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** throughout this session, should you wish to ask any follow-up questions.

- 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

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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

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Enhancing Accessibility: Activate Browser Captions

Why Enable Browser Captions?

- Captions provide **real-time text for spoken content**, ensuring inclusivity.

- Ideal for individuals in noisy or quiet environments or for those with **hearing impairments**.

How to Activate Captions:

1. YouTube or Video Players:

   - Look for the CC (Closed Captions) icon and click to enable.

2. Browser Settings:

   - Google Chrome: Go to *Settings > Accessibility > Live Captions* and toggle ON.

   - Edge: Enable captions in *Settings > Accessibility*.

Safeguarding & Welfare

We are committed to all our students and staff feeling safe and happy; we want to make sure there is always someone you can turn to if you are worried about anything.

If you are feeling upset or unsafe, are worried about a friend, student or family member, or you feel like something isn't right, speak to our safeguarding team:

Ian Wyles
Designated Safeguarding Lead

Simone Botes

Nurhaan Snyman

Rafiq Manan

Ronald Munodawafa

Tevin Pitts

Scan to report a safeguarding concern

or email the Designated Safeguarding Lead:
Ian Wyles
safeguarding@hyperiondev.com

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Skills Bootcamp
Progression Overview

✓ Criterion 1 - Initial Requirements

Specific achievements within the first two weeks of the program.

To meet this criterion, students need to, by no later than 01 December 2024 (C11) or 22 December 2024 (C12):

- Guided Learning Hours (GLH): Attend a minimum of 7-8 GLH per week (lectures, workshops, or mentor calls) for a total minimum of 15 GLH.

- Task Completion: Successfully complete the first 4 of the assigned tasks.

✓ Criterion 2 - Mid-Course Progress

Progress through the successful completion of tasks within the first half of the program.

To meet this criterion, students should, by no later than 12 January 2025 (C11) or 02 February 2025 (C12):

- Guided Learning Hours (GLH): Complete at least 60 GLH.

- Task Completion : Successfully complete the first 13 of the assigned tasks.

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Learning Outcomes

- **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.

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Polls

Poll

1. **What numbers will be the output for the following code snippet?**

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

A. 3, 2, 1, 0

B. 1, 2, 3

C. Infinite Loop

D. 3, 2, 1

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Poll

2. **Which of these is NOT a standard data type in Python?**

A. String

B. Integer

C. Boolean

D. Character

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Poll

3. **What will the following code print?**

```
x = 10
if x > 5:
    print('A')
elif x == 10:
    print('B')
else:
    print('C')
```

A. A

B. B

C. A and B

D. C

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Poll

4. **What is the output of the following code?**

```
for i in range(3):
    print(i)
```

A. 0 1 2

B. 1 2 3

C. 0 1 2 3

D. 3 2 1

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5. What does the break statement do in a loop?

A. Ends the current iteration but continues the loop

B. Stops the loop entirely

C. Skips the next iteration

D. Restarts the loop

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Poll

6. **What is the output of this code snippet?**

```
x = [1, 2, 3]
for num in x:
    if num == 2:
        continue
print(num)
```

A. 1 2 3

B. 1 3

C. 2 3

D. Error

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Python Basics

Key Concepts

- Variable: symbolic name that refers to a memory location where a value of a specific data type is stored.

  - (=) Assigns right-hand value to left-hand variable

  - In Python, variables do not require explicit declaration before use.

  - Variables are created when a value is assigned to them.

- 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}`

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Key Concepts

- Conditional Statement: an expression that is either True or False

  o Keywords: if, elif, else

  o Operators: <, <=, >, >=, ==, !=, and(&), or(|) not(!)

- Loop: A control flow statement that repeatedly executes a block of code as long as a specified condition is true.

  o Keywords: for, while, break, continue

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Let's get coding!

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Let's take a short break

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Lesson Conclusion and Recap

- Wrote Python Code: Wrote a Python script incorporating fundamental programming concepts, including data types, if-elif-else conditions, for loops, and while loops.

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Learner Challenge

- **Objective**: Simulate an ATM withdrawal process where a user can make a valid withdrawal. The system allows the user up to 3 attempts to enter a valid amount, ensuring the withdrawal is within their balance.
- **Major Steps:**
  - **Initialise the balance**: Set a starting balance for the user (e.g., $1000).
  - **Set a maximum number of attempts**: Allow the user 3 attempts to enter a valid withdrawal amount.
  - **Check withdrawal validity**: Ensure the withdrawal is positive and less than or equal to the available balance.
  - **Update balance**: After a valid withdrawal, update the balance and show the new amount.
  - **Handle invalid inputs**: If the withdrawal is invalid, decrease the remaining attempts and notify the user.

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Questions and Answers

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Thank you for attending

SKILLS FOR LIFE — *SKILLS BOOTCAMPS*

Department for Education

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