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Iteration

SKILLS FOR LIFE
SKILLS BOOTCAMPS

Department for Education

Software Engineering Lecture Housekeeping

- The use of disrespectful language is prohibited in the questions, this is a supportive, learning environment for all - please engage accordingly. **(FBV: Mutual Respect.)**
- 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 Open Classes. You can submit these questions here: **Open Class Questions**

Software Engineering Lecture 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**

Lecture Objectives

1. Define loops as a means for automating repetitive tasks.
2. Implement loops to solve problems that require dynamic iteration based on changing conditions.
3. Recall the purpose of using a for and while loop in Python.

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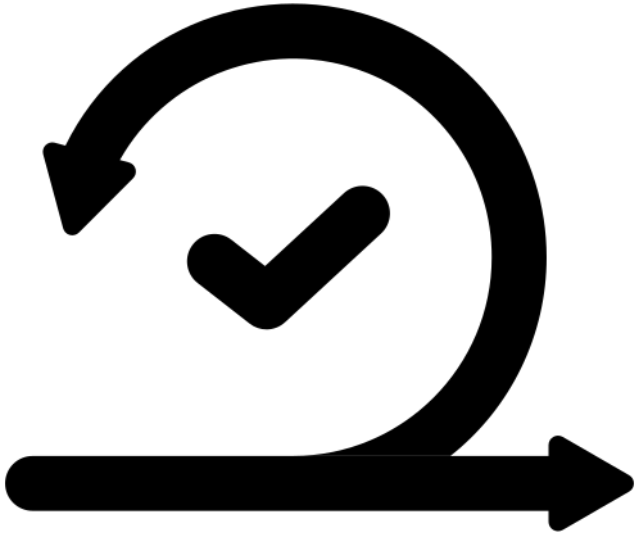
Recap on Conditionals

Iteration



For Loop

- ★ For loops are used when we need code to run a specified number of times.
- ★ Think of it making the task of creating ten print statements much easier.

```
# No need to do this

print("")
print("")
print("")
print("")
print("")
print("")
print("")
```

for Loop Syntax

```
for item in iterable_object:
    # Logic goes here
```

- ★ Iterable_object: a list of numbers, a string of characters, a range etc.
- ★ Item: temporary variable used inside the for loop to reference the current position of our iterator.

For Loop Example

```
string = "coffee"

for letter in string:

    print(letter)
```

- ★ The above loop will iterate over the string “coffee”.
- ★ This entails the temporary variable letter being continuously updated with each letter found in “coffee”.
- ★ This results in the following output:

Example Continued

```
string = "coffee"
for letter in string:
    print(letter)


c
o
f
f
e
e
```

As letter will iterate over every instance of string, we get the output of “coffee” spelled out on separate lines.

Break and Continue

- ★ Break: the break keyword allows you to stop a loop at any time. We can combine it with a conditional statement to stop a loop at a given condition.

- ★ Continue: The continue keyword allows you to stop a loop at any time and start the next iteration. We can combine with a conditional statement to start the next iteration at a given condition.

Question:

Can a for loop iterate over a String?

While Loop

- While loops are used in situations when we are not sure how many times we need to repeat the code block.
- Therefore, we can use a while loop to execute a certain condition. While our condition is True, the code within the loop will execute, however, the loop will terminate the moment our condition becomes False.

Poll:

Assessment

Session Break

- Rehydrate
- Stretch

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Wrapping Up

Iteration

Process for repeating a set of instructions.

For Loop

Important and useful for automating repetitive tasks.

While Loop

Used for situations where the number of iterations cannot be determined beforehand.

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Questions around Iteration and Loops

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Thank you for joining