



# Welcome to the CoGrammar

## Connecting Python and SQL

**The session will start shortly...**

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

## Cyber Security Session Housekeeping

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- 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.
- 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.

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- For all **non-academic questions**, please submit a query: [www.hyperiondev.com/support](http://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.
- If you are hearing impaired, please kindly use your computer's function through Google chrome to enable captions.

# 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](mailto:safeguarding@hyperiondev.com)

# ***Stay Safe Series:***

Mastering Online Safety One week at a Time

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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 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.

## Security Tip

### Verify Your Browser Extensions

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Before installing browser extensions, verify their legitimacy and permissions.

- Why? Some malicious extensions can steal sensitive data or track your activity.
- How? Check reviews, download only from official stores, and ensure the developer is reputable.
- Pro Tip: Regularly audit your extensions and remove those you no longer use.

Stay safe while browsing!  



# CoGrammar

## Connecting Python and SQL

December 2024

# Learning Objectives & Outcomes

- Identify the key features and characteristics of SQLite, such as being self-contained, serverless, and ACID-compliant.
- Explain how SQLite integrates with Python using the `sqlite3` module and describe the steps involved in setting up a database.
- Write and execute Python scripts to create, read, update, and delete data in SQLite databases.
- Differentiate between secure methods (e.g., prepared statements) and insecure methods (e.g., string concatenation) for interacting with SQLite databases.



# Polls

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

**If you had to store a list of tasks (e.g., a to-do list), how would you organize it?**

1. Write it on paper or in a notes app.
2. Use a spreadsheet or table.
3. Store it in a database.
4. I'm not sure.

# Polls

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

**How would you save structured data (e.g., employee names and salaries) for a Python program to access?**

1. In a text file.
2. In a database.
3. In a spreadsheet.
4. I haven't thought about it.

# What is SQLite?

- **SQLite:**  
A lightweight, self-contained, and serverless database management system. (DBMS)
- Uses SQL (Structured Query Language) for database interaction.
- **Suitable for:**
  - a. Small to medium-size applications
  - b. Embedded systems
  - c. Testing environments

# Key Features of SQLite

- **Self contained:**
  - a. Requires minimal external libraries
  - b. Ideal for embedded devices like mobile phones and game consoles
- **Serverless**
  - a. No separate server process needed
- **Transactional:**
  - a. Fully ACID-compliant (Atomic, Consistent, Isolated, Durable)
- **Zero configuration:**
  - a. No need for installation or setup

# Why use SQLite with python

- Python provides built-in support via the **sqlite3 module**
- No need for external dependencies
- Simplifies database operations with a few lines of code.

# SQLite with python workflow

- **Import Module:**
  - `Import sqlite3`
- **Connect to database**
  - `db = sqlite3.connect("example.db")`
- **Create a Cursor object**
  - `Cursor = db.cursor()`
- **Execute SQL commands:**
  - `cursor.execute("CREATE TABLE IF NOT EXISTS table_name ...")`
- **Commit changes:**
  - `db.commit()`
- **Close connection:**
  - `db.close()`



# Practical Example

- Creating, Inserting, Retrieving and Deleting data in a database using Python and SQLite connector.

# Polls

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

**If you need to connect Python to an SQLite database, what Python module would you use?**

1. pandas
2. sqlite3
3. sqlalchemy
4. I'm not sure.

# Polls

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

If you need to insert multiple rows of data into a database in Python, which method would you use?

1. `executemany()`
2. `insert_many()`
3. `bulk_insert()`
4. I'm not sure.

# Questions and Answers



# Thank you for attending



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