

EECS 204002
 Data Structures 資料結構
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**CH. 4
 LINKED LISTS**

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Array Reviews

- Store an ordered list using **sequential** mapping
 - Element(node) a_i is stored in the location L_i of the array
 - Next node is at the location L_{i+1}
- Pros:
 - Suitable for **random access**
 - **Efficient** to insert/delete from the **end**
 - Adequate for special data structures, **Stack** and **Queue**.
- Cons:
 - **Difficult** to insert/delete nodes at **arbitrary** location

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4.1

Singly Linked Lists and Chains

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4.1

Linked Representation

- Nodes are **no longer placed continuously** in the memory space
- Each node stores the **address or location** of the next one
- Singly Linked List (SLL)
 - each node has exactly one pointer field

The diagram illustrates a Singly Linked List (SLL). It consists of three nodes, each represented as a yellow box divided into two parts: a data field and a link field. The first node contains the data 'a₀' and its link field points to the second node. The second node contains 'a₁' and its link field points to the third node. The third node contains 'a₂' and its link field points to an ellipsis (...). A green arrow labeled 'Chain' points to the first node. Labels 'Data field,' and 'Link field' are positioned below the first node with arrows pointing to its respective fields. A small number '4' is located in the bottom right corner of the slide.
