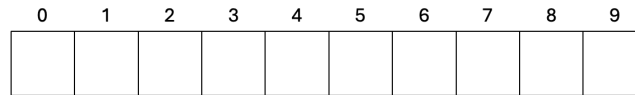


Student ID:

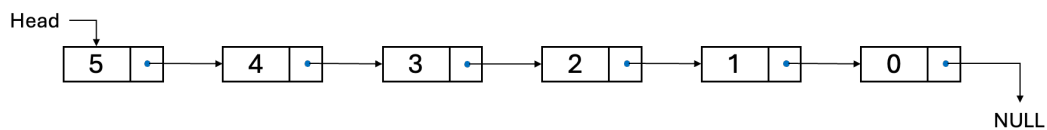
Student Name:

Data Structures: Visualization

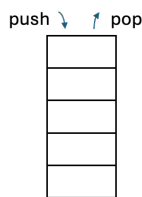
(1) Array



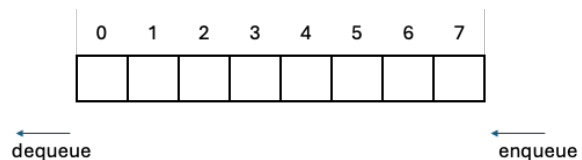
(2) Linked List



(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.
- 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”

- ② Definition of “Queue”

- ③ Preliminary operations of “Stack”

- ④ Preliminary operations of “Queues”

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: