Welcome to the CoGrammar

Error Handling

The session will start shortly...

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

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Cyber Security 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**

Cyber Security Session Housekeeping cont.

- For all **non-academic questions**, please submit a query: **www.hyperiondev.com/support**

- We would love your **feedback** on lectures: **Feedback on Lectures**

- Find all the lecture **content** in you **Lecture Backpack** on GitHub.

Safeguarding & Welfare

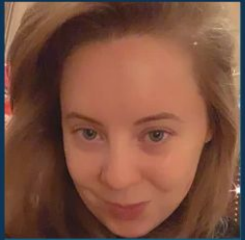
We are committed to all our students and staff feeling safe and happy; we want to make sure there is always someone you can turn to if you are worried about anything.

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

Rafiq Manan



Charlotte Witcher

Nurhaan Snyman

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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Stay Safe Series:

Mastering Online Safety One Week/step at a Time

While the digital world can be a wonderful place to make education and learning accessible to all, it is unfortunately also a space where harmful threats like online radicalization, extremist propaganda, phishing scams, online blackmail and hackers can flourish.

As a component of this BootCamp the *Stay Safe Series* will/is designed to guide you through essential measures in order to protect yourself & your community from online dangers, whether they target your privacy, personal information or even attempt to manipulate your beliefs.

Trustworthy Websites:
How to Spot Secure Sites

- Look for the padlock.
- Check if there is a valid SSL/TLS certificate.
- Look for a site seal.
- Check if the URL is legitimate.
- Pop-up and Redirection ads are a red flag.

Learning Objectives & Outcomes

- Define the different types of errors.
- Identify different types of errors
- Define Debugging
- Implement hypothesis-driven debugging to remove errors from code.

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Error Handling

April 2024

Control Structures

Have you ever run into errors while coding in Python? Name some of the errors you have run into.

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Control Structures

What approaches have you taken to try and solve the error?

Polls

Please have a look at the poll notification and select an option.

Which of the following errors occurs when a variable is used before it is declared?

A. ValueError
B. TypeError
C. NameError
D. AttributeError

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Polls

Please have a look at the poll notification and select an option.

What error is raised when trying to convert a string that does not represent a number into an integer?

A. ValueError
B. KeyError
C. TypeError
D. IndexError

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Types of Errors

- Syntax Errors
  - Occurs when there are problems within the syntax of the code preventing the program from executing.

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Types of Errors

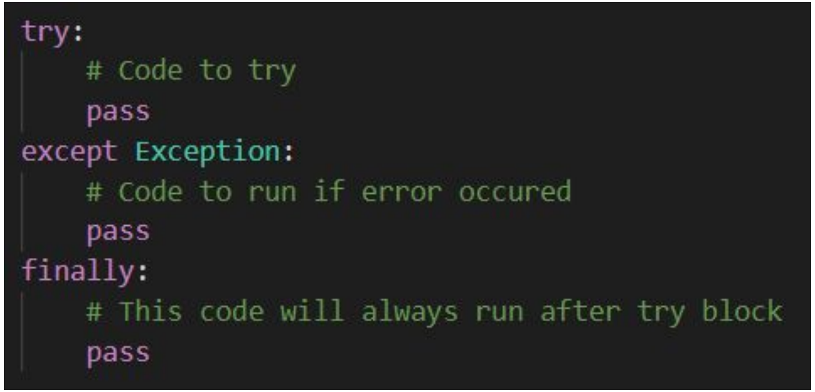
- Runtime Errors
  - Occurs when there is an error during runtime that terminates the execution of the program.

Types of Errors

- Logical Errors
  - Occurs when the program does not crash but the output of the program is incorrect pointing to a flaw in the logic.

Error Handling

- Try..except
  - Used to run code that could lead to potential runtime errors and catch the error if it occurs.
  - Can provide alternative code to run if an error has occurred.



```python
try:
    # Code to try
    pass
except Exception:
    # Code to run if error occured
    pass
finally:
    # This code will always run after try block
    pass
```

Error Handling

- Conditions
  - We can use conditions and if-statements to also handle errors
  - By checking for certain conditions that could lead to possible runtime errors we can prevent the error from occurring.

Hypothesis-Driven Debugging

- We form a hypothesis for why a bug is occurring, and then we create and run tests/experiments to see if our hypothesis is true.
- Steps:
  - Make an observation
  - Create a hypothesis
  - Test hypothesis
  - See if the results match the hypothesis
  - If result don’t match form a new hypothesis

Hypothesis-Driven Debugging

- Print
    - First and most basic way of debugging.
    - Can shows us what values are stored in which variables at a given time of runtime.
    - Check if a value is what it should be allowing us to test our hypothesis.

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Hypothesis-Driven Debugging

- Debugger
  - Can show us all the values stored in all our variables during runtime.
  - Allows us to run our code line by line, checking the state of the program at every line of code.
  - Very powerful tool to use especially when testing your hypothesis.

Summary

- We get different types of errors that can occur, syntax, runtime, logical
- We have different ways of handling errors by using try..except or conditions
- We can follow the method of hypothesis-driven debugging to remove bugs from our code and write robust programs.

Polls

Please have a look at the poll notification and select an option.

What is the purpose of the finally block in Python?

A. It catches exceptions.
B. It runs code regardless of exceptions.
C. It raises exceptions.
D. It stops the program if an error occurs.

Polls

Please have a look at the poll notification and select an option.

In a try-except block, how can you catch multiple exceptions in Python?

A. Use multiple except blocks.
B. Use a list of exceptions in a single except block.
C. Use a dictionary of exceptions.
D. You cannot catch multiple exceptions

Questions and Answers

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Thank you for attending

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