All Online Learning

Question:

1. Create an external DTD file for a Newspaper information satisfying the following requirements (elements and attribute names are given in italics, Newspaper is the root):
   • A Newspaper must contain at least one Article.
   • Each Article should be a sequence (one and exactly one sequence) of Headline, Byline, Lead, Body, and Notes.
   • Each Headline, Byline, Lead, Body, and Notes will contain parseable character data.
   • The Article will have four attributes, Author, Editor, Date, and Edition. Among them, Author and Editor are strictly required, and, Date and Edition are optional. Write an example XML file satisfying the necessary constraints, and validate the file against the DTD file.

2. Write an Example XML file having CATALOG as root element satisfying the following DTD. Proof the correctness of your DTD file as well.

```
<!ELEMENT CATALOG (PRODUCT+)>
<!ELEMENT PRODUCT
(SPECIFICATIONS+,OPTIONS?,PRICE+,NOTES?)>
<!ATTLIST PRODUCT
NAME CDATA #IMPLIED
CATEGORY (HandTool|Table|Shop-Professional) "HandTool"
PARTNUM CDATA #IMPLIED
PLANT (Pittsburgh|Milwaukee|Chicago) "Chicago"
INVENTORY (InStock|Backordered|Discontinued) "InStock">
<!ELEMENT SPECIFICATIONS (#PCDATA)>
<!ATTLIST SPECIFICATIONS
WEIGHT CDATA #IMPLIED
POWER CDATA #IMPLIED>
<!ELEMENT OPTIONS (#PCDATA)>
<!ATTLIST OPTIONS
FINISH (Metal|Polished|Matte) "Matte"
ADAPTER (Included|Optional|NotApplicable) "Included"
CASE (HardShell|Soft|NotApplicable) "HardShell">
<!ELEMENT PRICE (#PCDATA)>
```

Solution 1:

news.dtd

```
<!ELEMENT Newspaper (Article+)>

<!ELEMENT Article (Headline,Byline,Lead,Body,Notes)>

<!ELEMENT Headline (#PCDATA)>

<!ELEMENT Byline (#PCDATA)>

<!ELEMENT Lead (#PCDATA)>

<!ELEMENT Body (#PCDATA)>

<!ELEMENT Notes (#PCDATA)>

<!ATTLIST Article Author CDATA #REQUIRED>

<!ATTLIST Article Editor CDATA #REQUIRED>

<!ATTLIST Article Date CDATA #IMPLIED>

<!ATTLIST Article Edition CDATA #IMPLIED>
```

newspaper.xml

```
<?xml version="1.0"?>
<!DOCTYPE Newspaper SYSTEM "news.dtd">
<Newspaper>
      <Article Author="Tanmay" Editor="Tanmay" Date="" Edition="">
            <Headline>Spider-Man! Savior or Manice </Headline>
            <Byline>Were the Elementals truly to blame?</Byline>
            <Lead>Flash Thompson</Lead>
            <Body>Eugene Thompson's high school friends call him "Flash" - but no one could
                  have predicted how prophetic that nickname would become in the aftermath
                  of the London attacks!
            </Body>
            <Notes>Watch the video and send us your theories today!</Notes>
      </Article>
</Newspaper>
```

Solution 2:

cat.xml

```
<?xml version="1.0"?>
<!DOCTYPE CATALOG SYSTEM "catalog.dtd">
<CATALOG>
        <PRODUCT NAME="" CATEGORY="HandTool" PARTNUM="" PLANT="Chicago"
INVENTORY="InStock">
                <SPECIFICATIONS WEIGHT="" POWER="">1600CC</SPECIFICATIONS>
                <OPTIONS FINISH="Matte" ADAPTER="Included"
CASE="HardShell">4</OPTIONS>
                <PRICE MSRP="" WHOLESALE="" STREET="" SHIPPING="">100</PRICE>
                <NOTES>Hello</NOTES>
        </PRODUCT>
</CATALOG>
```

catalog.dtd

```
<!ELEMENT CATALOG (PRODUCT+)>
<!ELEMENT PRODUCT (SPECIFICATIONS+,OPTIONS?,PRICE+,NOTES?)>
<!ATTLIST PRODUCT NAME CDATA #IMPLIED
CATEGORY (HandTool|Table|Shop-Professional) "HandTool"
PARTNUM CDATA #IMPLIED
PLANT (Pittsburgh|Milwaukee|Chicago) "Chicago"
INVENTORY (InStock|Backordered|Discontinued) "InStock">
<!ELEMENT SPECIFICATIONS (#PCDATA)>
<!ATTLIST SPECIFICATIONS
WEIGHT CDATA #IMPLIED
POWER CDATA #IMPLIED>
<!ELEMENT OPTIONS (#PCDATA)>
<!ATTLIST OPTIONS
FINISH (Metal|Polished|Matte) "Matte"
ADAPTER (Included|Optional|NotApplicable) "Included"
CASE (HardShell|Soft|NotApplicable) "HardShell">
<!ELEMENT PRICE (#PCDATA)>
<!ATTLIST PRICE
MSRP CDATA #IMPLIED
WHOLESALE CDATA #IMPLIED
STREET CDATA #IMPLIED
SHIPPING CDATA #IMPLIED>
<!ELEMENT NOTES (#PCDATA)>
```