

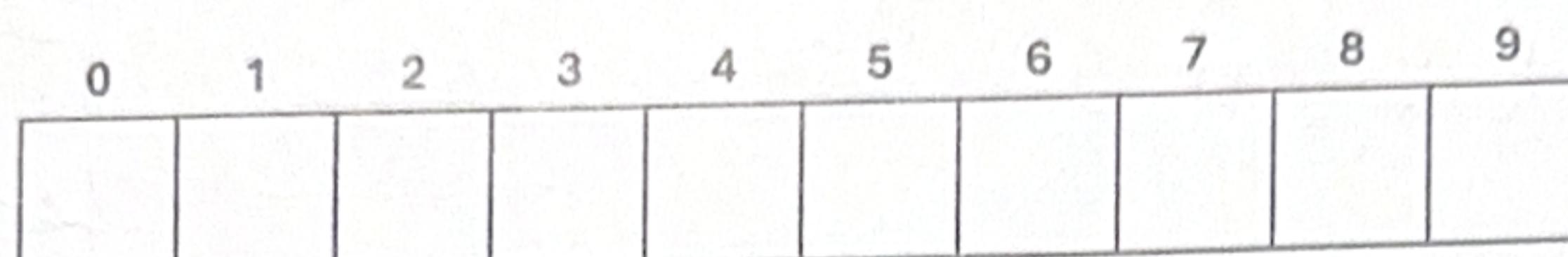
D

Student ID: 1133336

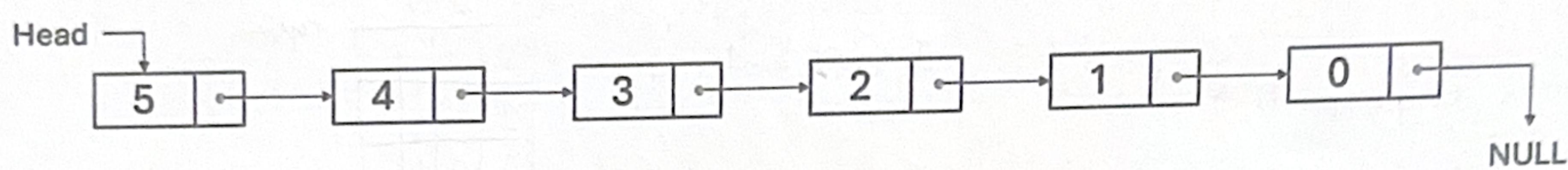
Student Name: 陳列穎

Data Structures: Visualization

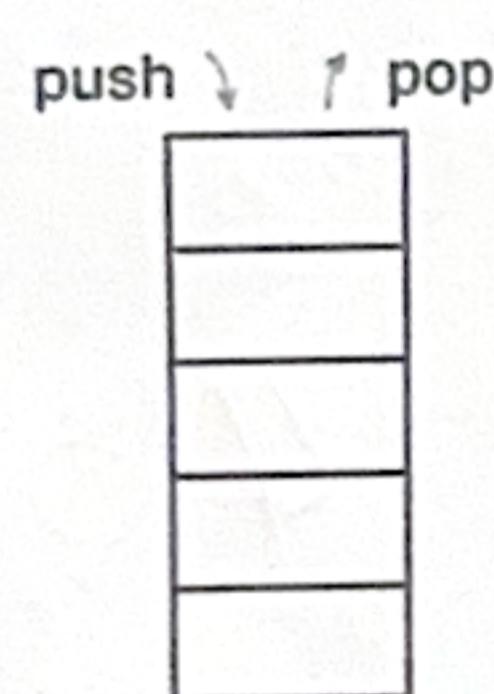
(1) Array



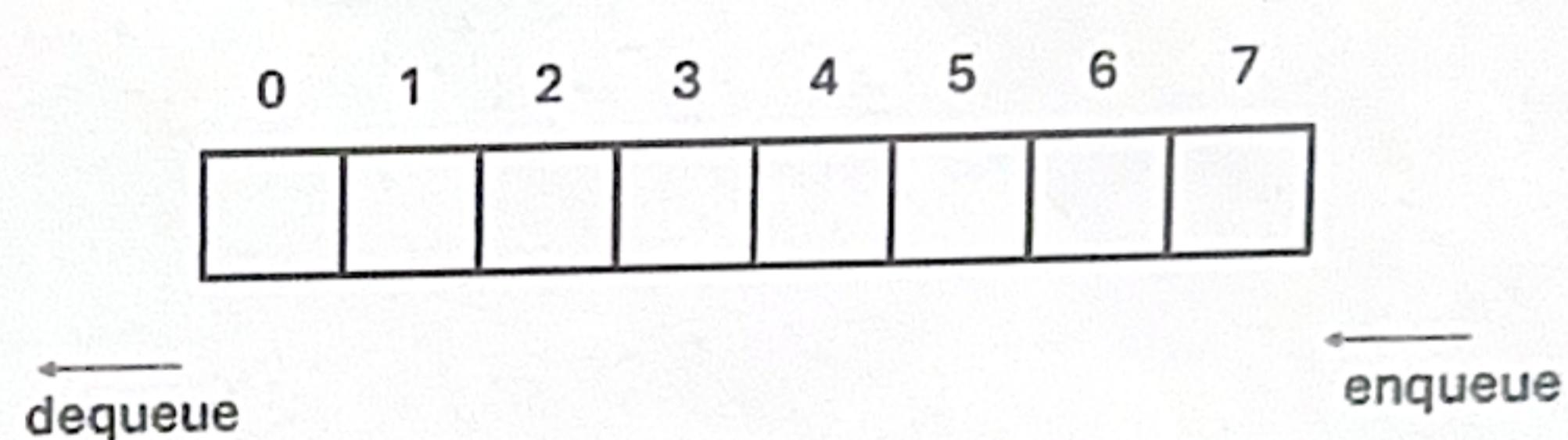
(2) Linked List



(3) Stack



(4) Queue



-30

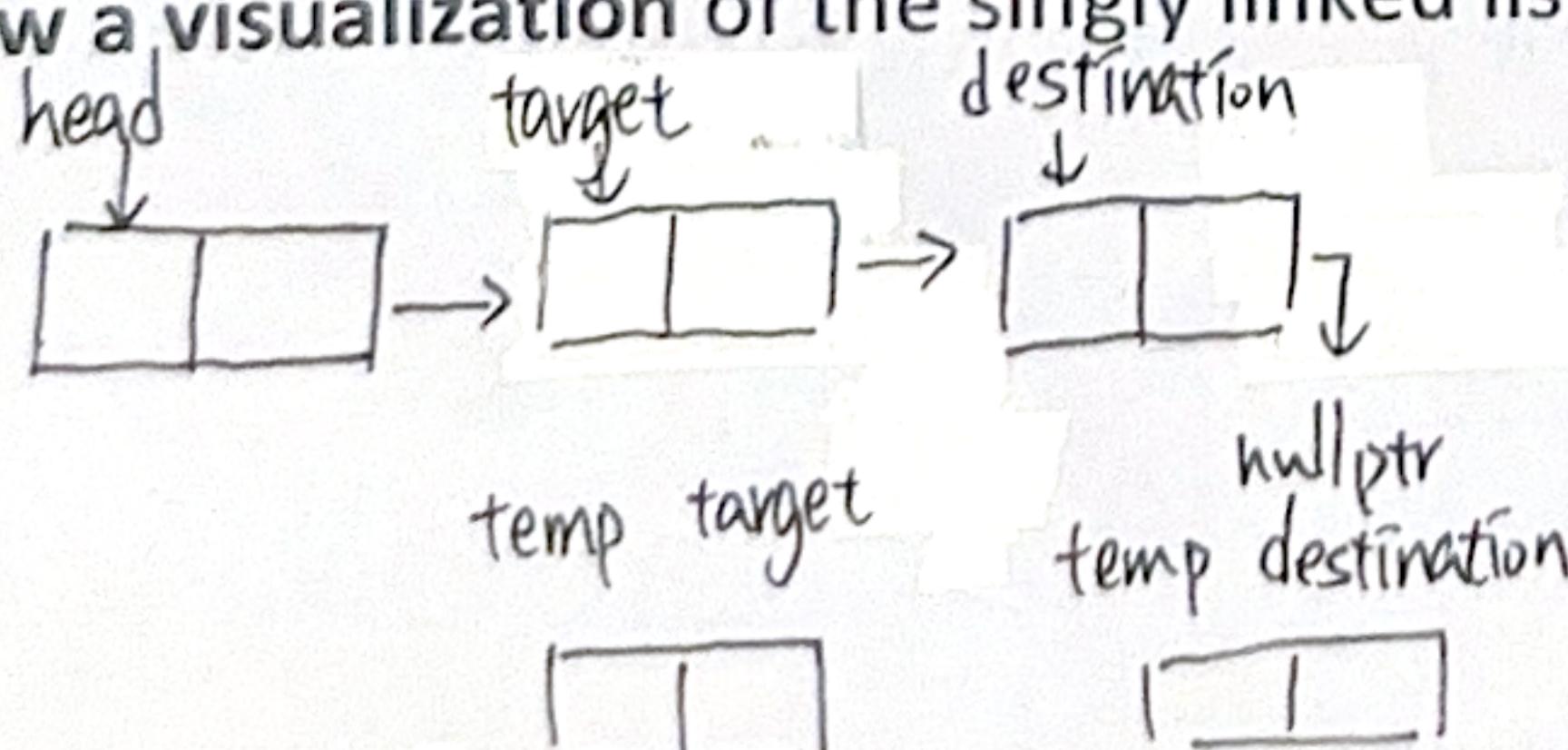
Q1: (30 pts; 10 pts for each) Describe the mechanism of the function

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.

需要一個 temp 去防止資料被覆蓋

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



~~head → next = temp - destination
destination → next = temp - target
target → next = temp~~
~~destination → next~~

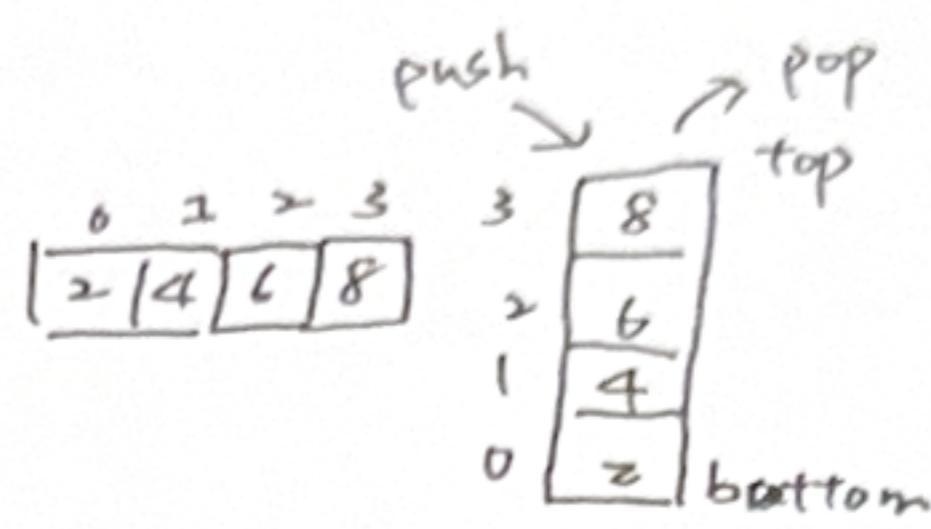
- ③ Is there any variation of a linked list (e.g., doubly linked list or circular linked list) that can simplify or improve this operation? No, 都需要使用 temp, 防止反覆

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"

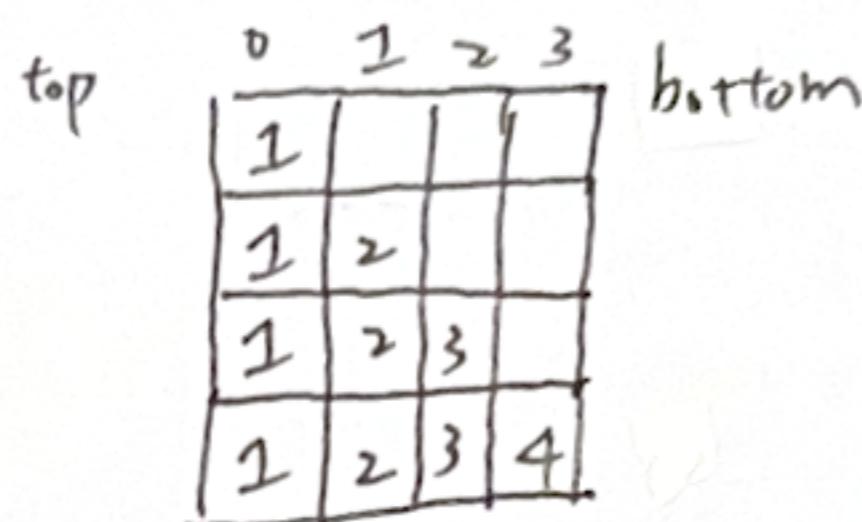
堆疊，用 push, pop 去丟資料進去、移出



② Definition of "Queue"

用 dequeue, enqueue 丟資料

1, 2, 3, 4



Preliminary operations of "Stack"

Preliminary operations of "Queues"

— 40

0 pts) AI Copilot Application

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

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

我想使用AI學習Array & Linked List，第一步我會先問Array & Linked List的定義，第二步會讓AI各給我一個簡單的範例讓我更容易理解，第三步會從他給的定義中找出相異處做更進一步的範例跟比較，第四步從他給的相同之處去做延伸，第五步會讓AI給一個實際上的應用，最後讓AI將以上資訊統整列為學習大綱，在之後的學習使用這個大綱去做每一階段的延伸討論。

— 30