Problem2

1,

First in last our data structure is a queue, I achieve O(1) for add or remove by link the head and tail with the first and last inputs:

There is no looping:

**public** **void** add(**int** a){

node temp = **new** node();

temp.item = a;

temp.previous = tail.previous;

temp.previous.next = temp;

tail.previous = temp;

temp.next = tail;

size++;

}

**public** **int** remove(){

**int** a = head.next.item;

head.next = head.next.next;

head.next.next.previous=head;

System.***out***.println(a);//print value to console

**return** a;

}

2:

I achieve O(N) for getValue(i) because I’m going over the linked list from the start for i times:

**public** **int** getValue(**int** i){

node thisnode = **new** node();

thisnode = head;

**int** value = 0;

**for** (**int** j = 0; j < i+1;j++){

thisnode = thisnode.next;

value = thisnode.item;

}

**return** value;

}