Welcome to the CoGrammar

Open Session - Data Structures

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.
- 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.
- 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

CoGrammar HyperionDev

Stay Safe Series:

Mastering Online Safety One week at a Time

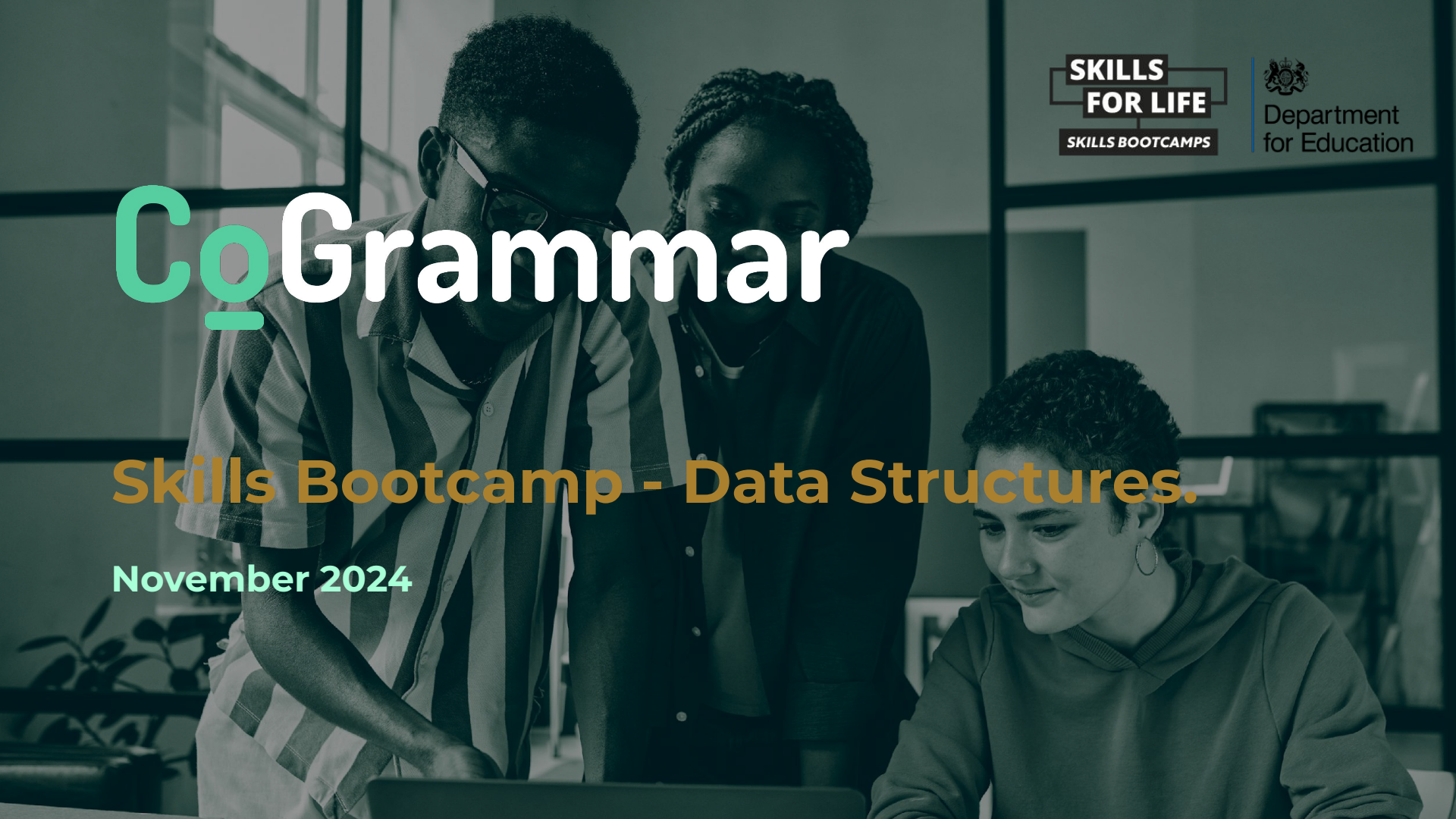
While the digital world can be a wonderful place to make education and learning accessible to all, it is unfortunately also a space where harmful threats like online radicalization, extremist propaganda, phishing scams, online blackmail and hackers can flourish.

As a component of this BootCamp the *Stay Safe Series* will 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

Always remember: the biggest security risk is often human error. Stay vigilant by following the basics—never share your passwords, double-check any suspicious links or emails, and avoid connecting to unknown public Wi-Fi networks without using a VPN. Cybersecurity is as much about good habits as it is about technology.



Skills Bootcamp - Data Structures.

November 2024

Learning Objectives & Outcomes

- Identify the basic types of data structures and their use cases.
- Recognize how to apply specific data structures to real-world scenarios.
- Differentiate between linear and non-linear data structures.
- Gain insight into the complexity and efficiency of basic data structures.

Polls

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

Which of the following is NOT a linear data structure?

A. Array

B. Linked List

C. Tree

D. Stack

Polls

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

Which of the following data structures is typically used to implement recursion?

A. Queue

B. Array

C. Stack

D. Tree

Data Structures

- **Definition**: Data structures are ways of organizing and storing data to enable efficient access and modification.
- **Importance**: Crucial for efficient problem-solving and system performance.
- **Examples of Use:** Search engines, databases, social media feeds, etc.

Types of Data Structures

Linear Structures: Organize data sequentially.

- Examples: Arrays, Linked Lists, Stacks, Queues.

Non-Linear Structures: Organize data hierarchically or in complex relationships.

- Examples: Trees, Graphs.

Data Structures

- **Factors to Consider:**
  a. Data organization and relationships.
  b. Frequency of operations (access, insert, delete).
  c. Memory usage and efficiency.
- **Example Scenarios:**
  a. Stack: Undo/redo functionality.
  b. Queue: Task scheduling.
  c. Tree: File systems, hierarchical data.
  d. Graph: Social networks, pathfinding.

Polls

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

Which data structure is best for implementing a Last In, First Out (LIFO) order?

A. Queue

B. Stack

C. Linked List

D. Tree

Polls

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

When dealing with hierarchical data (like an organisation chart), which data structure is typically the best fit?

A. Array

B. Linked List

C. Tree

D. Queue

Questions and Answers

CoGrammar

Thank you for attending

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