Front-end development

Module 4

Embedding and Introduction to JavaScript

Bits and Bots
study group

Content

What to expect in Module 4?

Module 4 will take the websites that you have so far built and allow you to explore different pages and tools you can use online to make them more exciting. Such as adding video content, interactive exhibition software, tweets and games. We will also start looking at JavaScript, the coding language that is designed to make websites interactive.

Answers Exercise Command-Line Interface

Windows

```
@echo off
cd /d "C:\Path\To\Your\TargetFolder"
echo Navigated to %cd%

echo Listing contents of %cd%:
dir

set "NEWFOLDER=CopiedFiles"
mkdir "%NEWFOLDER%"
echo Created folder: %NEWFOLDER%

set "ORIGINAL=example.txt"
set "COPY=%NEWFOLDER%\example_copy.txt"

if exist "%ORIGINAL%" (
    copy "%ORIGINAL%" "%COPY%"
    echo Copied "%ORIGINAL%" to "%COPY%"
) else (
    echo ERROR: File "%ORIGINAL%" not found.
    exit /b 1
)

echo Calculating SHA512 checksum for %COPY%:
certutil -hashfile "%COPY%" SHA512
```

Notes to Windows script

- By using echo commands throughout your script, you make sure that you've used the right command. For example, `echo Navigated to %cd%` would print as `Navigated to C:\Path\To\Your\TargetFolder` on your screen.
- Replace `C:\Path\To\Your\TargetFolder` with the actual folder path.
- Replace `example.txt` with the file name you want to duplicate.
- If you prefer MD5, change SHA512 to MD5 in the certutil command.
- Save the batch script as a `.bat` file. Open the cmd prompt (search for cmd in the search bar and press `ENTER`. Navigate to the right folder where the batch script is saved, and run the file by typing the file name, such as: `C:\Users\Bits_and_Bots\Python_Scripts> BatchScript.bat`

Mac

```
#!/bin/bash

cd "/Users/yourusername/TargetFolder"
echo "Navigated to $(pwd)"

echo "Contents of $(pwd):"
ls -la

NEWFOLDER="CopiedFiles"
mkdir -p "$NEWFOLDER"
echo "Created folder: $NEWFOLDER"

ORIGINAL="example.txt"
COPY="$NEWFOLDER/example_copy.txt"

if [ -f "$ORIGINAL" ]; then
    cp "$ORIGINAL" "$COPY"
    echo "Copied $ORIGINAL to $COPY"
else
    echo "ERROR: $ORIGINAL does not exist"
    exit 1
fi

echo "SHA512 checksum of $COPY:"
shasum -a 512 "$COPY"
```

Notes to Mac script

- The script starts with `#!` This is called the shebang marker. Without it, the script may run in a different shell or fail to run entirely in some environments. You can also use `#!/usr/bin/python3` on the first line for Python scripts.
- Replace `yourusername` and folder paths with your actual username and target directory.
- In this example, we included an if statement. It starts with if and ends with fi (literally 'if' spelled backwards). The batch script checks if the said file exists, in that case the condition in the statement is true, so the file will be copied. If the file does not exist, this script will print '`ERROR: example.txt does not exist`' on your screen.
- If you want to calculate a MD5 checksum, use: `md5 "$COPY"`
- Save the batch script as a `.sh` file. To run the file on the macOS Terminal, open Terminal, navigate to you folder and call the script: `chmod +x /path/to/script.sh && /path/to/script.sh`

Linux

```
#!/bin/bash

cd "/home/yourusername/TargetFolder"
echo "Navigated to $(pwd)"

echo "Contents of $(pwd):"
ls -la

NEWFOLDER="CopiedFiles"
mkdir -p "$NEWFOLDER"
echo "Created folder: $NEWFOLDER"

ORIGINAL="example.txt"
COPY="$NEWFOLDER/example_copy.txt"

if [ -f "$ORIGINAL" ]; then
    cp "$ORIGINAL" "$COPY"
    echo "Copied $ORIGINAL to $COPY"
else
    echo "ERROR: $ORIGINAL does not exist"
    exit 1
fi

echo "SHA512 checksum of $COPY:"
sha512sum "$COPY"
```

Notes to Linux script

- The script starts with `#!` This is called the shebang marker. Without it, the script may run in a different shell or fail to run entirely in some environments. You can also use `#!/usr/bin/python3` on the first line for Python scripts.
- Replace `yourusername` and folder paths with your actual username and target directory.
- In this example, we included an if statement. It starts with `if` and ends with `fi` (literally 'if' spelled backwards). The batch script checks if the said file exists, in that case the condition in the statement is true, so the file will be copied. If the file does not exist, this script will print 'ERROR: example.txt does not exist' on your screen.
- If you want to calculate a MD5 checksum, use: `md5sum "$COPY"`
- Save the batch script as a `.sh` file. To run the file on Linux, open Terminal, navigate to your folder and call the script: `chmod +x /path/to/script.sh && /path/to/script.sh`

Embedding and Tools

Not everything needs to be made from scratch when coding and embedding is a great way to bring other external resources from across the internet into your website. Read more about embedding and the embed tag here and how to add them here. These can also be used within Twine. The tools element in this module is simply a way of describing the range of different features and resources that can be used in embedding. This module will be about you discovering these and being creative about what you can now make. Here are a few ideas to get you started!

- Starting with something simple. You may wish to put posts from X (Twitter) elsewhere which is possible following these instructions.
- Or you may want to add a YouTube video.
- Add a map to your website.
- Or a personal favourite, an interactive exhibition or timeline.
- There are also lists of games that are embeddable that can be found with a quick search.

This is by no means an exhaustive list, there are lots of tools out there that you can use to enhance your websites and create something really unique. See what you can make with all these ideas!

Up until now you have made websites and or games in Twine. Embed something into one of your existing projects, like a map or YouTube video.

Introduction to JavaScript

What is JavaScript?

'JavaScript is the programming language of the web' and also one of the most popular coding languages in the world. Many of the concepts in JavaScript follow the same principles as python and the same concepts of variables, loops, if and else statements etc. can be applied in JavaScript coding language as well, it just has slightly different syntax and ways of achieving the same results.

Learning Resources

We recommend starting with the Code Academy 'Introduction to JavaScript' course. The W3 Schools introduction is also complimentary or can be used instead if you prefer that learning style. The next two modules will focus heavily on JavaScript from the same courses so you can take your time or jump ahead depending on how you wish to manage your workload. For now we recommend just the first couple of introductory modules.

If you have time, see if you can incorporate JavaScript into something that you have already learnt.

Follow the introductory modules of 'Introduction to JavaScript' on Codecademy.
Note: You need to log in to access the Codecademy courses.

Final Goal

See what amazing frankenstenian websites you can now make. Either create a completely new website, this could be an exhibition, a game or any website you have in mind. Or you can embed and add some JavaScript functionality to something that you have already built!!! We would love you to share any ideas you have on what you can embed into websites, these are only just a few!

Bits and Bots in Practice – Web Exercise

The expert session in September is about "Bits and Bots in practice" and will be given by Eva van den Hurk - van 't Klooster. This part of the module should be done ***after*** that expert session. We will also make sure to provide you all the slides of the session afterwards to aid you in the assignment.

Abstract expert session

The first Bits and Bots courses in 2024 have provided its members with knowledge that helps them take their work to the next level. While creating games using HTML, CSS and JavaScript, members have gained insights into what a website consists of and what different languages can be used to build a website, its look and feel and interactive features. This helps to improve acquisition and preservation questions when it comes to web archiving; with detailed knowledge of what makes a website it becomes easier gather all the information needed to preserve a website as completely as possible. In this session, we will have a look at these questions.

On the other hand, knowledge of Python can help improve preservation processes. Python scripts can change filenames in bulk or deduplicate metadata. This session will touch upon how these examples became vital in a large migration project between two digital repositories at Eva's archival institution and how knowledge of Python helped create and understand the R-scripts that were used during this project.

Exercise Bits and Bots in practice

In the expert session, we dove a bit deeper into questions digital preservationists can ask themselves when it comes to web archiving. These questions can relate to technology or archival principles. Before continuing with this exercise, please read chapters 1 and 2 of the DPC Technology Watch Report Web-Archiving from the Digital Preservation Coalition.

1. Look at the following websites:
   - https://www.discountbedsbelfast.co.uk/
   - https://www.art.yale.edu/
   - https://arngren.net/
   - http://www.cyberdsignclan.com/

And pick one from https://rollbar.com/blog/errors-on-the-worlds-top-100-websites-and-how-to-avoid-them/

2. What questions would you ask yourself if you were faced with archiving these websites? Topics could be:
   - Method of archiving
   - Finding errors in code (make sure to check out the HTML Validator Tool)
   - Contextualization and metadata
   - Original, preservation and publication versions of the website
   - Access

3. Would the questions differ between the websites?