

Educational Technologies for Open Educational Practices 1

Cal Murgu and Tim Ribaric, Brock University

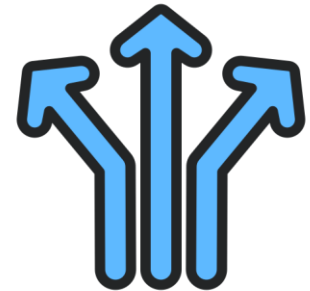


Summary

- Introductions
- The 'right' infrastructure for open pedagogy

Two Paths

- ELearning using Github Pages, Static Site Generators, and H5P
- ELearning using Jupyter Notebooks and Google Colab
- Concluding thoughts



Introductions

Cal Murgu

Instructional Design Librarian

 @calmurgu



Tim Ribaric

Digital Scholarship Librarian

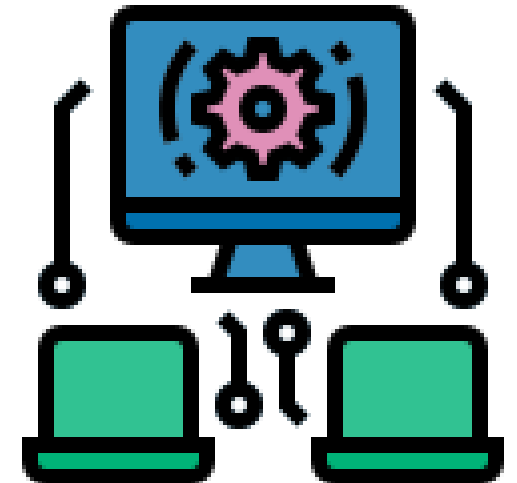
@elibtronic 



A Question of Infrastructure

- One of the most important considerations for an any open educational practice
- Influenced by: institutional values; resourcing (or lack thereof); support; sustainability
- Directly affects **what you can do in a lesson**

articulāte



A Question of Infrastructure

- Can you create quality eLearning using open tools?



*



* GitHub is not open source; but does operate under an open spirit

A Question of Infrastructure

- Can you create quality eLearning using open tools?



... is a static site hosting service that takes HTML, CSS, and JavaScript files straight from a repository on GitHub



... is a fast and modern static site generator written in Go



...is free and open-source content collaboration framework based on JavaScript.

A Question of Infrastructure



... to host everything.
Repository publicly
available, shareable, pull
requests, forking

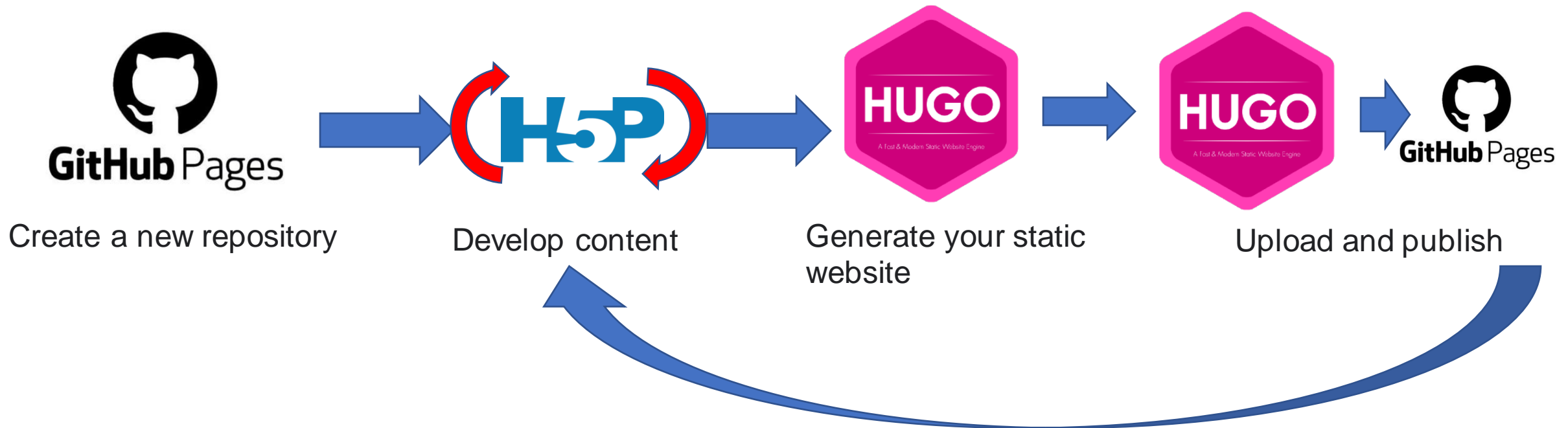


... to generate the static
website, including all the
content. Essentially
operating as a set of
templates for modular
learning content.
Themeable.



... adding interactive
content and
activities using H5P
(via eCampus
Ontario studio)

What's Involved (flow chart)



Create a Repository



← → ↺

github.com

Apps Sign in - LibraryH3L... Popular Tools

Search or jump to... / Pull requests Issues Marketplace Explore

🔔 + 👤

Recent Repositories

New

Find a repository...

cmurgu/cmurgu.github.io

cmurgu/jbooks-test

cmurgu/jbooks

cmurgu/whats-the-hype

cmurgu/murgusite

brockTnL/teaching-collection

brockTnL/brocktnl.github.io

Show more

Recent activity

When you take actions across GitHub, we'll provide links to that activity here.

All activity

melaniewalsh

starred 2 repositories 5 hours ago

walkerhq/musiclyrics

<https://www.kaylinpavlik.com/50-years-of-pop-music/>

R

97

Updated Apr 30

cyrildigne

starred 2 repositories 6 hours ago

sadnow/AnimationKit-AI

AnimationKit: AI Upscaling & Interpolation using Real-ESRGAN+RIFE

Jupyter Notebook

45

Updated Jan 15

pixelandpen

started following JamesNK 11 hours ago

James Newton-King JamesNK

Software Developer. Author of Json.NET. Not Batman.

Follow

Our response to the war in Ukraine

GitHub is united with the people of Ukraine and the international community.

Read more

Explore repositories

openstates/people

Curated information on all state legislators & governors.

59

unitedstates/congress-legislators

Members of the United States Congress, 1789-Present, in YAML/JSON/CSV, as well as committees, presidents, and vice presidents.

Python


1.6k

structurizr/cli

A command line utility for Structurizr.

Record

Design Content



↗

Creating a Search Strategy

An activity to help you practice creating a search strategy.

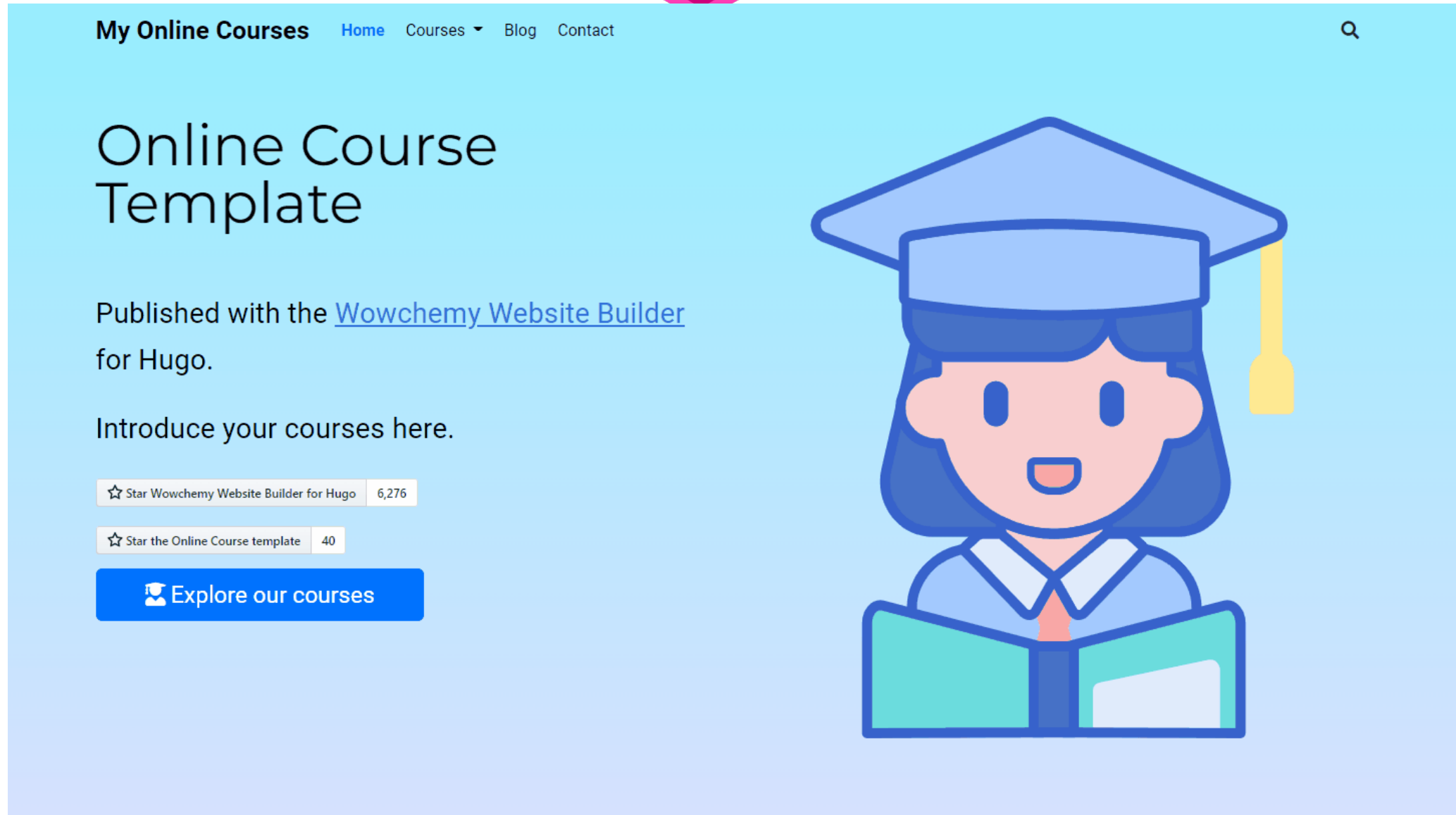
Start the course →

Generate Website



```
Windows PowerShell
PS C:\Users\cmurgu\desktop>
```

Preview Website

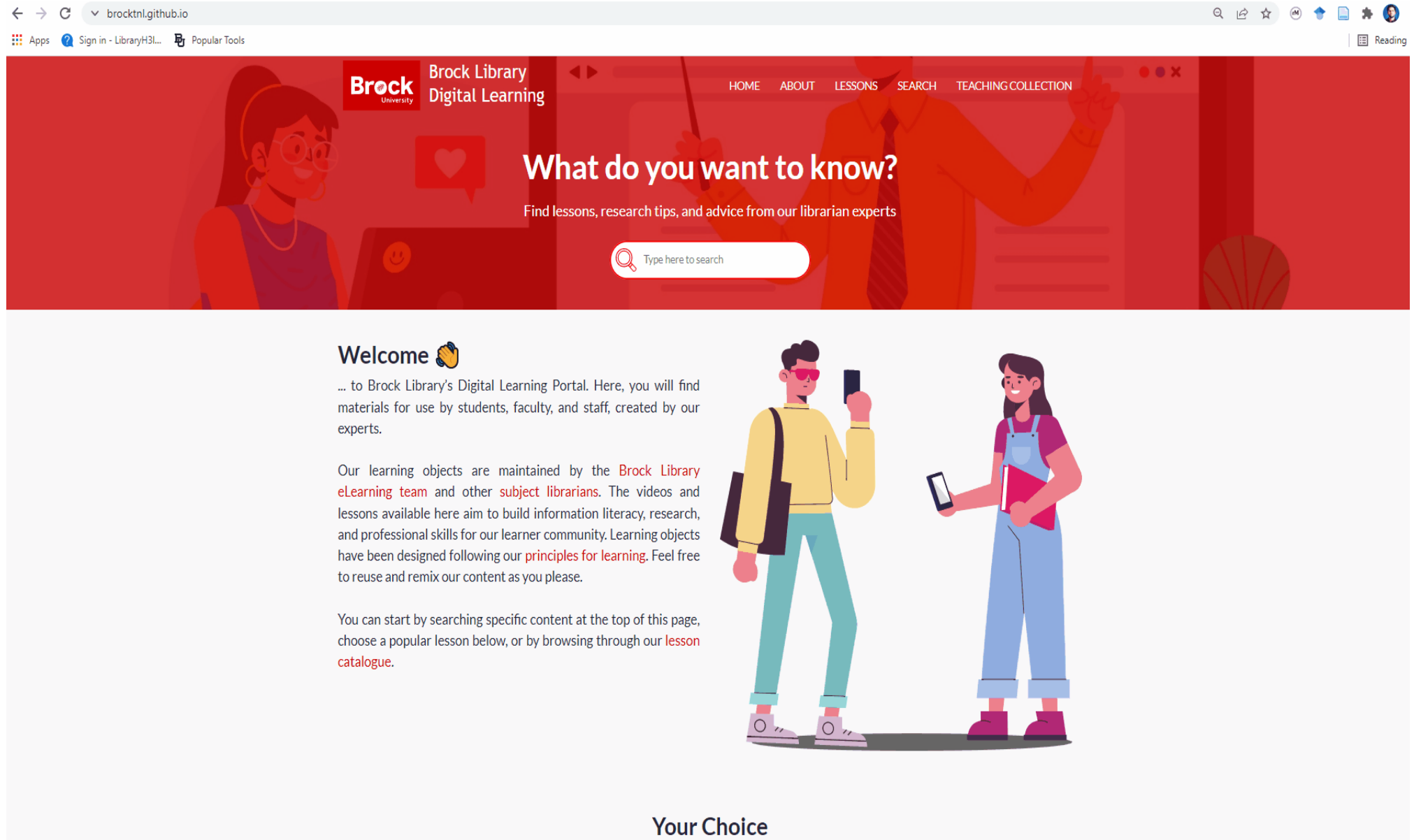


Push and Publish



```
Select Windows PowerShell
PS C:\Users\cmungu\desktop\b-il> git
```

Result



← → ↻ brocktnl.github.io 🔍 📄 ☆ ⓘ ⬇ 📁 ⚙️ 👤

📱 Apps ⓘ Sign in - LibraryH3L... 📄 Popular Tools

Brock University Brock Library Digital Learning

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Your Choice



What skills are required?

- Some comfort with the command line (very minimal) — great opportunity to play around with Git and Hugo
- Some comfort with Github repositories, basic HTML, CSS (and Javascript if you want to go wild)
- Access to H5P authoring editor (if you want to go this route)

Advantages

- You control **everything** (goodbye Springshare Libguides 🤝)
- Static websites = simple HTML.
 - No databases or heavy infrastructure to lug around, maintain, and transfer over the lifetime of the project
- Control = sidestepping institutional and bureaucratic red tape
- Technical skill development and personal/professional challenges

Disadvantages

- You control **everything**
- Institutional red tape is sometimes helpful and adds to 'authenticity' or 'legitimacy'
- Accessibility considerations

Another Question of Infrastructure

- Can you teach students about programming concepts without worrying about technological bottlenecks?

Another Question of Infrastructure

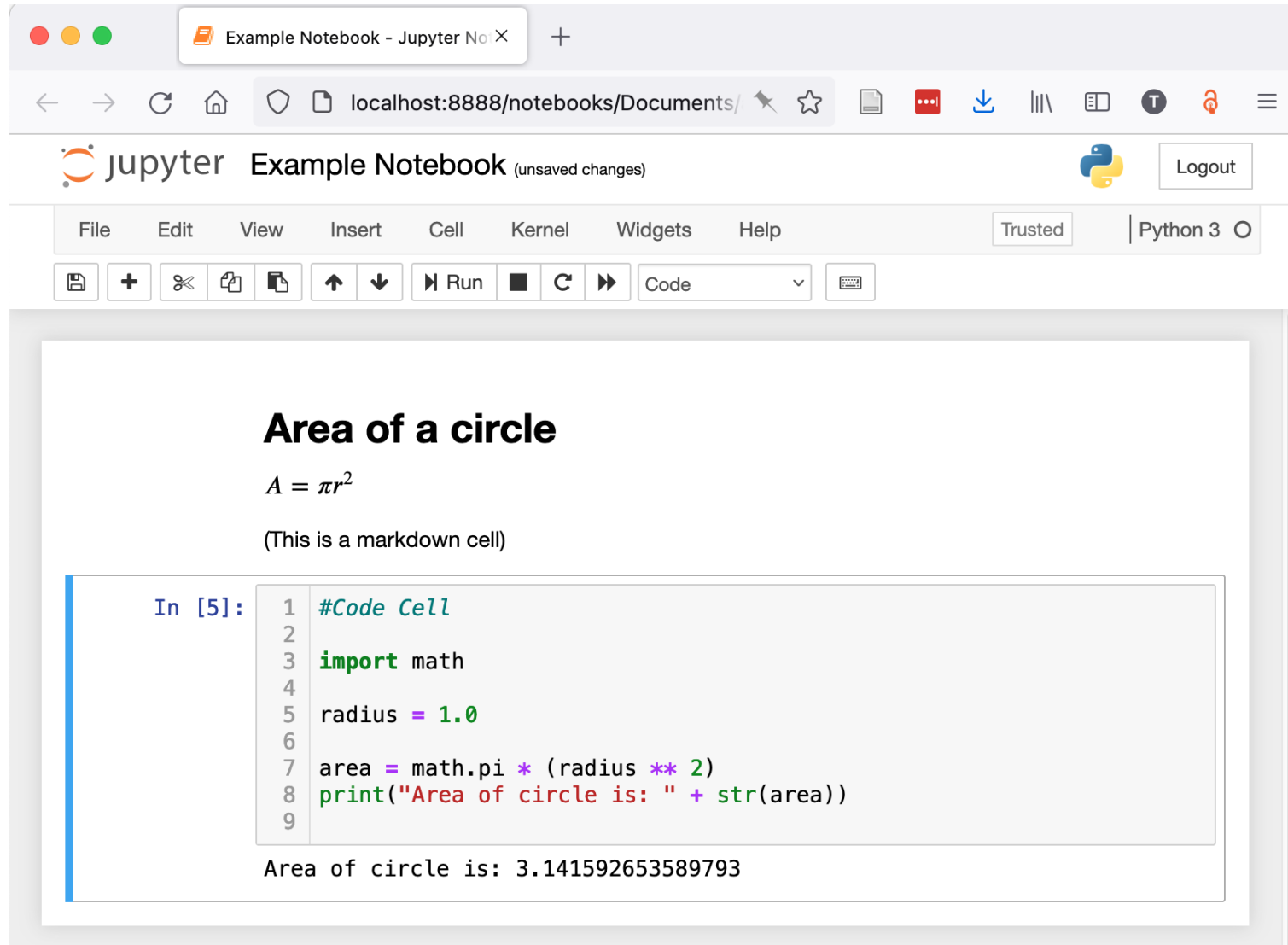
- Can you teach students about programming concepts without worrying about technological bottlenecks?



The Notebook Interface

- Represent a new paradigm of teaching and learning things that involves code presented in a web page that can be shared
- Comes in many different shapes and sizes but normally it is use for the Python Programming Language

The Notebook Interface



The screenshot displays the Jupyter Notebook web interface in a browser. The address bar shows the URL `localhost:8888/notebooks/Documents/`. The page title is "Example Notebook" with a note "(unsaved changes)". The Jupyter logo is on the left, and a "Logout" button is on the right. A menu bar includes "File", "Edit", "View", "Insert", "Cell", "Kernel", "Widgets", and "Help". Below the menu is a toolbar with icons for saving, adding, deleting, and running cells, along with a dropdown menu currently set to "Code".

The notebook content consists of two cells:

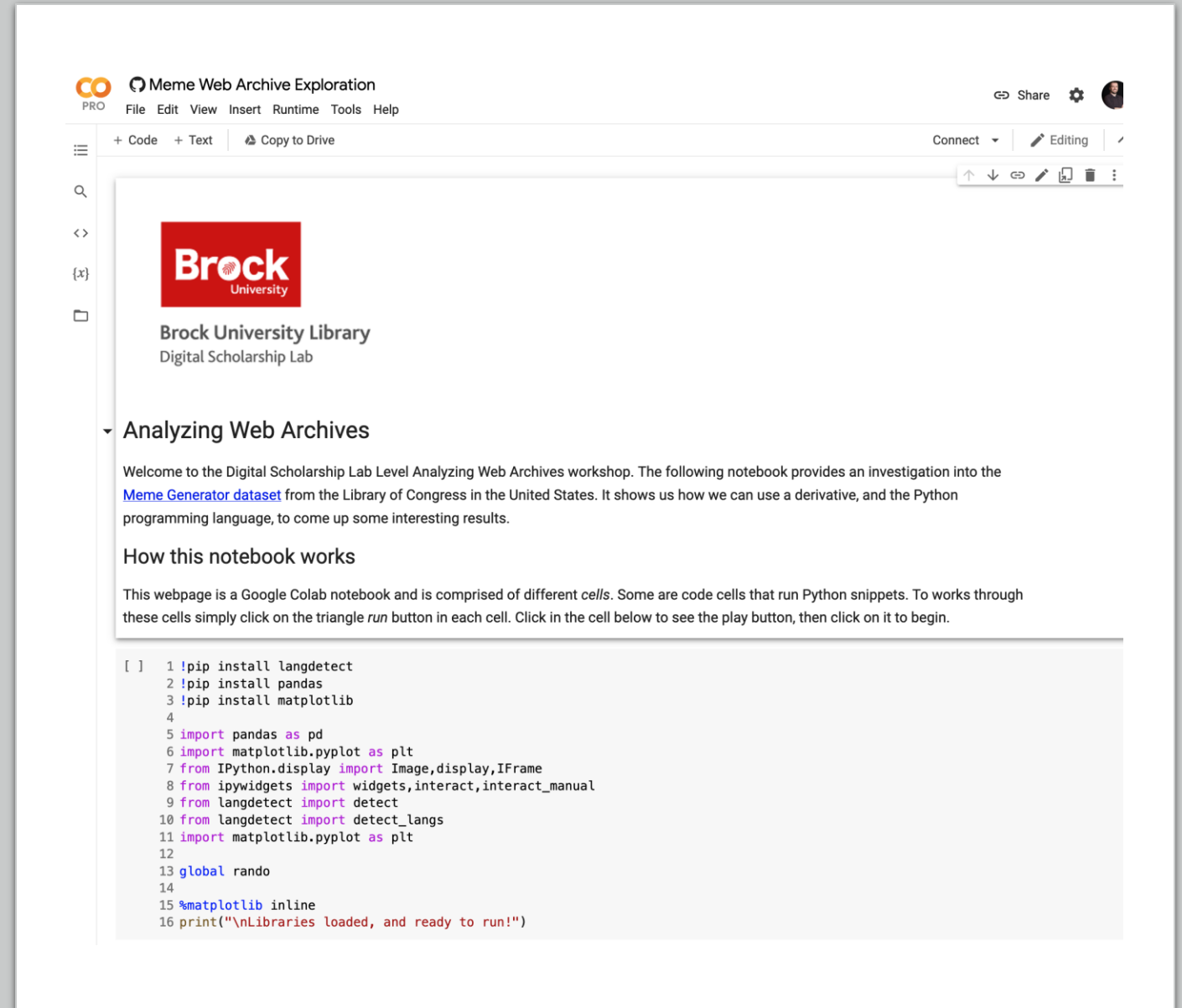
- Markdown Cell:** Contains the title "Area of a circle", the formula $A = \pi r^2$, and the text "(This is a markdown cell)".
- Code Cell:** Labeled "In [5]:", it contains the following Python code:

```
1 #Code Cell
2
3 import math
4
5 radius = 1.0
6
7 area = math.pi * (radius ** 2)
8 print("Area of circle is: " + str(area))
9
```

The output of the code cell is "Area of circle is: 3.141592653589793".

The Notebook Interface

- You can share notebooks and shortcut a lot of technical setup and knowledge of code
- Popular 'flavours' include
 - Anaconda
 - Compute Canada
 - Google Colab



Case Studies

- Digital Scholarship Lab Workshops
- COMM 4P35 Seminar
- Archives Unleashed
- Python for Librarians

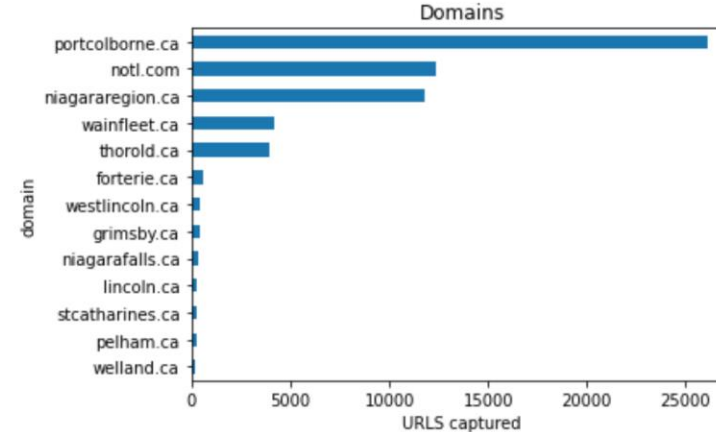
General information about the dataset

```
In [ ]: print("Total Number of total records in dataset: ", len/archive_data))
```

Total Number of total records in dataset: 61160

Domains information captured in dataset:

```
In [ ]: ax = archive_data.groupby("domain")["url"].count().sort_values().plot(kind='barh')
ax.set_title("Domains")
ax.set_label("Number of captures")
ax.set_xlabel("URLS captured")
plt.show()
```



Workflow

- Create the notebook
- Post the notebook on GitHub
- Share a link with learners that will load the notebook into the Google Colab Interface
- Learners copy the notebook into their own environment
- Work through the material
- Learners can return to the material to review and modify

Let's try

- Link in chat box

Conclusion

- Open pedagogical practices largely dependent on infrastructure, whether for OER creation or affecting student learning experiences
- For OER, pipelines of completely accessible technology exist to create high-quality eLearning
- For open learning, software are available that limit the technological bottlenecks for students

Contact us

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