HW10 Mini Project Zhou, Tiancong

For the project I mainly created an XSLT file, and it transforms the XML file into SVG file, which can be displayed in the browser, and some statistical graphs can be shown. In the SVG file, the bar charts and category color grouping give us a more intuitive and faster way to capture the information that we need to know about.

Here is the XML source file:

<?xml version="1.0" encoding="UTF-8"?>  
<!DOCTYPE CATALOG[  
  
<!--<!ELEMENT CATALOG (CD\*) >  
<!ELEMENT CD (TITLE,ARTIST,COUNTRY,COMPANY,PRICE,YEAR,TRACK\*)>  
<!ELEMENT TITLE (#PCDATA)>  
<!ELEMENT ARTIST (#PCDATA)>  
<!ELEMENT COUNTRY (#PCDATA)>  
<!ELEMENT COMPANY (#PCDATA)>  
<!ELEMENT PRICE (#PCDATA)>  
<!ELEMENT YEAR (#PCDATA)>  
<!ELEMENT TRACK (#PCDATA)>  
  
<!ATTLIST CATALOG xmlns CDATA #REQUIRED>  
<!ATTLIST CD id ID #REQUIRED>  
<!ATTLIST CD similarTo IDREFS #IMPLIED>  
-->  
  
<!ENTITY COMPANY1 "Columbia" >  
<!ENTITY COMPANY2 "CBS Records" >  
<!ENTITY COMPANY3 "RCA" >  
<!ENTITY COMPANY4 "Virgin records" >  
<!ENTITY COMPANY5 "BMG" >  
<!ENTITY COMPANY6 "Polydor" >  
<!ENTITY COMPANY7 "CBS" >  
<!ENTITY COMPANY8 "Pickwick" >  
<!ENTITY COMPANY9 "Atlantic" >  
<!ENTITY COMPANY10 "Mega" >  
<!ENTITY COMPANY11 "Grammy" >  
<!ENTITY COMPANY12 "Mucik Master" >  
<!ENTITY COMPANY13 "WEA" >  
<!ENTITY COMPANY14 "Island" >  
<!ENTITY COMPANY15 "Siren" >  
<!ENTITY COMPANY16 "Medley" >  
<!ENTITY COMPANY17 "Elektra" >  
<!ENTITY COMPANY18 "London" >  
<!ENTITY COMPANY19 "EMI" >  
<!ENTITY COMPANY20 "Epic" >  
<!ENTITY COMPANY21 "Sony" >  
<!ENTITY COMPANY22 "A and M" >  
<!ENTITY COMPANY25 "Capitol" >  
<!ENTITY COMPANY24 "DECCA" >  
]>  
<CATALOG xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
 >  
  
 <CD id="C001">  
 <TITLE>Empire Burlesque</TITLE>  
 <ARTIST>Bob Dylan</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY1;</COMPANY>  
 <PRICE>1090</PRICE>  
 <YEAR>1985</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C002">  
 <TITLE>Hide your heart</TITLE>  
 <ARTIST>Bonnie Tyler</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY2;</COMPANY>  
 <PRICE>9.90</PRICE>  
 <YEAR>1988</YEAR>  
 <CATAGORY>ROCK</CATAGORY>  
 </CD>  
 <CD id="C003">  
 <TITLE>Greatest Hits</TITLE>  
 <ARTIST>Dolly Parton</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY3;</COMPANY>  
 <PRICE>9.90</PRICE>  
 <YEAR>1982</YEAR>  
 <CATAGORY>ROCK</CATAGORY>  
 </CD>  
 <CD id="C004">  
 <TITLE>Still got the blues</TITLE>  
 <ARTIST>Gary Moore</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY4;</COMPANY>  
 <PRICE>10.20</PRICE>  
 <YEAR>1990</YEAR>  
 <CATAGORY>JAZZ</CATAGORY>  
 </CD>  
 <CD id="C005">  
 <TITLE>Eros</TITLE>  
 <ARTIST>Eros Ramazzotti</ARTIST>  
 <COUNTRY>EU</COUNTRY>  
 <COMPANY>&COMPANY5;</COMPANY>  
 <PRICE>9.90</PRICE>  
 <YEAR>1997</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C006">  
 <TITLE>One night only</TITLE>  
 <ARTIST>Bee Gees</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY6;</COMPANY>  
 <PRICE>10.90</PRICE>  
 <YEAR>1998</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C007">  
 <TITLE>Sylvias Mother</TITLE>  
 <ARTIST>Dr.Hook</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY7;</COMPANY>  
 <PRICE>8.10</PRICE>  
 <YEAR>1973</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C008">  
 <TITLE>Maggie May</TITLE>  
 <ARTIST>Rod Stewart</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY8;</COMPANY>  
 <PRICE>8.50</PRICE>  
 <YEAR>1990</YEAR>  
 <CATAGORY>ROCK</CATAGORY>  
 </CD>  
 <CD id="C009">  
 <TITLE>Romanza</TITLE>  
 <ARTIST>Andrea Bocelli</ARTIST>  
 <COUNTRY>EU</COUNTRY>  
 <COMPANY>&COMPANY6;</COMPANY>  
 <PRICE>10.80</PRICE>  
 <YEAR>1996</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C0010"  
 similarTo="C0011 C0012 C0022 C0023">  
 <TITLE>When a man loves a woman</TITLE>  
 <ARTIST>Percy Sledge</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY9;</COMPANY>  
 <PRICE>8.70</PRICE>  
 <YEAR>1987</YEAR>  
 <CATAGORY>VOCAL</CATAGORY>  
 </CD>  
 <CD id="C0011"  
 similarTo="C0010 C0012 C0022 C0023">  
 <TITLE>Black angel</TITLE>  
 <ARTIST>Savage Rose</ARTIST>  
 <COUNTRY>EU</COUNTRY>  
 <COMPANY>&COMPANY10;</COMPANY>  
 <PRICE>10.90</PRICE>  
 <YEAR>1995</YEAR>  
 <CATAGORY>VOCAL</CATAGORY>  
 </CD>  
 <CD id="C0012"  
 similarTo="C0010 C0011 C0022 C0023">  
 <TITLE>1999 Grammy Nominees</TITLE>  
 <ARTIST>Many</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY11;</COMPANY>  
 <PRICE>10.20</PRICE>  
 <YEAR>1999</YEAR>  
 <CATAGORY>VOCAL</CATAGORY>  
 </CD>  
 <CD id="C0013">  
 <TITLE>For the good times</TITLE>  
 <ARTIST>Kenny Rogers</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY12;</COMPANY>  
 <PRICE>8.70</PRICE>  
 <YEAR>1995</YEAR>  
 <CATAGORY>ROCK</CATAGORY>  
 </CD>  
 <CD id="C0014">  
 <TITLE>Big Willie style</TITLE>  
 <ARTIST>Will Smith</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY1;</COMPANY>  
 <PRICE>9.90</PRICE>  
 <YEAR>1997</YEAR>  
 <CATAGORY>JAZZ</CATAGORY>  
 </CD>  
 <CD id="C0015">  
 <TITLE>Tupelo Honey</TITLE>  
 <ARTIST>Van Morrison</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY6;</COMPANY>  
 <PRICE>8.20</PRICE>  
 <YEAR>1971</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C0016">  
 <TITLE>Soulsville</TITLE>  
 <ARTIST>Jorn Hoel</ARTIST>  
 <COUNTRY>Norway</COUNTRY>  
 <COMPANY>&COMPANY13;</COMPANY>  
 <PRICE>7.90</PRICE>  
 <YEAR>1996</YEAR>  
 <CATAGORY>ROCK</CATAGORY>  
 </CD>  
 <CD id="C0017">  
 <TITLE>The very best of</TITLE>  
 <ARTIST>Cat Stevens</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY14;</COMPANY>  
 <PRICE>8.90</PRICE>  
 <YEAR>1990</YEAR>  
 <CATAGORY>ROCK</CATAGORY>  
 </CD>  
 <CD id="C0018">  
 <TITLE>Stop</TITLE>  
 <ARTIST>Sam Brown</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY22;</COMPANY>  
 <PRICE>8.90</PRICE>  
 <YEAR>1988</YEAR>  
 <CATAGORY>ROCK</CATAGORY>  
 </CD>  
 <CD id="C0019">  
 <TITLE>Bridge of Spies</TITLE>  
 <ARTIST>T'Pau</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY15;</COMPANY>  
 <PRICE>7.90</PRICE>  
 <YEAR>1987</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C0020">  
 <TITLE>Private Dancer</TITLE>  
 <ARTIST>Tina Turner</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY25;</COMPANY>  
 <PRICE>8.90</PRICE>  
 <YEAR>1983</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C0021">  
 <TITLE>Midt om natten</TITLE>  
 <ARTIST>Kim Larsen</ARTIST>  
 <COUNTRY>EU</COUNTRY>  
 <COMPANY>&COMPANY16;</COMPANY>  
 <PRICE>7.80</PRICE>  
 <YEAR>1983</YEAR>  
 <CATAGORY>ROCK</CATAGORY>  
 </CD>  
 <CD id="C0022"  
 similarTo="C0010 C0011 C0012 C0023">  
 <TITLE>Pavarotti Gala Concert</TITLE>  
 <ARTIST>Luciano Pavarotti</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY24;</COMPANY>  
 <PRICE>9.90</PRICE>  
 <YEAR>1991</YEAR>  
 <CATAGORY>VOCAL</CATAGORY>  
 </CD>  
 <CD id="C0023"  
 similarTo="C0010 C0011 C0012 C0022">  
 <TITLE>The dock of the bay</TITLE>  
 <ARTIST>Otis Redding</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY9;</COMPANY>  
 <PRICE>7.90</PRICE>  
 <YEAR>1987</YEAR>  
 <CATAGORY>VOCAL</CATAGORY>  
 </CD>  
 <CD id="C0024">  
 <TITLE>Picture book</TITLE>  
 <ARTIST>Simply Red</ARTIST>  
 <COUNTRY>EU</COUNTRY>  
 <COMPANY>&COMPANY17;</COMPANY>  
 <PRICE>7.20</PRICE>  
 <CATAGORY>ROCK</CATAGORY>  
 </CD>  
 <CD id="C0025">  
 <TITLE>Red</TITLE>  
 <ARTIST>The Communards</ARTIST>  
 <COUNTRY>UK</COUNTRY>  
 <COMPANY>&COMPANY18;</COMPANY>  
 <PRICE>7.80</PRICE>  
 <YEAR>1987</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C0026">  
 <TITLE>Unchain my heart</TITLE>  
 <ARTIST>Joe Cocker</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY19;</COMPANY>  
 <PRICE>8.20</PRICE>  
 <YEAR>1987</YEAR>  
 <CATAGORY>JAZZ</CATAGORY>  
 </CD>  
 <CD id="C0027">  
 <TITLE>Doo - Wops &amp; Hooligans</TITLE>  
 <ARTIST>Bruno Mars</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY20;</COMPANY>  
 <PRICE>9.90</PRICE>  
 <YEAR>2010</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C0028">  
 <TITLE>We Sing, We Dance, We Steal Things </TITLE>  
 <ARTIST>Jason Mraz</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY9;</COMPANY>  
 <PRICE>8.90</PRICE>  
 <YEAR>2008</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C0029">  
 <TITLE>Little Voice</TITLE>  
 <ARTIST>Sara Bareilles</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY20;</COMPANY>  
 <PRICE>7.90</PRICE>  
 <YEAR>2007</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 </CD>  
 <CD id="C0030">  
 <TITLE>Teenage Dream</TITLE>  
 <ARTIST>Katy Perry</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY25;</COMPANY>  
 <PRICE>13.90</PRICE>  
 <YEAR>2012</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 <TRACK>Teenage Dream</TRACK>  
 <TRACK>Last Friday Night</TRACK>  
 <TRACK>California Gurls</TRACK>  
 <TRACK>Firework </TRACK>  
 <TRACK>Peacock</TRACK>  
 <TRACK>Circle The Drain</TRACK>  
 <TRACK>The One That Got Away</TRACK>  
 <TRACK>E.T.</TRACK>  
 <TRACK>Who Am I Living For?</TRACK>  
 <TRACK>Pearl</TRACK>  
 <TRACK>Hummingbird Heartbeat</TRACK>  
 <TRACK>Not Like The Movies </TRACK>  
  
 </CD>  
 <CD id="C0031">  
 <TITLE>Continuum</TITLE>  
 <ARTIST>John Mayer</ARTIST>  
 <COUNTRY>USA</COUNTRY>  
 <COMPANY>&COMPANY21;</COMPANY>  
 <PRICE>6.90</PRICE>  
 <YEAR>2008</YEAR>  
 <CATAGORY>POP</CATAGORY>  
 <TRACK> Waiting On the World To Change </TRACK>  
 <TRACK>I Don't Trust Myself (With Loving You) </TRACK>  
 <TRACK>Belief </TRACK>  
 <TRACK>Gravity</TRACK>  
 <TRACK>The Heart of Life</TRACK>  
 <TRACK>Vultures</TRACK>  
 <TRACK>Stop This Train</TRACK>  
 <TRACK>Slow Dancing In a Burning Room</TRACK>  
 <TRACK>Bold As Love</TRACK>  
 <TRACK>Dreaming With a Broken Heart</TRACK>  
 <TRACK>In Repair</TRACK>  
 <TRACK>I'm Gonna Find Another You</TRACK>  
 <TRACK>Say</TRACK>  
   
 </CD>  
</CATALOG>

XSLT:

<?xml version="1.0"?>  
<xsl:stylesheet version="2.0"   
 xmlns:xsl="http://www.w3.org/1999/XSL/Transform"  
 xmlns:xlink="http://www.w3.org/1999/xlink"   
 xmlns="http://www.w3.org/1999/xhtml"  
 >  
   
 <xsl:output  
 method="xml"  
 doctype-system="about:legacy-compat"  
 omit-xml-declaration = "yes"  
 encoding="UTF-8"  
 indent="yes" />  
   
 <xsl:strip-space elements="tasks participants"/>  
   
 <xsl:template match="/">  
 <html xmlns="http://www.w3.org/1999/xhtml">  
 <body>   
 <xsl:for-each select="CATALOG/CD">  
 <xsl:sort select="CATAGORY"/>  
   
 <xsl:apply-templates/>  
 </xsl:for-each>  
   
 </body>  
 </html>  
 </xsl:template>  
   
 <xsl:template match="CATAGORY">  
   
 <xsl:variable name="cat" select="."></xsl:variable>  
   
 <xsl:apply-templates/>  
 <xsl:if test="$cat='POP'">  
 <svg style="background-color:red;float:right" width="20" height="20"   
 xmlns:xlink="http://www.w3.org/1999/xlink"   
 xmlns="http://www.w3.org/2000/svg">  
   
 </svg>  
 </xsl:if>  
 <xsl:if test="$cat='JAZZ'">  
 <svg style="background-color:blue;float:right" width="20" height="20"   
 xmlns:xlink="http://www.w3.org/1999/xlink"   
 xmlns="http://www.w3.org/2000/svg">  
   
 </svg>  
 </xsl:if>  
 <xsl:if test="$cat='ROCK'">  
 <svg style="background-color:purple;float:right" width="20" height="20"   
 xmlns:xlink="http://www.w3.org/1999/xlink"   
 xmlns="http://www.w3.org/2000/svg">  
   
 </svg>  
 </xsl:if>  
 <xsl:if test="$cat='VOCAL'">  
 <svg style="background-color:orange;float:right" width="20" height="20"   
 xmlns:xlink="http://www.w3.org/1999/xlink"   
 xmlns="http://www.w3.org/2000/svg">  
   
 </svg>  
 </xsl:if>  
 </xsl:template>  
   
   
 <xsl:template match="CD">  
   
 <xsl:apply-templates/>  
 </xsl:template>  
   
   
 <xsl:template match="TITLE">  
 <h2><xsl:apply-templates/></h2>  
 </xsl:template>  
   
 <xsl:template match="ARTIST">  
 <div style="border-style:dotted;margin:10px;padding:5px;width:80px;height:40px;">  
 <xsl:apply-templates/>  
 </div>  
 </xsl:template>  
   
 <xsl:template match="PRICE">  
 Price: <xsl:apply-templates/>  
 <xsl:variable name="prices" select="."/>  
 <xsl:variable name="max">  
 <xsl:call-template name="find-max">  
 <xsl:with-param name="pri" select="//CATALOG/CD/PRICE">  
   
 </xsl:with-param>  
 </xsl:call-template>  
   
 </xsl:variable>  
 <svg style="background-color:yellow;float:left" width="{$max\*20}" height="20"   
 xmlns:xlink="http://www.w3.org/1999/xlink"   
 xmlns="http://www.w3.org/2000/svg">  
 <rect x="5px" y="5px" height="10px" width="{$prices\*12}" fill="green" />  
 </svg>  
 </xsl:template>  
   
   
 <xsl:template name="find-max">  
 <xsl:param name="pri"/>  
   
 <!-- The value of the first price in this list. -->  
 <xsl:variable name="this-price">  
 <xsl:value-of select="$pri[position() = 1]"/>  
 </xsl:variable>  
   
 <xsl:choose>  
 <xsl:when test="$pri">  
 <!-- The maximum value of the remaining prices in this list. -->  
 <xsl:variable name="other-price">  
 <xsl:call-template name="find-max">  
 <xsl:with-param name="pri" select="$pri[position() != 1]"/>  
 </xsl:call-template>  
 </xsl:variable>  
   
 <!-- Return the maximum of this hour and the remaining prices. -->  
 <xsl:choose>  
 <xsl:when test="$other-price &gt; $this-price">  
 <xsl:value-of select="$other-price"/>  
 </xsl:when>  
 <xsl:otherwise>  
 <xsl:value-of select="$this-price"/>  
 </xsl:otherwise>  
 </xsl:choose>  
 </xsl:when>  
   
 <!-- We've reached the last price in the list. -->  
 <xsl:otherwise/>  
 </xsl:choose>  
   
 </xsl:template>   
   
  
</xsl:stylesheet>

In the XSLT source code, I used “param”/”with-param” and caparisons methods, etc. to get the maximum value, and decide the yellow background width of the horizontal bars, which is proportional to the maximum value of the price. So each background bar is of fixed width. Then I used the green rectangles to represent their prices, which differ accordingly.

I also used sort methods to group CDs with the same CATAGORY, and then mark them in specific colors according to their CATAGORYs, which are shown on the right side of the page.

Link to the SVG file:

<http://lyle.smu.edu/~tiancongz/hw10.svg>

Output SVG screenshot:

