### **Question 1 [CO4] [15 Points]**

You are given a **doubly linked list** (it is neither circular nor dummy-headed) and an integer k. Write a function named **rotate\_doubly\_linked\_list**() that takes the head of the doubly linked list and an integer k as parameters. The function modifies the doubly linked list to be **rotated to the left** by k positions and returns the head.

\*\*\* You do not need to write Node class or anything else except the **rotate\_doubly\_linked\_list**() method.

Example 1:

Doubly Linked List:

1 <-> 2 <-> 3 <-> 4 <-> 5

k = 1

After rotation -

Rotated Doubly Linked List:

2 <-> 3 <-> 4 <-> 5 <-> 1

Example 1:

Doubly Linked List:

1 <-> 2 <-> 3 <-> 4 <-> 5

k = 5

After rotation -

Rotated Doubly Linked List:

1 <-> 2 <-> 3 <-> 4 <-> 5