

ADVANCED DATABASE – ASSIGNMENT 3

Complete following exercises on XML and MongoDB, report results in the corresponding files (Ex1.doc, Ex2.xml, Ex3.xmlEx10), and commit back to github.

1. Given below xml document, write an XQuery to get the title of CDs which were released after the year of 1983.

Note: Write XQuery online at <http://www.xpathtester.com/xquery>

```
<?xml version="1.0" encoding="utf-8"?>
<CATALOG>
  <CD>
    <TITLE>Empire Burlesque</TITLE>
    <ARTIST>Bob Dylan</ARTIST>
    <COUNTRY>USA</COUNTRY>
    <COMPANY>Columbia</COMPANY>
    <PRICE>10.90</PRICE>
    <YEAR>1985</YEAR>
  </CD>
  <CD>
    <TITLE>Hide your heart</TITLE>
    <ARTIST>Bonnie Tyler</ARTIST>
    <COUNTRY>UK</COUNTRY>
    <COMPANY>CBS Records</COMPANY>
    <PRICE>9.90</PRICE>
    <YEAR>1988</YEAR>
  </CD>
  <CD>
    <TITLE>Greatest Hits</TITLE>
    <ARTIST>Dolly Parton</ARTIST>
    <COUNTRY>USA</COUNTRY>
    <COMPANY>RCA</COMPANY>
    <PRICE>9.90</PRICE>
    <YEAR>1982</YEAR>
  </CD>
  <CD>
    <TITLE>Still got the blues</TITLE>
    <ARTIST>Gary Moore</ARTIST>
    <COUNTRY>UK</COUNTRY>
    <COMPANY>Virgin records</COMPANY>
    <PRICE>10.20</PRICE>
    <YEAR>1990</YEAR>
  </CD>
</CATALOG>
```

2. Modify the file ex2_catalog.xml so that the catalog document is accompanied with an appropriate DTD.
3. Write an XML document that is well-formed with following XSD definition:

```
<?xml version="1.0" encoding="utf-8" ?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
```

```

<xs:element name="AbsoluteMove">
  <xs:complexType mixed="true">
    <xs:sequence>
      <xs:element name="ProfileToken" type="xs:string" />
      <xs:element name="Position">
        <xs:complexType>
          <xs:sequence>
            <xs:element name="PanTilt">
              <xs:complexType>
                <xs:attribute name="x" type="xs:decimal" use="required" />
                <xs:attribute name="y" type="xs:decimal" use="required" />
              </xs:complexType>
            </xs:element>
            <xs:element name="Zoom">
              <xs:complexType>
                <xs:attribute name="x" type="xs:decimal" use="required" />
              </xs:complexType>
            </xs:element>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
</xs:element>
</xs:schema>

```

Validate XML with XSD at <https://www.liquid-technologies.com/online-xsd-validator>

4. Convert the XSD file in exercise 3 to an equivalent DTD document.
5. On MongoDB shell, change the current database to **myDb**. Write a MongoDB statement to insert a document corresponding to below CD information into a collection named **"catalog"**

```

<CD>
  <TITLE>Hide your heart</TITLE>
  <ARTIST>Bonnie Tyler</ARTIST>
  <COUNTRY>UK</COUNTRY>
  <COMPANY>CBS Records</COMPANY>
  <PRICE>9.90</PRICE>
  <YEAR>1988</YEAR>
</CD>

```

6. Write a MongoDB statement to insert another CD document (with XML description below) into the **"catalog"** collection. You should employ array data type for **<GENRES>** information.

```

<CD>
  <TITLE>Still got the blues</TITLE>
  <ARTIST>Gary Moore</ARTIST>
  <COUNTRY>UK</COUNTRY>
  <COMPANY>Virgin records</COMPANY>
  <PRICE>10.20</PRICE>
  <YEAR>1990</YEAR>
  <GENRES>
    <GENRE>Blue</GENRE>
    <GENRE>Country</GENRE>
  </GENRES>
</CD>

```

7. Write a MongoDB statement to retrieve the title of CDs released after 1983.

8. Import Northwind database to your MongoDB server, from the terminal, run `./mongod`. Write a command to list all collections of Northwind database

You must capture your screen and put to the report to provide the evidence of this exercise.

9. In Northwind database, update all products with `Discontinued = 1` so that their `UnitsInStock = 5`.
10. In Northwind database, delete all products whose `Discontinued status = 1`.