Problem 2: Comparison

Linked List

N	Memory Used (KB)	Time (ms)
1000	0	0
2000	0	0
4000	0	40
8000	0	140
16000	0	540
32000	500	2230
64000	1500	9000
128000	3500	35640
256000	7500	252890

Dynamic Array

N	Memory Used (KB)	Time (ms)
1000	0	0
2000	0	0
4000	0	20
8000	0	100
16000	0	390
32000	0	1530
64000	0	6100
128000	136	24570
256000	644	97810

Which of the implementations uses more memory? Explain why.

Linked lists because it holds the value, next, and prev; while the dynamic array just holds the value.

Which of the implementations is the fastest? Explain why.

Dynamic array because the big-o notation for searching a dynamic array search is O(1); while the big-o for a linked list search is O(N).

Would you expect anything to change if the loop performed **remove()** instead of **contains()**? If so,what?

The linked list remove() would be slightly faster because the dynamic array has to resize itself.