




Welcome to the CoGrammar

Searching and Sorting

The session will start shortly...

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



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



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

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 radicalisation, 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.

Security Reminder

Stay Vigilant and Practice Safe Habits

- Biggest security risk is often human error.
- Stay vigilant by following the basics
 - Never share your passwords
 - Double-check any suspicious links or emails
 - Avoid unknown public Wi-Fi networks without using a VPN.
 - Cybersecurity is as much about good habits as it is about technology.



Learning Objectives & Outcomes

- Explain the purpose of searching and sorting,
- Compare different sorting algorithms.
- Compare different search algorithms.
- Implement searching and sorting algorithms in code.



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Searching and Sorting

October 2024

Searching and Sorting

Have you ever used search functionality in a program (e.g., searching in a file or database)?



designed by  freepik

Inheritance

How can you sort a list in Python?



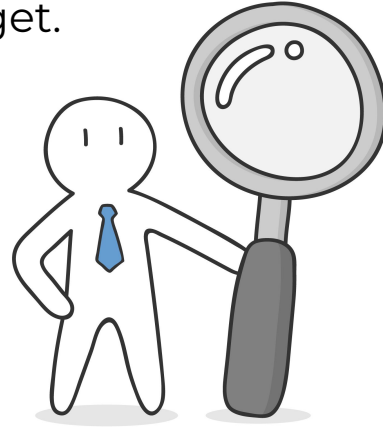
Algorithms

- A set of steps that can be followed to solve a problem.
- An algorithms usually get some sort of input and produces an output.



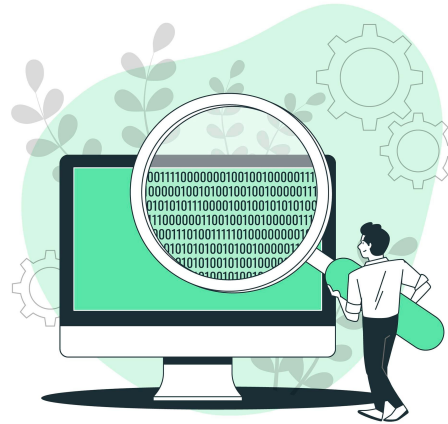
Searching

- Linear Search
 - Linear search is a method where you check each item in a list until you find the target.



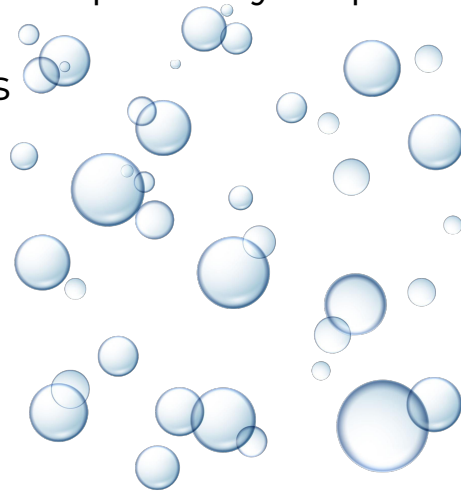
Searching

- Binary Search
 - More efficient method but requires the list to be sorted.
 - Process of checking the middle of the list each time then dividing the list in half based on the value.



Sorting

- Bubble Sort
 - A simple sorting algorithm that repeatedly steps through the list, compares adjacent elements, and swaps them if they are in the wrong order.



Sorting

- Selection Sort
 - Selection sort is an algorithm that finds the smallest (or largest) element and moves it to the correct position.



Polls

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

Which searching algorithm works only on sorted arrays?

- A. Linear Search
- B. Binary Search
- C. Depth-First Search
- D. Breadth-First Search

Polls

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

Which algorithm sorts an array by comparing adjacent elements and swapping them if needed?

- A. Insertion Sort
- B. Merge Sort
- C. Bubble Sort
- D. Selection Sort

Questions and Answers



Thank you for attending



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