**Caring for Digital Materials: Session 4, Practice Safe Archiving**

**(Optional) Homework**

*In addition to the regular homework assignment, you may find these additional assignments useful. They are intended to help you learn how to use tools on your own computer and to do a more thorough assessment of the preservation needs in your institution.*

**Assignment 1:**
You will gain an understanding of the nature of file fixity and checksums and run a simple fixity audit on a file. A Hex Editor is simply a way to view a representation of the binary information of a file.

**Tools***:*
Checksum Tools:
- MD5 (OSX): http://md5.soft32.com/
- MD5 Summer (Windows): http://www.md5summer.org/
Will also need a Hex Editor:
- Hex Fiend (OSX) http://ridiculousfish.com/hexfiend/
- HxD (Windows) http://download.cnet.com/HxD-Hex-Editor/3000-2352_4-10891068.html

**Actions:**
- Open your checksum application (for MD5, you will be using "Create MD5 files")
- Select a file on your computer and generate a checksum
- Write down (or copy/paste) the checksum
- Now open the same file in a hex editor
- Scroll way down into the middle of the numeric information on the left and change one two-digit value somewhere
- Save the file.
- In MD5, open the MD5 file "fixity" and hit start; for MD5Summer use "verify sums" and select the same file you originally generated
- Hit run or start
- What does the program tell you?
- You have just run a fixity check or fixity "audit" on a group of files. One tiny change in just a few bits produces a dramatically different checksum (aka hash or message digest) value.

This is the same process – only run at a much larger scale and frequency – used by large digital preservation repositories to audit the integrity (aka fixity) of digital content.

**Assignment 2:**
You will use two online self-assessment and digital preservation planning guides to better understand the institutional requirements of digital preservation.

**Tools:**
- Score Model: http://scoremodel.org/en
- DPC Decision Tree Interactive Assessment:
http://www.dpconline.org/advice/preservationhandbook/decision-tree/decisiontree-interactive-assessment

**Task 1:**
- Sign up for a Score Model account and start a new report. The tool will walk you through a set of scored questions to the following areas:
  - Organization & Policy
  - Preservation Strategy
  - Knowledge & Organization
  - Storage Management
  - Ingest
  - Planning & QC
  - Demands
- As you proceed through the exercise, make a note of any questions or topic areas that you were not expecting.
- Are there any tools and activities that address certain areas the tool marks as high risk?
- What activity areas or institutional requirements do you think are especially highlighted in the reports questioning?

Note that the report generated isn't the greatest thing ever given the language issue, but this tool is intended to help individuals and institutions identify gaps in existing practices.

**Task 2:**
- Play around with the DPC Decision Tree Interactive Assessment:
- Go through the same set of exercises as with Score Model.
- Since this is a guided assessment, be sure to explore a number of answers to different questions to see what different pathways emerge according to different responses.

Both tools should help you identify areas of risk, i.e. what can go wrong, as far as preserving digital information.