Course: Data Structures (CSE CS203A, 114-1)
Quiz II: Array, Linked List, Stack and Queue
October 21, 2025, 16:30~17:00

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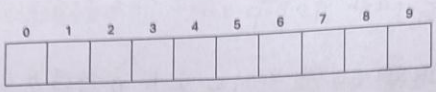
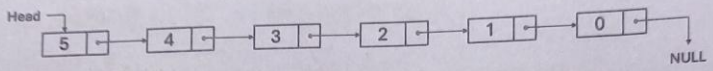
Data Structures: Visualization

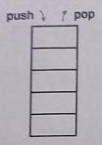
(1) Array



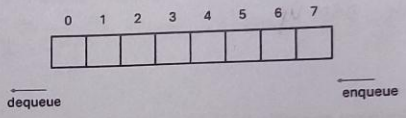
(2) Linked List



(3) Stack



(4) Queue



Q1: (30 pts; 10 pts for each) **Describe the mechanism of the function**
MoveTo(node *head, node *target, node*destination)

A1: Write a short paragraph explaining how the **MoveTo** function works (you may answer in English or Mandarin).

① Are there any **additional variables** required? If so, explain why they are necessary.

不需要，只要把 target 指到 destination 的 head

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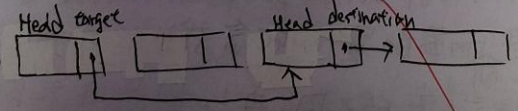
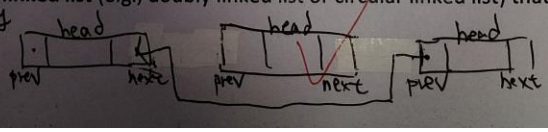
② **Draw a visualization** of the singly linked list to support your explanation.



③ Is there any **variation of a linked list** (e.g., doubly linked list or circular linked list) that can simplify or improve this operation?



Q2: (40 pts, 10 pts for each) **Definition of Data Structures**

Define the following data structures and list their fundamental operations.

A2:

① Definition of "Stack"

堆疊

概念類似於堆疊的盤子 LIFO 後進先出，在頂端操作

② Definition of "Queue"

概念類似於排隊 FIFO 先進先出

③ Preliminary operations of "Stack"

push、pop 吧

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④ Preliminary operations of "Queues"

insert、delete

dequeue, enqueue、erase

Q3: (30 pts) **AI Copilot Application**

Choose **up to two** data structures from the visualization list above.

Compose a **single prompt (within 300 words)** that you would use with an **AI Copilot** to explore or learn advanced concepts related to your chosen data structures.

A3: Array & linked list

我現在是一個資工系的學生，我想要了解 Array 和 Linked list 這兩種資料結構，我現在是一位老師請教導我這兩種資料結構的概念告訴我兩者的優缺點，並分別告訴我兩者的操作方法，最後以實作程式碼演練帶我實現兩者的實作概念，請以表格方式帶我理解在效能與空間複雜度的不同，再以圖片演示告訴我兩者差異，最後出一份練習題考驗成果。

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