SHRI VILEPARLE KELAVANI MANDAL'S
DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
(Autonomous College Affiliated to the University of Mumbai)
NAAC ACCREDITED with "A" GRADE (CGPA : 3.18)

DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJ19ITL801 **DATE:** 01/02/24

COURSE NAME: Semantic Web Technology Laboratory **CLASS:** Final Year B. Tech IT

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EXPERIMENT NO. 2

CO/LO: Apply Semantic web technologies to real world applications.

AIM / OBJECTIVE: The objective of this experiment is to develop and validate an XML schema for a real-world dataset.

THEORY: XML (Extensible MarkUp Language) is a standard for storing and exchanging data that is widely used for exchanging data on the web. To ensure that XML data is well-formed and has a consistent structure, it is necessary to use an XML schema. An XML schema is a definition of the structure of an XML document and can be used to validate the structure of an XML document.

INPUT DATA / DATASET: https://www.w3schools.com/xml/default.asp

PROCEDURE / ALGORITHM:

Dataset:

```
<?xml version="1.0" encoding="UTF-8"?>
<breakfast_menu>
<food>
    <name>Belgian Waffles</name>
    <price>$5.95</price>
    <description>
   Two of our famous Belgian Waffles with plenty of real maple syrup
   </description>
    <calories>650</calories>
</food>
<food>
    <name>Strawberry Belgian Waffles</name>
    <price>$7.95</price>
```

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```
    <description>
    Light Belgian waffles covered with strawberries and whipped cream
    </description>
    <calories>900</calories>
</food>
<food>
    <name>Berry-Berry Belgian Waffles</name>
    <price>$8.95</price>
    <description>
    Belgian waffles covered with assorted fresh berries and whipped cream
    </description>
    <calories>900</calories>
</food>
<food>
    <name>French Toast</name>
    <price>$4.50</price>
    <description>
    Thick slices made from our homemade sourdough bread
    </description>
    <calories>600</calories>
</food>
<food>
    <name>Homestyle Breakfast</name>
    <price>$6.95</price>
    <description>
    Two eggs, bacon or sausage, toast, and our ever-popular hash browns
    </description>
    <calories>950</calories>
</food>
</breakfast_menu>
```

Elements:

```
food, name, price, description, calories
```

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XML schema:

```
<?xml version="1.0" encoding="utf-8"?>
<!-- Created with Liquid Technologies Online Tools 1.0 (https://www.liquid-
technologies.com) -->
<xs:schema attributeFormDefault="unqualified" elementFormDefault="qualified"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="breakfast_menu">
    <xs:complexType>
      <xs:sequence>
        <xs:element maxOccurs="unbounded" name="food">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="name" type="xs:string" />
              <xs:element name="price" type="xs:string" />
              <xs:element name="description" type="xs:string" />
              <xs:element name="calories" type="xs:unsignedShort" />
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

XML Validation

CONCLUSION:

The use of an XML schema is an effective way to validate the structure of an XML document. XML schemas provide a formal set of rules for defining the structure, content, and data types that are allowed in an XML document. By defining an XML schema, developers can ensure that their XML documents conform to a specific structure and that the data contained within the document is valid. In real-world applications, having a consistent structure for XML data is crucial. XML is often used for exchanging data between different systems or applications, and having a consistent structure ensures that the data can be easily parsed and understood by all systems that use it. If the structure of the XML data is inconsistent, it can cause issues when trying to integrate different systems or when trying to process the data.

REFERENCES:

[1] XML specification: https://www.w3.org/TR/REC-xml/

[2] XML Schema specification: https://www.w3.org/TR/xmlschema11-1/

[3] Relax NG specification: http://relaxng.org/

[4] https://www.liquid-technologies.com/online-xml-to-xsd-converter