Lab 10: TouchDevelop Software

Goals

Apply knowledge of programming to the new system, TouchDevelop.

Warm Up

Load the TouchDevelop system onto your device. You can use the lab computers, your own laptop, tablet or smart phone. If you use your phone or touch sensitive tablet, you will be programming with your fingers; otherwise you will use the mouse.

Go to http://www.touchdevelop.com and sign in for your device – you can probably use your Facebook login.

The first thing to do is to check out the Chat & Learn section called Getting Started. (Use your ear buds or read the subtitles.) This explains graphically what to do to write a program (script) in TouchDevelop. Next, familiarize yourself with the interactive environment by writing a "Hello World" script and performing some of the activities of the Getting Started video.

Spend 15 minutes familiarizing yourself with the system.

Display A Video

To wrap up our discussion of XML, we use the TouchDevelop system to go out on the Web to grab a video; for simplicity we use a video from the homework assignment you've been working on.

Recall that the homework XML file starts out like this

```
<?xml version="1.0" encoding="UTF-8"?>
<mydiary>
   <links>
     <item url="http://www.npr.org/...</item>
     <item url="http://www.cs.washington.edu">U Dub</item>
     <item url="http://www.cs.washington.edu/cse120">CS ...</item>
     <item url="http://apod.nasa.gov/">Astronomy ...</item>
   </links>

   <timeline>
    <entry>
      <day>Wednesday, February 27, 2013</day>
      <happenin>The video "What most schools don't
       teach" came out yesterday. will.i.am claims that
       programmers are rock stars. This is amazing,
       because writing programs isn't that hard. Of course,
       playing in a band isn't either, so maybe the comparison
       is good.<bline/><bline/>
      <ytvid video="http://www.youtube.com/embed/nKIu9yen5nc"/>
      </happenin>
    </entry>

                        ...
```

We will write a small script using TouchDevelop to navigate to the video.

```
action main ()
 "I'm Navigating!"→ post to wall
 var xmla := web→ xml(web→ download("http://www.cs.washington.edu/e..."))
 if xmla→ is invalid then
   "\"unable to download\""→ post to wall
 else
   xmla→ post to wall                        Remove this when moving on
```

This much of the script will find the video (the full URL is
http://www.cs.washington.edu/education/courses/120/13wi/asmt/mydiary.xml) and if it is
successful, it will post the contents to the wall. This is the whole <mydiary> tag and
should look just like the text above, but unformatted. If it's not successful, you probably
have a typo.

Next we add the following instructions to the **action** – do this one line at a time, testing
after each one by posting it to the wall – so that you navigate through the XML
(highlighted tags above) to the video. Notice how this works. We just grab all the stuff in
a tag, and then find things "interior" to that stuff by looking for a "child" tag. [Note, the
variable names are unimportant, but they must be *used* in the way shown.]

```
 var xmlb := xmla→ child("timeline")       Inside <mydiary> tag, find the <timeline> & save
 var xmlc := xmlb→ child("entry")          Inside <timeline>, find first <entry> tag & save
 var xmld := xmlc→ child("happenin")       Inside <entry> tag, get <happenin> tag & save
 var xmle := xmld→ child("ytvid")          Inside <happenin> tag, find <ytvid> tag & save
 var xmlf := xmle→ attr("video")           Inside <ytvid> tag, grab its video attribute, save
 var xmlg := web→ play media(xmlf)         And now play as media the URL of the attribute
```

Continue navigating until the video is displayed.

And, you might as well watch it!

Wrap Up. Using your programming knowledge you understand how to navigate
through XML to get to a specific place. You can use these same ideas to navigate, say, to
pictures on Flickr or look through an RSS news feed. Most online data is structured with
XML.

This was only an exercise; there is nothing to turn in.