ECE 250 - Project 1
Deque Class Design Document

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Overview of Classes

Class: Deque
Description: A child of the doubly linked list class that represents a deque. It uses a doubly linked list to hold data and utilises the push and pop functions to modify the data accordingly. The deque is very similar to the doubly linked list class with the main difference being that the deque has a max size attribute and specific instructions for when that max size is reached. Thus it inherits a lot of functionality from the doubly linked list class.
Class: Doubly Linked List
Description: Class that represents a doubly linked list and implements most ADT functions defined for a doubly linked list. These functions include inserting at the front, inserting at the back, deleting from the front, deleting from the back and searching for specific nodes based on their key. It is the parent of the deque class and has member variables from the Node class. The class's main purpose is to define the structure for the deque class.
Class: Node
Description: Node that holds a key and value and is used in the linked list. Each node has a next and previous Node pointer to comply with the doubly linked list. These Nodes are dynamically allocated when created for use in the doubly linked list class and must also be deallocated by the doubly linked list to avoid memory conflicts. The nodes are used to hold our data in our deque/doubly linked list.

UML Class Diagrams