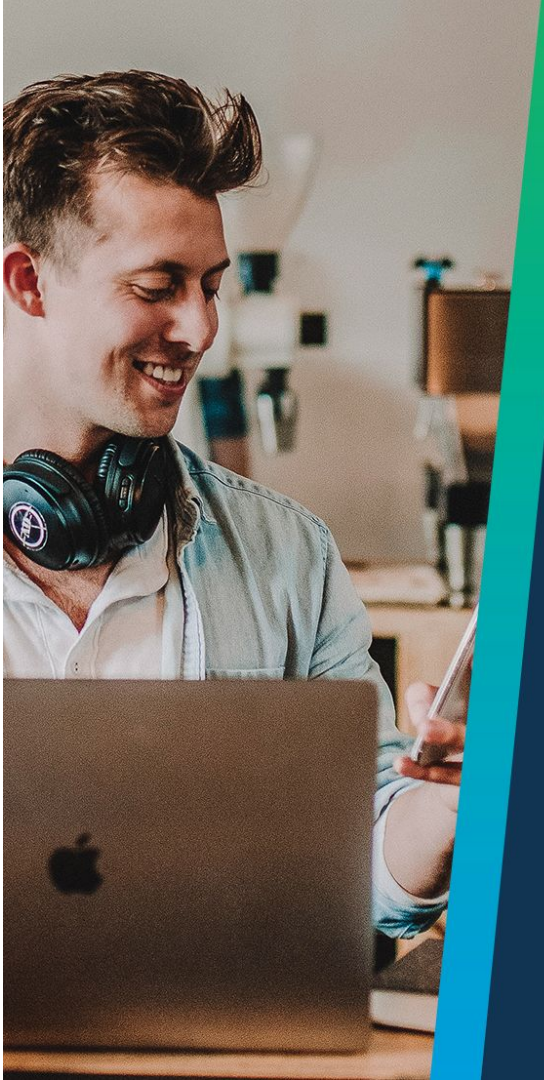

Software Engineering Bootcamp

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External Sources and Error Handling

Lecture – Housekeeping

- The use of disrespectful language is prohibited in the questions, this is a supportive, learning environment for all - please engage accordingly.
- No question is daft or silly - ask them!
- There are Q/A sessions at the end of the session, should you wish to ask any follow-up questions.
- For all non-academic questions, please submit a query: www.hyperiondev.com/support
- Report a safeguarding incident: http://hyperiondev.com/safeguardreporting

Objectives

1. **File I/O:** Accurately read and write data to/from at least two different file formats (e.g., CSV, JSON, text) within a Python script.
2. **Data Extraction**: Extract specific information from various file formats and manipulate the extracted data.
3. **Error Identification**: Recognize common error types (e.g., syntax errors, runtime errors, exceptions) in Python code.
4. **Error Handling**: Implement a try-except block to handle a specified error in the code and prevent program crashes.
5. **Exception Handling**: Use different exception types to handle specific errors and provide informative error messages.

Poll

What is the output of the following code snippet?

```
numbers = [1, 2, 3, 4, 5]
result = 0
for number in numbers:
    if number % 2 == 0:
        continue
    result += number
print(result)
```

- 15
- 10
- 9
- 6

Poll

What will be the output of the following code snippet?

```
count = 0
while count < 5:
    print(count)
    count += 1
```

- 0 1 2 3 4 5
- 0 1 2 3 4
- 1 2 3 4 5
- 1 2 3 4

Introduction

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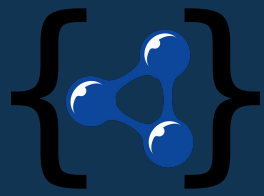
Understanding External Sources

They couldn't play soccer because they couldn't see the ball. They didn't want to go inside and play a game because it was a beautiful springtime night and they liked being ...[1]


```
id,name,price
1,Laptop,1200
2,Smartphone,800
3,Headphones,200
4,Mouse,50
5,Monitor, 1000
6,Desk,600
7,Speakers,400
```




```
{
    "track_id": "3",
    "name": "Inde",
    "artist": "Bucie",
    "album": "Inde",
    "duration_ms":
373000,
    "popularity": 3
}
```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[1] HIDE AND SEEK | Free Children's book from Monkey Pen

Working with Files in Python: I/O

```
file = open("filename.txt", "access_mode")
content = file.read()
file.close()
```

Text file (.txt)

opening

Read Only	r
Read and Write	r+
Write Only	w
Write and Read	w+
Append Only	a
Append and Read	a+

File Access Modes

closing

Must be closed to avoid issues like memory leaks

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Error Handling in Python

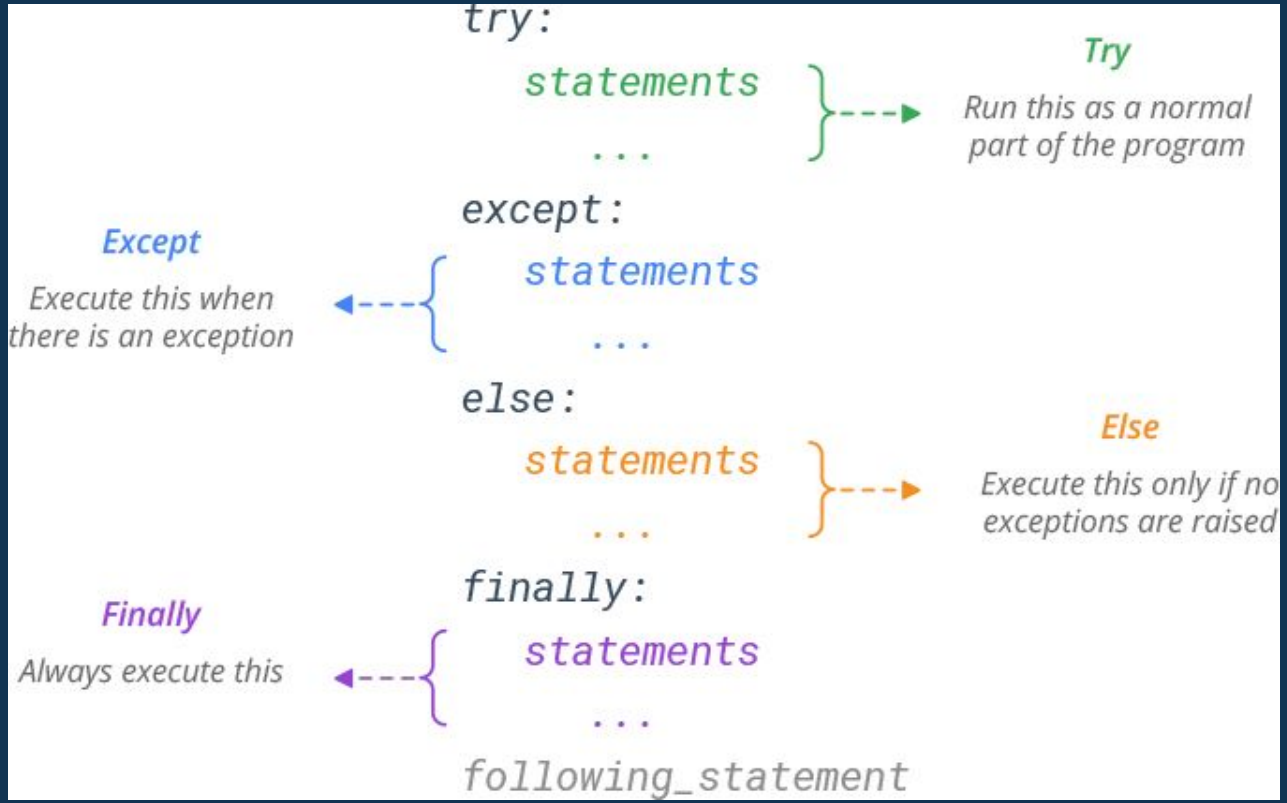
- An **error/exception** is an unexpected event that interrupts the normal execution of a computer program, preventing it from achieving its intended outcome.

TypeError
number = 5 text = "hello" result = number + text

IndexError
numbers = [1, 2, 3] index = 5 print(numbers[index])

ZeroDivisionError
x = 10 y = 0 result = 10 / 0

Implementing Error Handling



Lesson Conclusion and Recap

- File Operations
  - Open/close, read/write files (text, CSV, JSON)
  - File modes: read, write, append, binary
  - open(), read(), write(), with statement
- Working with External Data Formats
  - Handling text
- Error Handling with Exceptions
  - Importance of error handling
  - Common exceptions: FileNotFoundError, IOError, ValueError, KeyError
  - try, except, else, finally blocks

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Q & A Section

Please use this time to ask any questions relating to the topic explained, should you have any

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Thank you for joining us

Take regular breaks.
Stay hydrated.
Avoid prolonged screen time.
Remember to have fun :)

Some useful links

Python: https://www.python.org/downloads/

VS Code: https://code.visualstudio.com/download