

CS1356 Introduction to Information Engineering

Homework 12

1. The following arrays, `Name [0 : 9]` and `Next [0 : 9]`, implement a linked list. It uses `-1` to represent NIL.

Name	0	1	2	3	4	5	6	7	8	9
	Cindy	Eva	David	Bob	Cat	Adam	Dan	Bill	Alan	Eric
Next	0	1	2	3	4	5	6	7	8	9
	3	5	-1	-1	9	6	7	0	8	7

Head = 5

(a) Draw the linked list using 

(b) How many elements in the linked list?

(c) If we want to sort all the names in the alphabetical order, what the elements in the `Next` array and variable `Head` will be?

2. Describe procedures that use arrays to implement
- (1) Stack (you need to describe four functions: `InitStack`, `Push`, and `Pop`, `IsEmpty`)
 - (2) Queue (you need to describe three functions: `InitQueue`, `Dequeue`, and `Enqueue`, `IsEmpty`)
 - (3) Circular queue (you need to describe three functions: `InitQueue`, `Dequeue`, and `Enqueue`, `IsEmpty`, `IsFull`)