Welcome to this CoGrammar Tutorial:

Task Walkthrough

The session will start shortly...

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

Task Walkthrough: Data Types & Conditional Statements

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.

CoGrammar

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

Advised Resources

- HyperionDev PDF notes
- Lecture: Getting Started with Python (02 September 2024 & Repeat on 07 September)
- Example code files
- Task walkthrough lecture
- Research (Optional)

Task 1 Walkthrough

CoGrammar

Variables and String Manipulation Recap

- Variables are containers that hold information.
- A string is simply a way to represent text in programming.
- Python identifies strings with the presence of quotation marks (“ ”)
- Strings can be joined, cut up, and measured.
- Built-in methods to manipulate strings

manipulation.py

Task objective

- The objective of this task is to demonstrate your knowledge of string manipulation by working with user input.

- You'll use different string methods to transform and manipulate the user input in specific ways, such as calculating the string's length, replacing characters, slicing, and reversing portions of the string. This task is designed to enhance your problem-solving skills and deepen your understanding of how to work with strings.

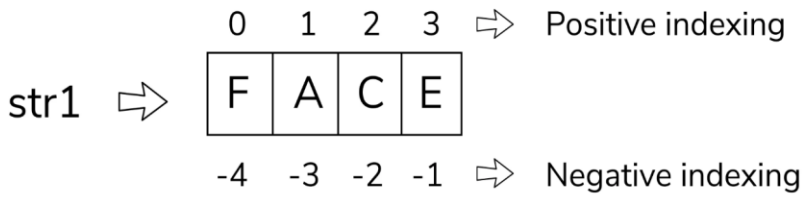
Auto-graded task 1

Follow these steps:

- Create a new Python file for this task and call it **manipulation.py**.
- Ask the user to enter a sentence using the `input()` function. Save the user's response in a variable called `str_manip`.
- **Explore the string methods in here** to help you solve the problem below:
- Using this string value, write the code to do the following:
    - Calculate and display the length of `str_manip`.
    - Find the last letter in `str_manip` sentence. Replace every occurrence of this letter in `str_manip` with '@'.
        - e.g. if `str_manip` = "This is a bunch of words", the output would be: "Thi@ i@ a bunch of word@"
    - Print the last three characters in `str_manip` backwards.
        - e.g. if `str_manip` = "This is a bunch of words", the output would be: "sdr".
    - Create a five-letter word that is made up of the first three characters and the last two characters in `str_manip`.
        - e.g. if `str_manip` = "**Thi**s is a bunch of wor**ds**", the output would be: "Thids".

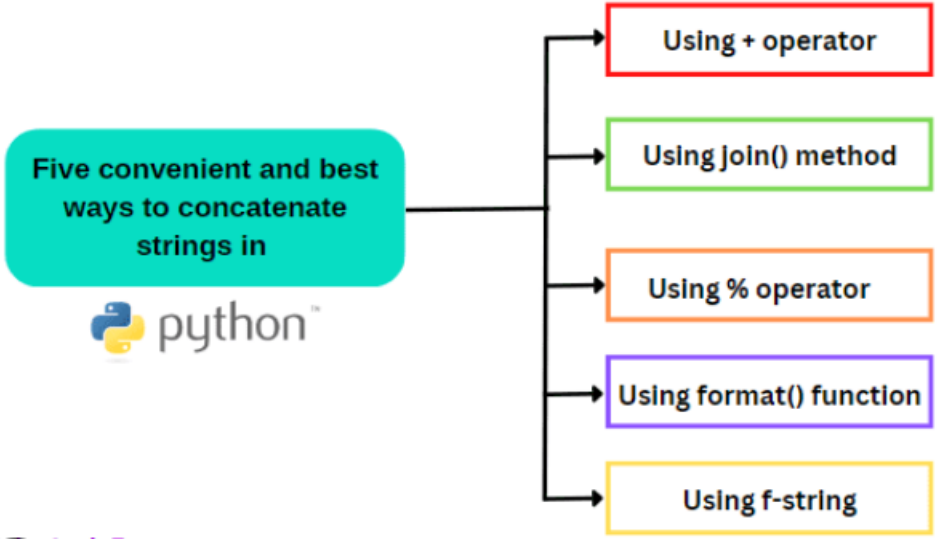
Be sure to place files for submission inside your task folder and click "Request review" on your dashboard.

String Slicing



str1[1:3] = AC

str1[-3:-1] = AC



Task 2 Walkthrough

CoGrammar

Data Types Recap

- Data types in programming define the type of data a variable can hold and how that data can be used.
- Data types: Integers, Floats, Strings, and Booleans.
- Data types can be converted from one type to another- Within reason!
- Arithmetic operations in Python: +, -, /, *, %, **
- Arithmetic built-in functions

numbers.py

❖ Task objective

The objective of this task is to build confidence and understanding basic arithmetic operations and user interaction.

❖ You'll perform calculations: add up all the numbers, subtract the second number from the first, multiply the third number by the first, and finally, divide the sum of all three numbers by the third. This exercise is designed to help you practice working with numbers and user inputs, giving you an understanding of how to handle basic operations.

Auto-graded task 2

Follow these steps:

- Create a new Python file called **numbers.py**.
- Ask the user to enter three different integers.
- Then print out:
    - The sum of all the numbers
    - The first number minus the second number
    - The third number multiplied by the first number
    - The sum of all three numbers divided by the third number

Be sure to place files for submission inside your **task folder** and click **"Request review"** on your dashboard.

Task 3 Walkthrough

CoGrammar

Conditional Statements Recap

- Conditional statements are like the decision-makers in programming. They allow your code to choose different paths based on specific conditions.
- Conditional statements: if, elif, and else
- Comparison operators
- Logical operators: and, or & not

- greater than >
- less than <
- equal to ==
- not !
- greater than or equal to >=
- less than or equal to <=
- not equal to !=

CoGrammar

award.py

❖ Task objective

The objective for this task is to enhance your skills by focusing on operators, arithmetic operations, and conditional logic.

❖ In this task, you will create a program to calculate a triathlon participant's total time from their swimming, cycling, and running events. The program should then determine and display the appropriate award based on the total time

Auto-graded task 3

Follow these steps:

- Create a new Python file in this folder called **award.py**.
- Design a program that determines the award a person competing in a triathlon will receive.
- Your program should read in user input for the times (in minutes) for all three events of a triathlon, namely swimming, cycling, and running, and then **calculate** and **display** the **total** time taken to complete the triathlon.
- The award a participant receives is based on the **total time** taken to complete the triathlon. The qualifying time for awards is any completion time between 0-100 minutes. **Display the award** that the participant will receive based on the following criteria:

Qualifying criteria	Time range	Award
Within the qualifying time.	0–100 minutes	Honorary colours
5 minutes off from the qualifying time.	101–105 minutes	Honorary half colours
10 minutes off from the qualifying time.	106–110 minutes	Honorary scroll
More than 10 minutes off from the qualifying time.	111+ minutes	No award

Be sure to place files for submission inside your **task folder** and click **"Request review"** on your dashboard.

Documentation and Style

- ❖ Add comments to your code. Explain your approach, and/or how your code works.
- ❖ Consult the Python PEP8 guidelines: https://peps.python.org/pep-0008/

Pay close attention to:

- Variable names
- Spacing around operators
- Separating logical sections
- Indentation

```
# Define a variable to store the name of a user
user_name = "Alice"

# Print a greeting message using the user's name
print("Hello, " + user_name + "!")  # This prints: Hello, Alice!

# Define two numbers for basic arithmetic operations
num1 = 10
num2 = 5

# Calculate the sum of num1 and num2 and store the result in a variable
sum_result = num1 + num2
```

CoGrammar

Questions and Answers

CoGrammar

Thank you for attending

SKILLS FOR LIFE
SKILLS BOOTCAMPS

Department for Education

CoGrammar