Welcome to this CoGrammar Tutorial:

The Terminal, Python & Github

The session will start shortly...

Questions? Drop them in the chat.
We'll have dedicated moderators
answering questions.


SKILLS FOR LIFE
SKILLS BOOTCAMPS
Department for Education
CoGrammar
The Terminal, Python & Github
September 2024

Software Engineering Session Housekeeping

- The use of disrespectful language is prohibited in the questions, this is a supportive, learning environment for all - please engage accordingly. **(Fundamental British Values: Mutual Respect and Tolerance)**
- No question is daft or silly - **ask them!**
- There are **Q&A sessions** midway and at the end of the session, should you wish to ask any follow-up questions. Moderators are going to be answering questions as the session progresses as well.
- If you have any questions outside of this lecture, or that are not answered during this lecture, please do submit these for upcoming Academic Sessions. You can submit these questions here: **Questions**

Software Engineering Session Housekeeping cont.

- For all **non-academic questions**, please submit a query: **www.hyperiondev.com/support**
- Report a **safeguarding** incident: **www.hyperiondev.com/safeguardreporting**
- We would love your **feedback** on lectures: **Feedback on Lectures**

Skills Bootcamp Progression Overview

To be eligible for a certificate of completion, students must fulfil three specific criteria. These criteria ensure a high standard of achievement and alignment with the requirements for the successful completion of a Skills Bootcamp.

✅ Criterion 1 - Meeting Initial Requirements

Criterion 1 involves specific achievements within the first two weeks of the program. To meet this criterion, students need to:

- Attend a minimum of 7-8 hours per week of guided learning (lectures, workshops, or mentor calls) within the initial two-week period, for a total minimum of 15 guided learning hours (GLH), by no later than 15 September 2024.
- Successfully complete the Initial Assessment by the end of the first 14 days, by no later than 15 September 2024.

Skills Bootcamp Progression Overview

✅ Criterion 2 - Demonstrating Mid-Course Progress

Criterion 2 involves demonstrating meaningful progress through the successful completion of tasks within the first half of the bootcamp.
To meet this criterion, students should:

- Complete 42 guided learning hours and the first half of the assigned tasks by the end of week 7, no later than 20 October 2024.

Skills Bootcamp Progression Overview

✅ Criterion 3 - Demonstrating Post-Course Progress

Criterion 3 involves showcasing students' progress after completing the course.
To meet this criterion, students should:

- Complete all mandatory tasks before the bootcamp's end date. This includes any necessary resubmissions, no later than 22 December 2024.
- Achieve at least 84 guided learning hours by the end of the bootcamp, 22 December 2024.

CoGrammar

Learning Objectives & Outcomes

- **Navigate and Utilize the Terminal**: Navigate the file system using basic terminal commands and execute Python scripts.
- **Perform Basic Data Operations**: Conduct operations with strings, integers, floats, and booleans, applying conditional logic with if, elif, and else.
- **Implement Control Structures**: Use while and for loops, including nested loops, to solve repetitive tasks and iterate over sequences
- **Generate and Control Sequences**: Use the range() function effectively, applying different parameters to control sequence generation.
- **Manage Version Control with Git**: Initialize a Git repository, commit changes, and manage branches for version control.

Poll

What will be the output of the following code snippet?

```
count = 3
while count > 0:
    print(count)
    count -= 1
```

- 3 2 1 0
- 1 2 3
- Infinite Loop
- 3 2 1

Poll

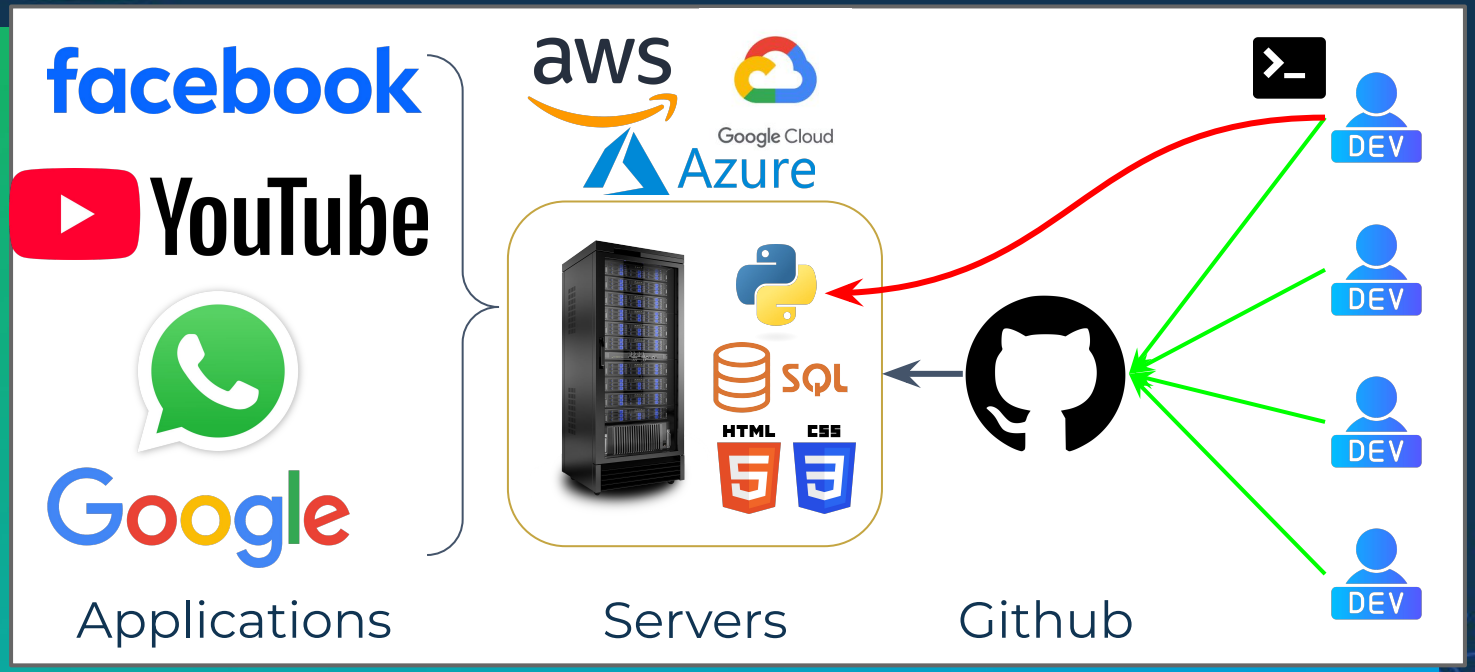
Which command **sequence** initialises a new Git repository and commits a file?

a. git init, git add ., git push origin main
b. git add ., git init, git commit -m "Initial commit"
c. git init, git add ., git commit -m "Initial commit"
d. git init, git commit -m "Initial commit", git add .

Python Basics, The Terminal, and Git & GitHub

CoGrammar

Why those tools?



Python Basics

CoGrammar

Key Concepts

- **Variable**: Memory location that stores a value of a specific data type
  - (=) Assigned left hand value to right hand variable
  - Can be declared (not compulsory in Python)
- **Data Types**: A category of values held by the variable
  - **Primitive:** `str("Hello"), int(6), float(3.14), bool(True)`
  - **Non-Primitive:** `list([1]),set({1}),tuple(1,2),dict({"a":1})`

Key Concepts

- **Conditional Statement**: an expression that is either `True` or `False`
  - **Keywords**: `if`, `elif`, `else`
  - **Operators**: <, <=, >, >=, ==, !=, AND (&), OR (|) NOT (!)
- **Loop**: A control flow statement that repeatedly executes a block of code as long as a specified condition is true.
  - **Keywords**: `for`, `while`, `break`, `continue`

Git & GitHub

CoGrammar

Key Concepts

- **Git**: A version control system to track changes in code
- **GitHub**: A platform for hosting and sharing Git repositories
- **Keywords**:
  - **Repository:** Stores your code, files, and their revision history.
  - **Commit:** Save changes by taking a snapshot of the repository.
  - **Branches:** Pointer to a snapshot of your changes
  - **Merging:** Combines sequences of commits into one unified history of commits

Key Concepts

- **Why GitHub is important:** It helps every team member work together on a project from any location while facilitating collaboration
- **Basic Git Commands**:
  - **git init:** Locally initialize a repository
  - **git add:** Adds a change to the staging area
  - **git commit:** Keeps track of progress and changes with
  - **git checkout -b [branch_name]** : Switches between branches

The Terminal

CoGrammar

Key Concepts

- **Terminal:** A command-line interface (CLI) for interacting with your computer
- **Basic Commands:** A category of values held by the variable
  - **cd** (change directory)
  - **ls** (list files)
  - **mkdir** (create directory)
  - **rm** (remove file) ⚠️
  - **pwd** (print working directory)

Overview of the Practical Session

CoGrammar

Agenda

1. Terminal Basics
2. Python & Git Installation
3. GitHub Setup
4. Git Basics & Remote Repositories
5. Python Loops & Iterations
6. Comprehensive Coding Exercise
7. Pushing Code to GitHub
8. Intro to GitHub .dev Environment
9. Q&A and Wrap-up

CoGrammar

Lesson Conclusion and Recap

CoGrammar

Lesson Conclusion and Recap

- **Installed and Configured Essential Tools**: Set up Python and Git, verified installations using terminal commands.
- **Navigated the Terminal and Executed Python Scripts**: Practiced basic commands, created directories, and ran Python scripts.
- **Wrote Python Code**: Wrote a Python script incorporating fundamental programming concepts, including data types, `if-elif-else` conditions, `for` loops, and `while` loops.
- **Initialised a Git Repository and Managed Code with Version Control**: Managed code with Git, committed changes, and pushed to GitHub.
- **Combined Python and Git Skills for Real-World Application**: Combined programming and version control skills for practical use.

Questions and Answers

CoGrammar

Let’s take a short break

CoGrammar

Thank you for attending

SKILLS FOR LIFE
SKILLS BOOTCAMPS

Department for Education

CoGrammar