

```
music{
        background-image: url("images/Logo.jpg");
        background-repeat: no-repeat;
        background-size: 270px 160px;
        margin-top: 2em;
}

store{
        font-size: 80%;
        margin: 0.5em;
        display: block;
        margin: 3em;
}

storeName, address, telephoneNo, storeURL, intro, h1{
        display: block;

}
storeName{
        font-size: 36px;
        color: Orange;
        text-decoration: underline;
        text-align: center;
        font-family: Fantasy;
}
address, telephoneNo, storeURL{
        font-size: 15px;
        color: black;
        text-decoration: none;
        text-align: center;
        font-family: Arial;
}
storeURL{
        text-decoration: underline;
}
intro{
        font-family: Arial;
        font-size: 15px;
        margin: 1em;
}
h1{
        font-size: 20px;
        font-family: Arial black;
}
songs{
        font-size: 80%;
        margin: 0.5em;
```

```css
        font-family: Verdana;
        display: block;
}
song{
        display: block;
        border: 1px solid silver;
        margin: 0.5em;
        background-color: cyan;
}
songName, genre, singer, director, producers, writer, releaseYear{
        display: block;
        font-family: Fantasy;
        text-align: center;
}
year, month, day{
        display: inline;
}

singer, director{
        color: green;
}
songName{
        border: none;
        background: rgb(66, 245, 96);
        padding: 10px 20px;
        cursor: pointer;
        margin: 10px;
        font-size: 30px;
        color: red;

}
producers, writer {
        color: yellow;
}


genre, singer, director, producers, writer, releaseYear{
        text-align: center;
}


songName:hover, songName:focus, songName:active{
        box-shadow: 0 0 20px rgba(0, 0, 0, 0.5);
        -webkit-transform: scale(1.1);
        transform: scale(1.1);
        color: white;
}
```

7.   Differences Between Schema and DTD:

The differences between DTD and Schema are shown in table below:

DTD	Schema/XSD
DTD stands for Document Type Definition and derived from SGML syntax.	XSD stands for XML Schema Definition and written in XML
It does not support datatypes.	It supports Datatypes .i.e. elements and attributes.
It does not support namespace.	It supports namespace.
Child element order was defined.	Child elements order was defined.
It is not extensible.	It is extensible.
It is difficult to learn.	It is simple to learns because new languages are not added in it.
It provides less control on the XML structure.	It provides more control on the XML structure (javaTpoint, 2021).

Table 1: Difference Between DTD and Schema

8.   Testing:

After the completion of the project, testing is done to clarify whether the program is running smoothly or not.

❖ **Test 1:**

Test 1:	Running the XML files in the Browser and finding the error.
Action	The XML files is drag and drop in the browser.
Expected Output	No error found.
Actual Output	No error found.
Result	The test is successful.

Table 2: Test 1

Here, the screenshot of the error is shown below. When the file xml is drag and drooped to the browser, the error is found and was corrected.

This page contains the following errors:

error on line 269 at column 13: Opening and ending tag mismatch: music line 0 and songs

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

Nepal Music store Lazimpat, Kathmandu 9843623409 https://musicgallery.com.np About Nepal Musis Gallery was established in the beginning of the year 2002. Nepal music gallery aims to introduce traditional nepalese musical instruments all over the world such as the Sarangi, Madal, Tabala, Sitar, Bamboo, Classical Flute etc among those who love different type of musical instruments. Godzilla Hip-Pop Music Eminem Cole Bennett Joe Grayem Cole Bennett 2020 10 2 let her go Folk rock Music Passenger Stu Larsen Mike Rosenberg Passenger 2012 07 22 Kholai Khola Pop NJK Diveej Shah Mr. Brownie NJK 2021 02 01 Memories Pop Music Adam Levine Stefan Johnson The Monsters and the Srangerz Jordon Johnson 2019 09 Junkeri Nepali Folk Bipul Chettri Maya Anindo Bose Bipul Chettri Bipul Chettri 2016 09 Juni Vari Lai Neapli Folk Oasis Thapa Breezendra Foeseal Oasis Thapa 2021 03 Kathamandu Bazar Rock Music Uday Raj Paudel Sabin Karki Sanjay Karki Sabin Ektaare 2021 03 25 The Sky is Crying Jazz Gary B.B. Coleman Label Worx Label Worx Gary B.B. Coleman 2017 04 In Case You Didn't Know Coutry Music Brett Young Warner Chappell Brett Young Brett Young 2017 01 Take Your Time Country Music Sam Hunt Montevallo Joanna Rowland Zach Crowell Sam Hunt 2014 El Chapo Dubstep Skrillex Alvin Risk Nastradomas Skrillex The Game 2015 10 09 Maya Folk Ayush Gauchan Mr. GM Abiral Bhujel Ayush Gauchan 2021 01 Tujhe Kitna Chahne lage Country Music Arijit Singh Mithoon Bhusan Kumar Mithoon 2019 05 Sathi Country Music Susant KC Abin Bho Rajat Khadka Susant KC 2019 07 Timi mero pailo maya Drama Kamal Khatri Simpal Kharel Dil Raju Sudip Lamsal 2019 09 16 Tere sang Yara Drama Atif Aslam Tinu Suresh Desai Aditya Dev Himesh Reshammiya 2016 06 6 Seeti Maar Drama Jaspreet jasz A.R. Rahman Dil Raju Balaji 2017 10

Figure 2: Error Detected

Nepal Music store Lazimpat, Kathmandu 9843623409 https://musicgallery.com.np About Nepal Musis Gallery was established in the beginning of the year 2002. Nepal music gallery aims to introduce traditional nepalese musical instruments all over the world such as the Sarangi, Madal, Tabala, Sitar, Bamboo, Classical Flute etc among those who love different type of musical instruments. Godzilla Hip-Pop Music Eminem Cole Bennett Joe Grayem Cole Bennett 2020 10 2 let her go Folk rock Music Passenger Stu Larsen Mike Rosenberg Passenger 2012 07 22 Khola Khola Pop NJK Diveej Shah Mr. Brownie NJK 2021 02 01 Memories Pop Music Adam Levine Stefan Johnson The Monsters and the Srangerz Jordon Johnson 2019 09 Junkeri Nepali Folk Bipul Chettri Maya Anindo Bose Bipul Chettri Bipul Chettri 2016 09 Juni Vari Lai Neapli Folk Oasis Thapa Breezendra Foeseal Oasis Thapa 2021 03 Kathamandu Bazar Rock Music Uday Raj Paudel Sabin Karki Sanjay Karki Sabin Ektaare 2021 03 25 The Sky is Crying Jazz Gary B.B. Coleman Label Worx Label Worx Gary B.B. Coleman 2017 04 In Case You Didn't Know Coutry Music Brett Young Warner Chappell Brett Young Brett Young 2017 01 Take Your Time Country Music Sam Hunt Montevallo Joanna Rowland Zach Crowell Sam Hunt 2014 El Chapo Dubstep Skrillex Alvin Risk Nastradomas Skrillex The Game 2015 10 09 Maya Folk Ayush Gauchan Mr. GM Abiral Bhujel Ayush Gauchan 2021 01 Tujhe Kitna Chahne lage Country Music Arijit Singh Mithoon Bhusan Kumar Mithoon 2019 05 Sathi Country Music Susant KC Abin Bho Rajat Khadka Susant KC 2019 07 Timi mero pailo maya Drama Kamal Khatri Simpal Kharel Dil Raju Sudip Lamsal 2019 09 16 Tere sang Yara Drama Atif Aslam Tinu Suresh Desai Aditya Dev Himesh Reshammiya 2016 06 6 Seeti Maar Drama Jaspreet jasz A.R. Rahman Dil Raju Balaji 2017 10

Figure 3: solved error

❖ **Test 2:**

Test 1:	Running the Files XML in browser
Action	Drag and dropping the xml files in the browser.
Expected Output	The browser must show the content of the file.
Actual Output	The browser shows the content.
Result	The test is successful.

Table 3: Test 2

```
<!-- <!DOCTYPE music SYSTEM "catalog_19031464.dtd"> -->
▼<music xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="catalog_19031464.xsd">
  ▼<store>
      <storeName>Nepal Music store</storeName>
      <address>Lazimpat, Kathmandu</address>
      <telephoneNo>9843623409</telephoneNo>
      <storeURL>https://musicgallery.com.np</storeURL>
  </store>
  ▼<intro int_type="about">
      <h1>About</h1>
      Nepal Musis Gallery was established in the beginning of the year 2002. Nepal music gallery aims to introduce traditional nepalese musical instruments all over the world
      such as the Sarangi, Madal, Tabala, Sitar, Bamboo, Classical Flute etc among those who love different type of musical instruments.
  </intro>
  ▼<songs>
    ▼<song songID="s01">
        <songName>Godzilla</songName>
        <genre>Hip-Pop Music</genre>
        <singer>Eminem</singer>
        <director>Cole Bennett</director>
        <producers>Joe Grayem</producers>
        <writer>Cole Bennett</writer>
      ▼<releaseYear>
          <year>2020</year>
          <month>10</month>
          <day>2</day>
      </releaseYear>
    </song>
    ▼<song songID="s02">
        <songName>let her go</songName>
        <genre>Folk rock Music</genre>
        <singer>Passenger</singer>
        <director>Stu Larsen</director>
        <producers>Mike Rosenberg</producers>
        <writer>Passenger</writer>
      ▼<releaseYear>
          <year>2012</year>
          <month>07</month>
          <day>22</day>
      </releaseYear>
```

Figure 4: XML files in Browser

❖ **Test 3:**

Test 1:	Running the files with CSS
Action	Drag and dropping the files in browser.
Expected Output	The files must be open in attractive way.
Actual Output	The file is opened in attractive way.
Result	The test is successful.

Table 4: Test 3

Here are the two screenshots. The first screenshot is without CSS and the second screenshot have CSS.

```
<!-- <!DOCTYPE music SYSTEM "catalog_19031464.dtd"> -->
▼<music xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="catalog_19031464.xsd">
  ▼<store>
      <storeName>Nepal Music store</storeName>
      <address>Lazimpat, Kathmandu</address>
      <telephoneNo>9843623409</telephoneNo>
      <storeURL>https://musicgallery.com.np</storeURL>
  </store>
  ▼<intro int_type="about">
      <h1>About</h1>
      Nepal Musis Gallery was established in the beginning of the year 2002. Nepal music gallery aims to introduce traditional nepalese musical instruments all over the world
      such as the Sarangi, Madal, Tabala, Sitar, Bamboo, Classical Flute etc among those who love different type of musical instruments.
  </intro>
  ▼<songs>
    ▼<song songID="s01">
        <songName>Godzilla</songName>
        <genre>Hip-Pop Music</genre>
        <singer>Eminem</singer>
        <director>Cole Bennett</director>
        <producers>Joe Grayem</producers>
        <writer>Cole Bennett</writer>
      ▼<releaseYear>
          <year>2020</year>
          <month>10</month>
          <day>2</day>
        </releaseYear>
    </song>
    ▼<song songID="s02">
        <songName>let her go</songName>
        <genre>Folk rock Music</genre>
        <singer>Passenger</singer>
        <director>Stu Larsen</director>
        <producers>Mike Rosenberg</producers>
        <writer>Passenger</writer>
      ▼<releaseYear>
          <year>2012</year>
          <month>07</month>
          <day>22</day>
        </releaseYear>
```

Figure 5: XML without CSS

Nepal Music store
Lazimpat, Kathmandu
9843623409
https://musicgallery.com.np

About

Nepal Musis Gallery was established in the beginning of the year 2002. Nepal music gallery aims to introduce traditional nepalese musical instruments all over the world such as the Sarangi, Madal, Tabala, Sitar, Bamboo, Classical Flute etc among those who love different type of musical instruments.

Godzilla

Hip-Pop Music
Eminem
Cole Bennett
Joe Grayem
Cole Bennett
2020 10 2

let her go

Folk rock Music
Passenger
Stu Larsen
Mike Rosenberg
Passenger
2012 07 22

Kholai Khola

Pop
NJK
Diveej Shah
Mc Brownie
NJK
2021 02 01

Memories

Pop Music
Adam Levine
Stefan Johnson
The Monsters and the Srangerz
Jordon Johnson
2019 09

Junkeri

Nepali Folk
Bipul Chettri

Maya

Anindo Bose
Bipul Chettri
Bipul Chettri
2016 09

Juni Vari Lai

Figure 6: XML file with CSS

❖ **Test 4:**

Test 4:	Testing xml and xsd validation
Action	Added xml and schema files to xmlvalidation. com
Expected Output	No errors were found.
Actual Output	No errors were found.
Result	The test is successful.

Table 5: Test 4

Screenshot:

The following files have been uploaded so far:
XML document: 𝄃
catalog_19031464.dtd𝄃
Click on any file name if you want to edit the file.

Figure 7: Validation

No errors are found.

❖ **Test 5:**

Test 5:	Checking the hover Effect
Action	When the mouse is point at the songName, the box must change the color.
Expected Output	Hover effect must be seen
Actual Output	Hover effect is seen.
Result	The test is successful.

Table 6: Test 5

The two screenshot is shown below .i.e. one without hover effect and one for the hover effect.
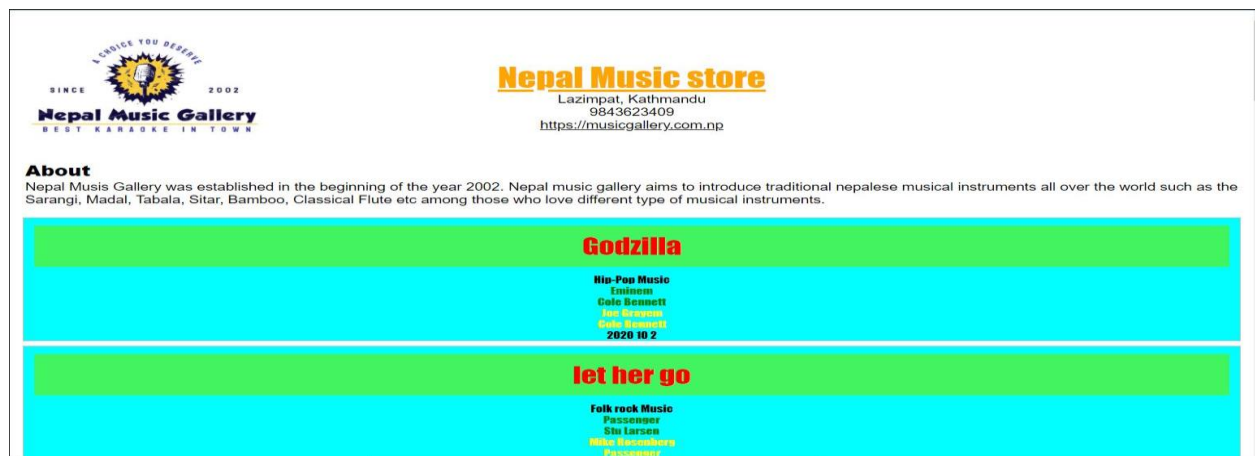
Figure 8: Without Hover

Figure 9: Hover effect

9.   Development of Coursework:

For the completion of this coursework, we had to sketch tree diagram as specified by the question. After we had to create XML, DTD, schema and CSS file as per the requirement. Simply, the tree-diagram is drawn online in the draw.io software. One- directional arrow and a rectangular box is used to draw the diagram. I used this website because it does not require us to be member and it is totally free for use. It is easier to use as well as we can simply drag and drop pre-designed figures and fit them as per our need and desire. The first interface of this software is seen below in the form of screenshot
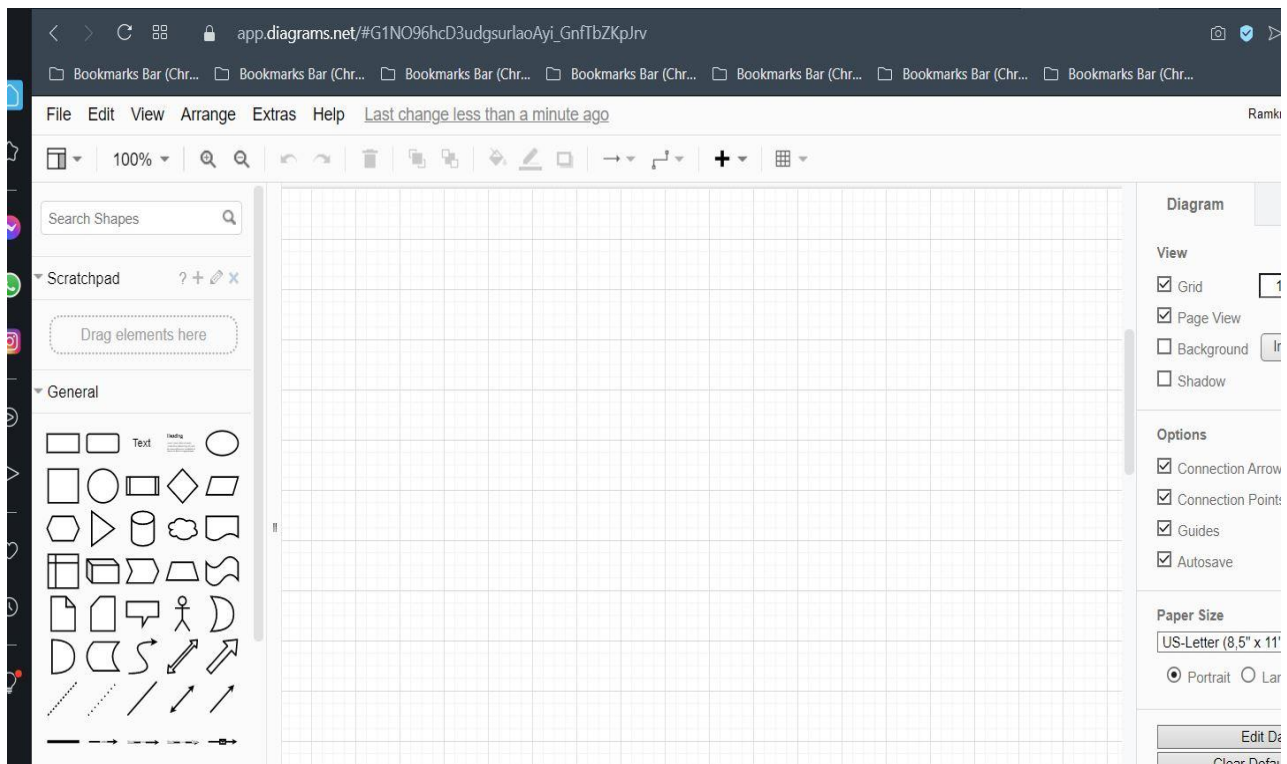
Figure 10: Draw.io

This coursework would not be completed if I had not written the codes for XML, Schema, DTD and CSS. And the whole codes are written in a single software named "NOTEPAD ++". This software was so easy to run as well as we can easily download it from its website. Without it, I would not become able to develop the program. It is free in use with a lot of extensions and shortcut keys. This software includes the simple function which assists me a lot while doing the code. It also had good way of showing file structure as I

had to switch between my files a lot. And its first interface of the software is shown in the form of screenshot below:
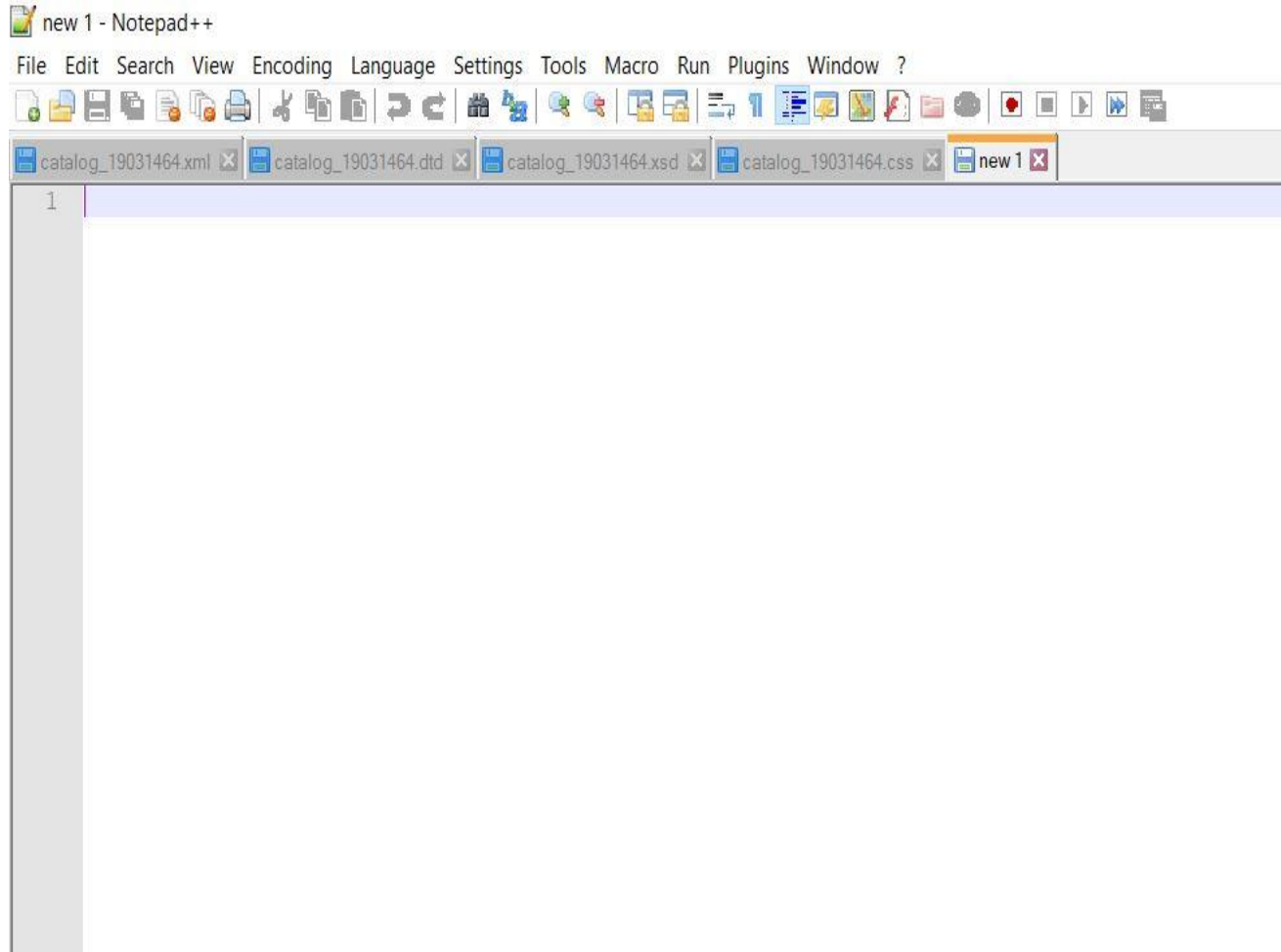
Figure 11: NotePad ++

Similarly, After the coding, I validate the code on the online site which is 'https://www.xmlvalidation.com' to check whether the code is write or not. I used Google Chrome browser while developing the system. I used to check the program structure by drag and dropping the files in the Chrome browser. Browser helps me to find the errors while developing. Even it shows the line number where the mistake is done. I also use the chrome browser to see the design of the system. And browser render the design according to the CSS I include.

10.   Critical Analysis:

In the due course of developing and completing my coursework, I faced many challenges and handle them with proper research and study. Since, this is the first project in XML carried out by me, it is obvious that I would encounter with errors and faults in my code. Specially, while developing XML schema and adding CSS design to XML file.

The first problem that I faced while developing the project was while writing CSS design for XML file. In the coursework, there is one requirement to insert the logo image of the store in CSS. Then I tried to add the image normally using simple CSS and XML code which is seen below in the form of screenshot.

```
logo{
    background-image: url("images/Logo.jpg");
    background-repeat: no-repeat;
    background-size: 270px 160px;

}
```

And when I runed the XML file in the browser, nothing was seen and the page was empty. It means the logo was not implemented properly. Then simply I research on internet and found that the image should be inserted in the body and adjust by maintaining its height and width which shown below in the form of screenshot.

```
music{
    background-image: url("images/Logo.jpg");
    background-repeat: no-repeat;
    background-size: 270px 160px;
    margin-top: 2em;
}
```

The second most challenging problem I faced is putting the Store Name in the center and displaying the song name and their details in the box. At first, I was much more tensed because of this problem. But I did lot of research over this and finally get rid out of this and some evidence for it is shown below;

```
]storeName{
    font-size: 36px;
    color: Orange;
    text-decoration: underline;
    text-align: center;
    font-family: Fantasy;
}
]address, telephoneNo, storeURL{
    font-size: 15px;
    color: black;
    text-decoration: none;
    text-align: center;
    font-family: Arial;
}

songs{
    font-size: 80%;
    margin: 0.5em;
    font-family: Verdana;
    display: block;
}
song{
    display: block;
    border: 1px solid silver;
    margin: 0.5em;
    background-color: cyan;
}
songName, genre, singer, director, producers, writer, releaseYear{
    display: block;
    font-family: Fantasy;
    text-align: center;
}
year, month, day{
    display: inline;
}

singer, director{
    color: green;
}
songName{
    border: none;
    background: rgb(66, 245, 96);
    padding: 10px 20px;
    cursor: pointer;
    margin: 10px;
    font-size: 30px;
    color: red;
```

And the most Challenging problem I faced throughout the coursework is validating the
XML, DTD and Schema files. Simply, I found a lot of error in my XML and schema file
when is did validation in the online site and the evidence of the error is shown below in
the form of screenshot.

10297 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:

⇥❌ 1:122 cvc-elt.1: Cannot find the declaration of element 'xs:schema'.

Errors in file xml-schema:

⇥❌ 6:   43 s4s-elt-invalid: Element 'music' is not a valid element in a schema document.

⇥❌ 6:   43 s4s-elt-schema-ns: The namespace of element 'music' must be from the schema namespace, 'http://www.w3.org/2001/XMLSchema'.

⇥❌ 6:   43 schema_reference.4: Failed to read schema document 'file:///xml-schema', because 1) could not find the document; 2) the document could not be read; 3) the root element of the document is not <xsd:schema>.

When I uploaded the files in the validating site lot of error was displayed in the screen of my compute. I became tensed, how to tackle with this problem. It means the code was not done properly. Then simply I researched on the internet and wit the help of my friends I became able to tackle the problem and make it errorless.

11.   Conclusion:

Finally, the coursework was completed with more research over the XML, DTD and schema topic. From this coursework lots of knowledge over the XML is gained. At first, I faced many challenges when I stared the coursework. But with the help of my tutor, friends and with my deep research I became able to complete my coursework. It was my first project in XML so, I learned lot of strange things from this coursework.

12.   References:

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