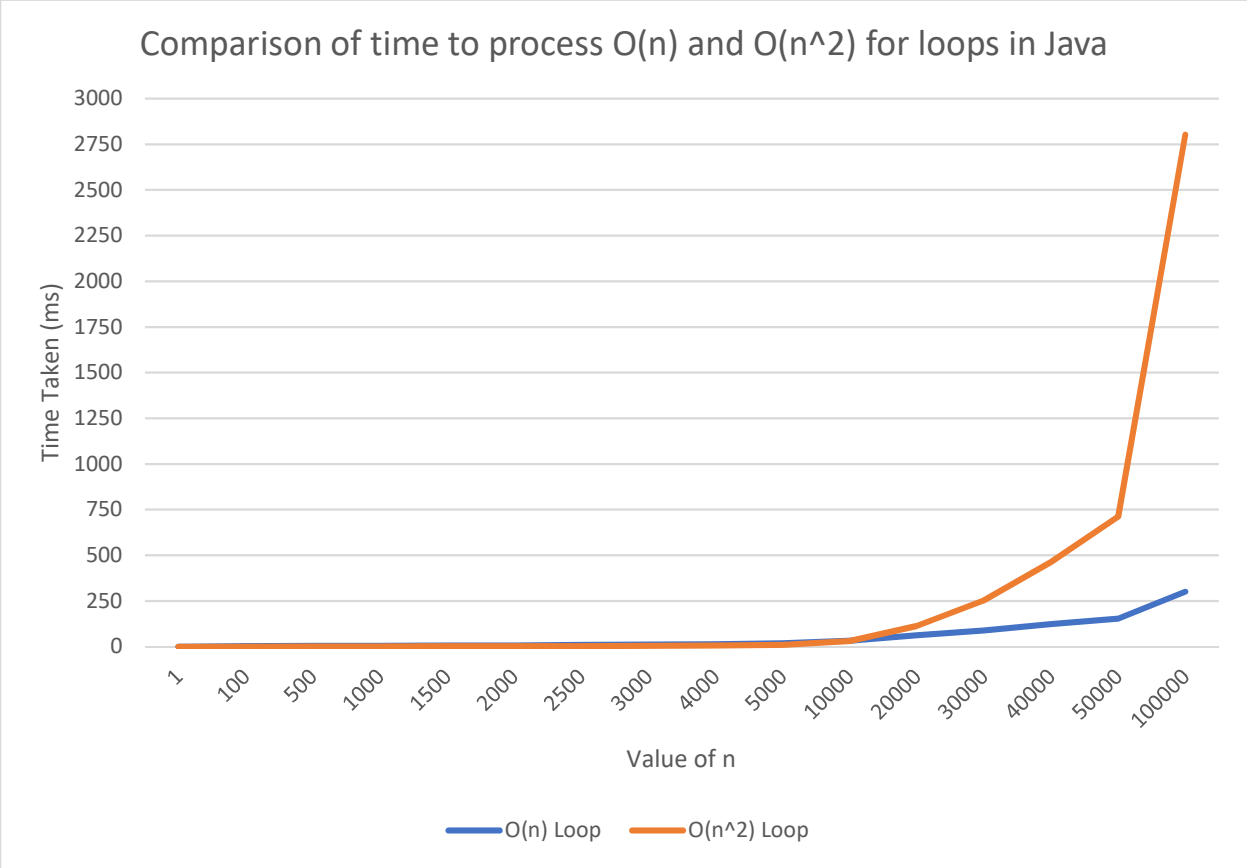
Benjamin Bowser – CSE274 UA HW2 #3, 4, 5

3.



n Value	O(n) Loop	O(n^2) Loop
1	0	0
100	3	0
500	4	1
1000	4	1
1500	6	2
2000	7	3
2500	10	3
3000	11	5
4000	14	7
5000	18	9
10000	33	30
20000	62	114
30000	89	253
40000	124	463
50000	153	712
100000	301	2802

4. **(4 pts)** Determine the best case and worst case Big O for the following piece of code that processes a NxN 2D array.

a.
```
for (int r=0; r<N; r++)
      for (int c=r; c<N; c++)
           if (ary[r][c] == key)
                return true;
return false;
```

Worst: O(N^2) Best: O(1)

5. A. **O(N^2)**
   B. **O(N)**
   C. **O(N)**
   D. **O(N)**
   E. **O(N^2)**
   F. **O(N^4)**