Introduction

In this card, we are going to introduce another data structure - Linked List.

Similar to the array, the linked list is also a linear data structure. Here is an example:

A blue line with a square and a dot

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As you can see, each element in the linked list is actually a separate object while all the objects are linked together by the reference field in each element.

There are two types of linked list: singly linked list and doubly linked list. The example above is a singly linked list and here is an example of doubly linked list:

A number on a white background

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We will introduce more in later chapters. After this card, you will:

* Understand the structure of singly linked list and doubly linked list;
* Implement traversal, insertion, deletion in a singly or doubly linked list;
* Analyze the complexity of different operations in a singly or doubly linked list;
* Use two-pointer technique (fast-pointer-slow-pointer technique) in the linked list;
* Solve classic problems such as reverse a linked list;
* Analyze the complexity of the algorithms you designed;
* Accumulate experience in designing and debugging.