

SEO Tech Developer Residency

Week 1: Pipeline, Continuous Integration (CI), Style Guides

JUNE 29, 2022

Presented by: Dr. Sonia Mitchell



Welcome



- *SEO Lead Software Engineer Instructor*

Dr. Sonia Mitchell

Office Hours

Mondays, Wednesdays, Thursdays & Fridays

9a.m. - 10:00a.m. EST

Email: Sonia.Mitchell@seo-usa.org

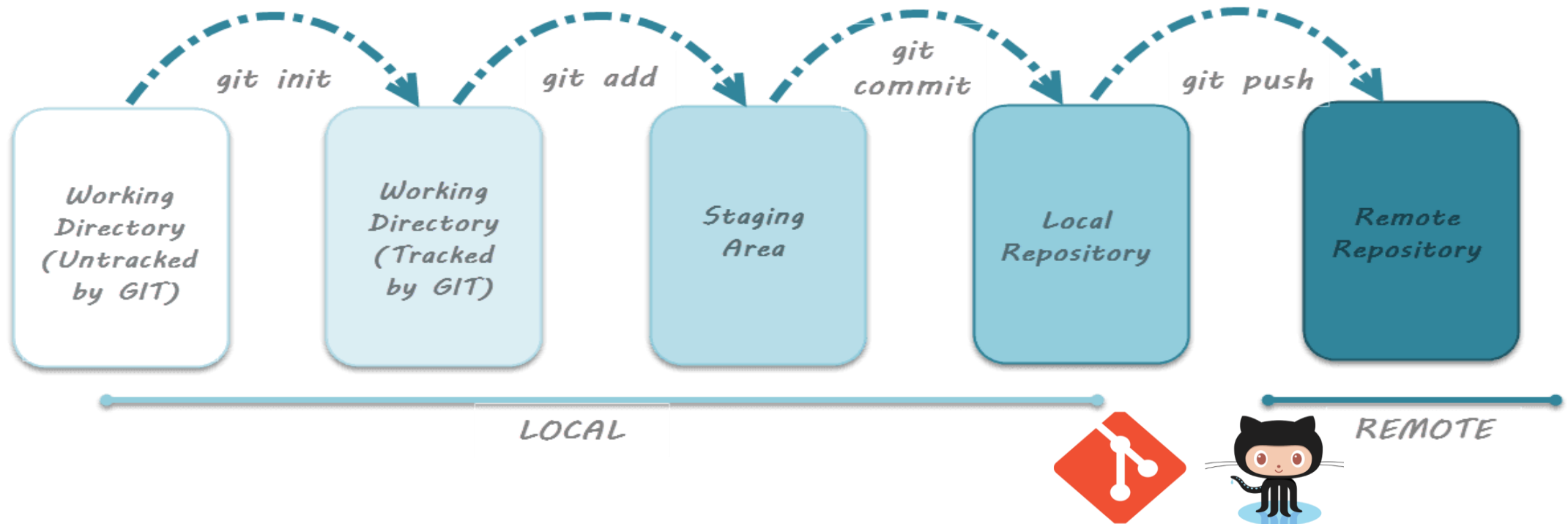
SEO Seizing
Every
Opportunity

Learning Objectives (LOs)

1. Explain the purpose of Style Guides
2. Apply a style guide to code
3. Setup and use an automated style checker



1 The Development Pipeline



So you pushed your code to Github...

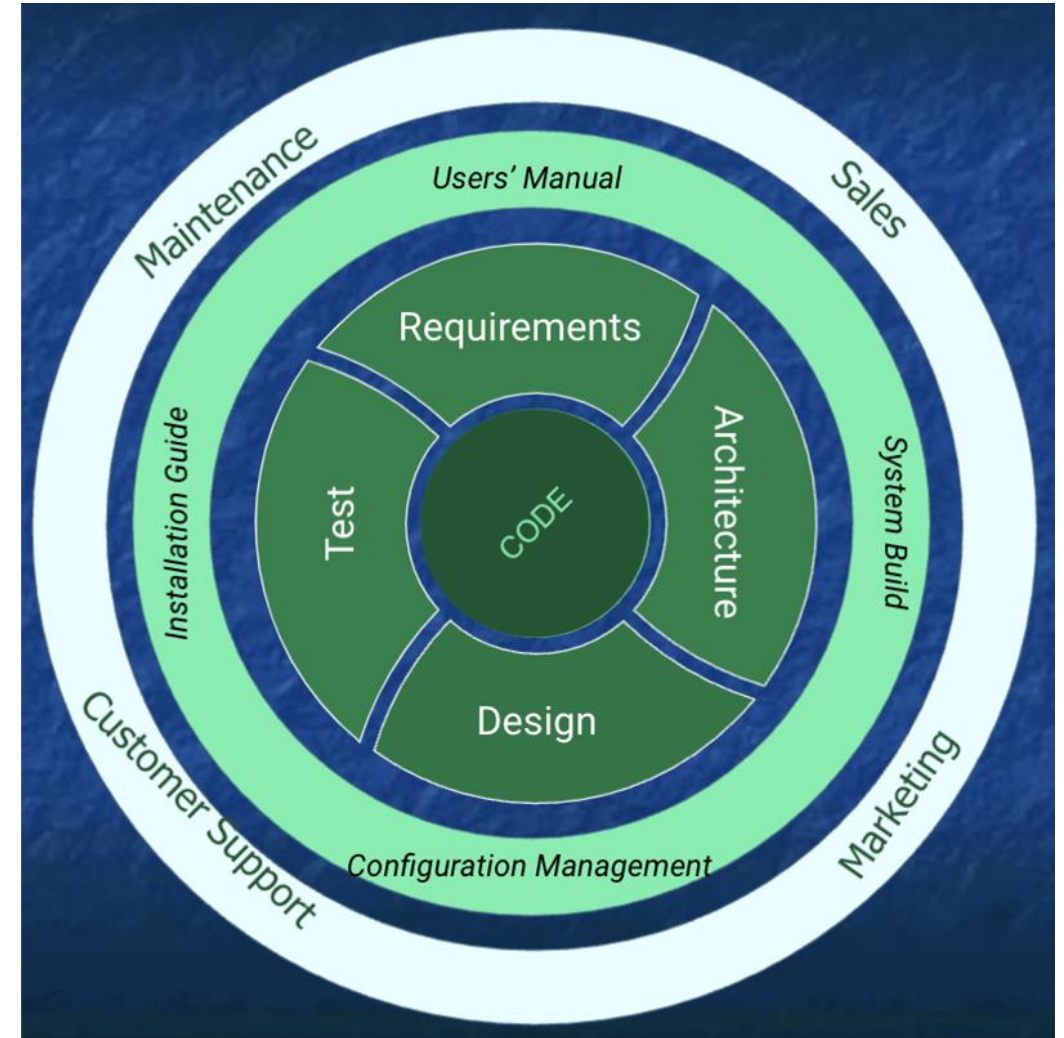
Now What?!?

1 The Development Pipeline

There's more than just code to launch a Product

Our Focus is on:

Code -> **Test** -> **Deploy**



1 The Development Pipeline

Different kinds of “Tests”

1. Static Analysis

- a. Algorithms that check code

2. Tests

- a. Unit, Integration, System....
- b. Black box, white box

3. Code Review

- a. Peers review code content

2 Style Guides

We're going to focus on:

1. Static Analysis

- a. Algorithms that check code
- b. Can (try to) check for errors
- c. Check code style
- d. Referred to as **Style Guides**
 - i. or **linters**

(get rid of code “lint”)

```
1  import json
2
3  with open("") as f:
4      data = json.load(f)
5      print(data)
6
7  freq_values = {}
8
9  total_elabels = lambda labels: len(labels)
10 print("total_elabels =", total_elabels(data))
11
12
13 def checkboxes_freq():
14     values = ['True', 'False', 'Yes', 'No', "Y", "N"]
15     for key, value in data.items():
16         if value in values:
17             if value not in freq_values:
18                 freq_values[value] = 1
19             else:
20                 freq_values[value] += 1
21
22     total_checkboxes = lambda val_freq: sum(val_freq)
23     print(freq_values)
24     print("total_checkboxes = " + str(total_checkboxes(freq_values.values())))
25
26 checkboxes_freq()
27
28
```

Some can run in realtime in code editor

2 Style Guides

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Why would companies or group of developers want to follow Style Guides?

2 Style Guides

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Why would companies or group of developers want to follow Style Guides?

- Consistency
- Readability
- Maintainability...

2 Style Guides

Python Style Guide: PEP8

Renamed as pycodestyle

To install:

```
pip install pycodestyle
```

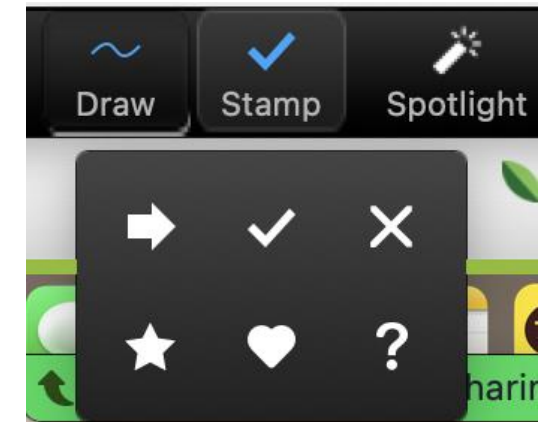
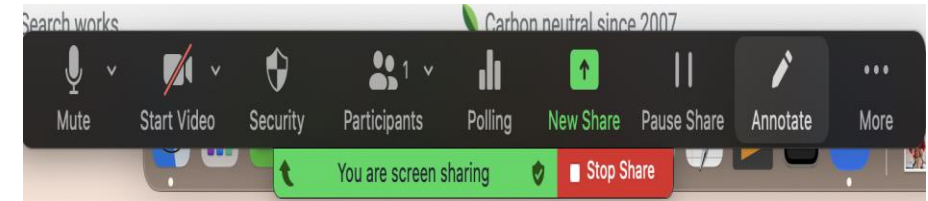
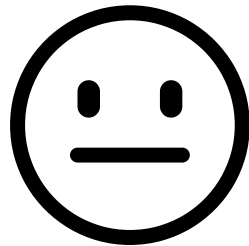
To run

```
pycodestyle myfile.py
```

Let's try it..

LEARNING TEMPERATURE CHECK

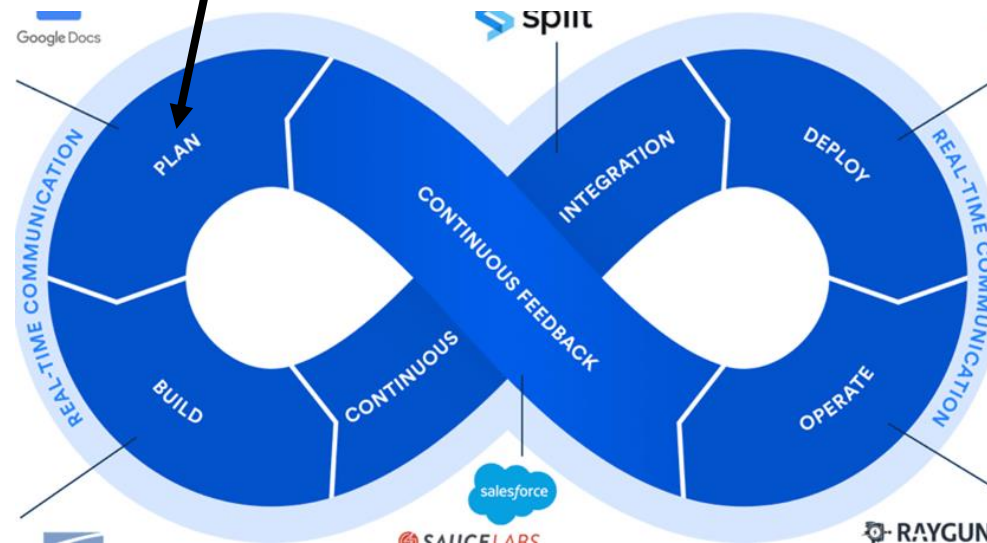
Add a stamp to how you are feeling about the lesson so far. You can access the stamp tool by clicking *Annotations* in the top Zoom toolbar, then selecting a stamp.



3 Continuous Integration

Continuous Integration is part of the Dev-Ops Lifecycle

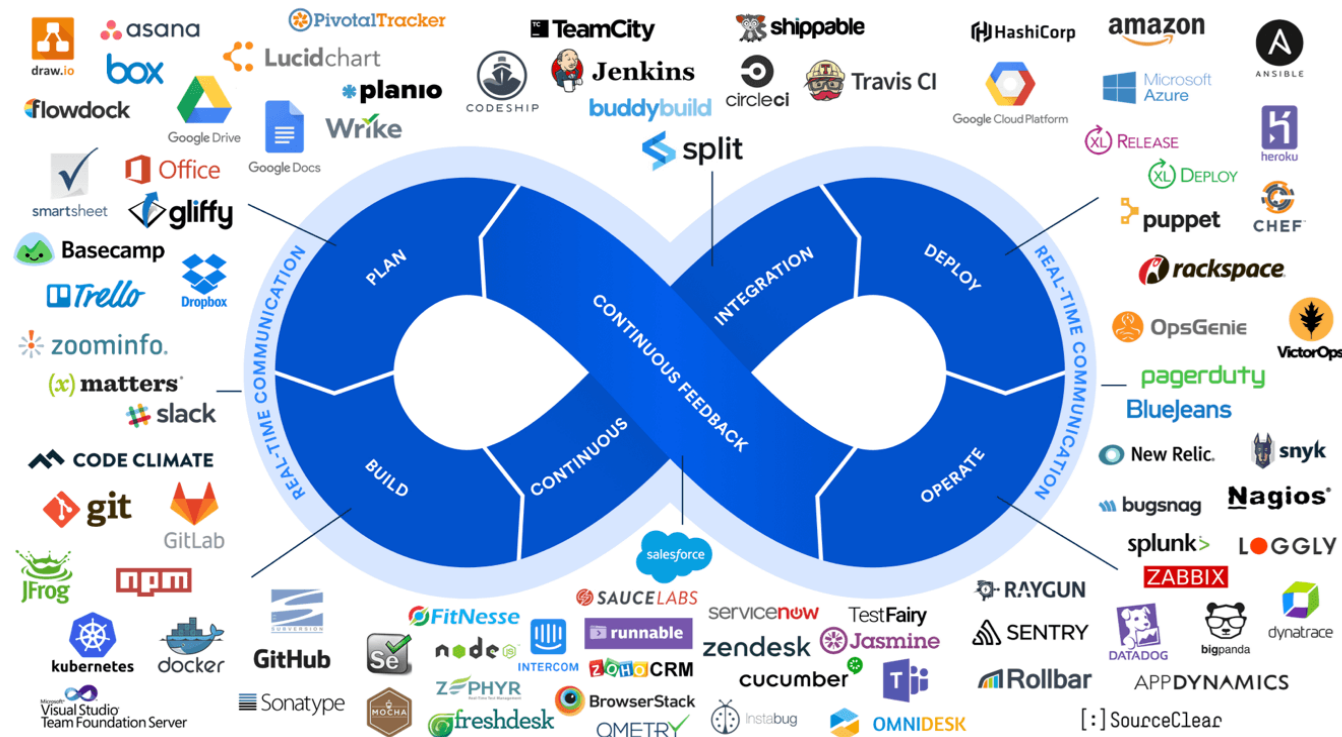
The Lifecycle starts with *Plan*



<https://www.osolabs.com/blog/devops-tools-of-the-trade/>

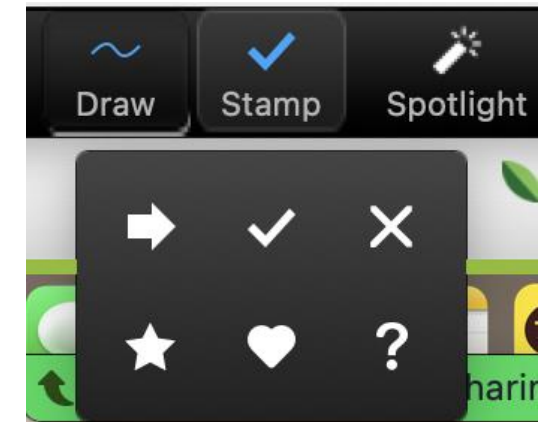
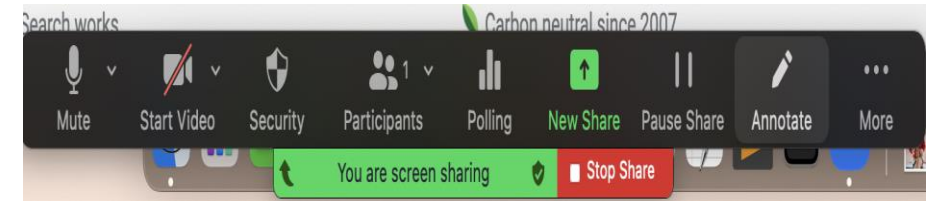
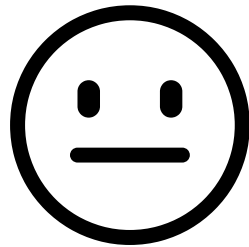
3 Continuous Integration

There are an amazing number of Open Source tools to support CI



LEARNING TEMPERATURE CHECK

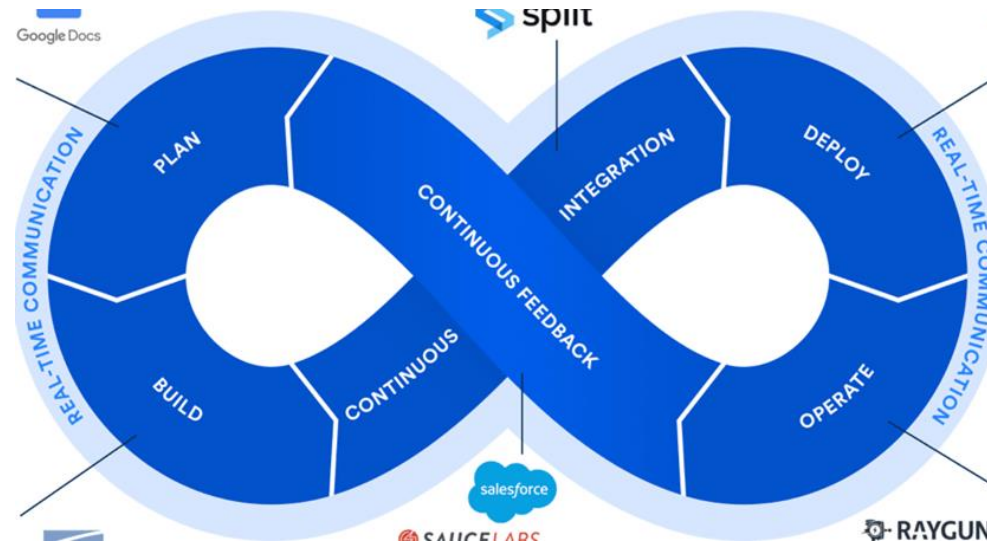
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3 Continuous Integration

Continuous Integration is part of the Dev-Ops Lifecycle

We're going to
Keep it simple and
Start with
github actions



3 Continuous Integration

Github actions automatically executes workflows that occur on certain events:

- Push
- Pull
- etc

We want to check the code against the Style Guide before every push. Code won't be pushed if it fails the Workflow (style guide in this case)

So we need to create a workflow for checking style on a push

3 Continuous Integration

1. **Open** the assignment in a new browser tab or clone the repo into this project.
2. **Create** a `.github` folder
3. Inside the `.github` folder, **create a workflows folder**
4. Inside the workflows folder, **create a `.yaml` file**
5. **Push** new code
6. **Check** results in github



```
name: Check Style
on: push

jobs:
  check-style:
    runs-on: ubuntu-18.04
    steps:
      - uses: actions/checkout@v1

      - name: Setup python
        uses: actions/setup-python@v2
        with:
          python-version: 3.6

      - name: Install tools
        run: python -m pip install --upgrade pip pycodestyle

      - name: Check Style
        run: pycodestyle --first *.py
```

3 Continuous Integration

Bad code not pushed

Good code pushed

kucscdemarco / helloWorld

<> Code Issues Pull requests **Actions** Projects Wiki Security Insights

Workflows

- All workflows
- CI
- Check Style

All workflows

Showing runs from all workflows

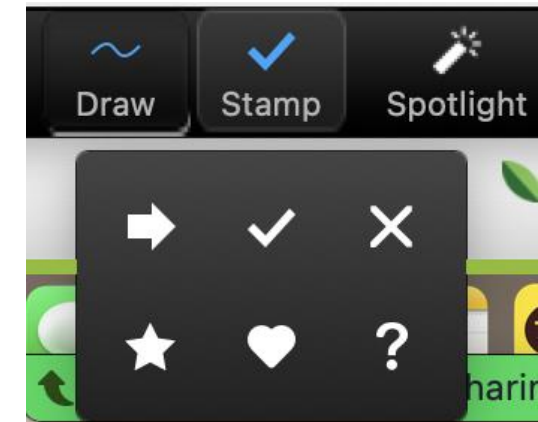
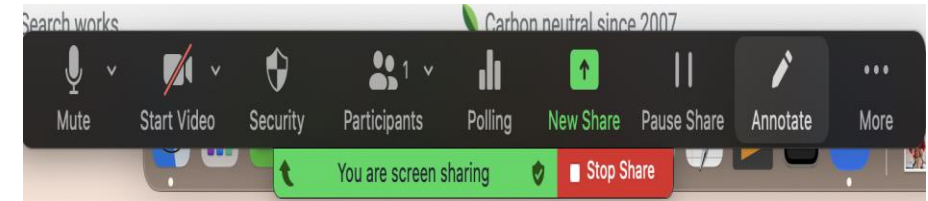
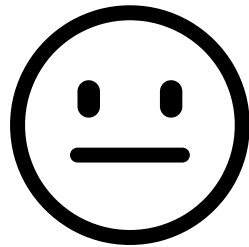
Filter workflow runs

3 workflow runs

✓	Create style.yaml	CI #2: Commit 6d89841 pushed by kucscdemarco	main
✗	Create style.yaml	Check Style #1: Commit 6d89841 pushed by kucscdemarco	main
✓	Create main.yml	CI #1: Commit 50572ce pushed by kucscdemarco	main

LEARNING TEMPERATURE CHECK

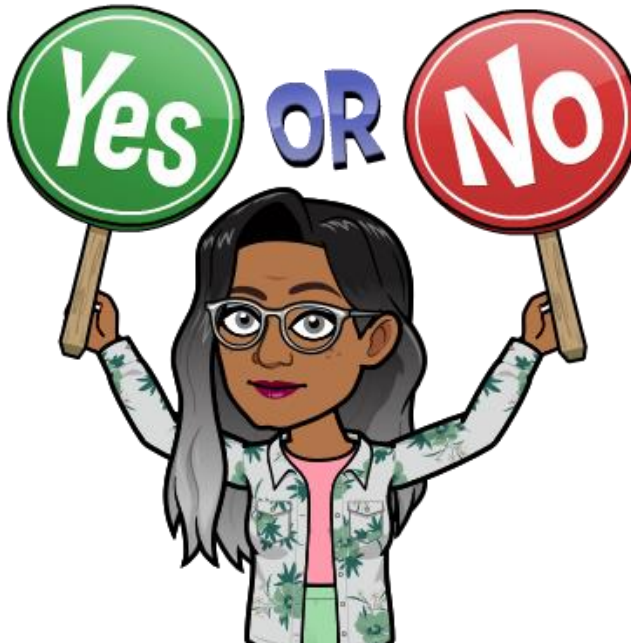
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Did we meet our Learning Objectives(LOs)?

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Use the Zoom
Poll to see if we
met our Learning
Objectives?



Learning Lab Activity Session

- **Creating** github action workflow to automatically check style guide
- **Join** breakout room with “**your**” TA’s name
 - ◆ Camera’s may be off
 - ◆ Recommend staying in room (mute)
- I’ll stay in main room as an additional resource
- Slides and recording will be posted on Codio “shortly”

Heads Up for Friday: Project Problem Pitch

During this week, think about what will be your project

Thank You! Q&A Time

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