

## Explanation

### 1. Goal

- A. The lookup operation (i.e., `get()`) and `put()` / `set()` is supposed to be fast for a cache memory.

### 2. Code Design

- A. Hashtable (Dictionary)

- For implementing get/set, we need checking if the entry is in the cache and access to the entry directly. And for doing this task for  $O(1)$ , we use Hashtable (Dictionary structure)

- B. Doubly Linked List (DLL Node Class)

- For updating latest status (regarding to Least Recently Used), we need the access to head/tail to refer order. For implementing add/remove in the code, we use doubly linked list.

### 3. Efficiency

- A. `get()` ->  $O(1)$

- B. `set()` ->  $O(1)$