i>clicker

Session 10
1. Consider the following test data:

- **string**: "qwrxgaotef"
- **target**: b

Which “case scenario” of the **linear search** algorithm is our test data above representing?

A. Best case scenario  
B. Average case scenario  
C. **Worst case scenario**  
D. All of the above  
E. None of the above
2. Why is this string: “qwrxgaotef” target: b one of the worst case scenarios of the linear search algorithm?

A. Because the string is not sorted.

B. Because b is not in the string so the linear search algorithm executes its critical operations the maximum number of times.

C. Because our string is made of letters instead of numbers.

D. All of the above

E. None of the above
3. a) Oups! I did not mean that ask this question 😞:
Consider the following test data:

**list**: q, w, r, x, g, a, o, t, e, f  **target**: b

Which “case scenario” of the binary search algorithm is our test data above representing?

A. Best case scenario  
B. Average case scenario  
C. Worst case scenario  
D. All of the above  
E. None of the above
Consider the following test data:

**list:** a, e, f, g, o, q, r, t, w, x

**target:** b

Which “case scenario” of the **binary search** algorithm is our test data above representing?

A. Best case scenario
B. Average case scenario
C. Worst case scenario
D. All of the above
E. None of the above
4. Which of the test data below represent(s) the best case scenario of the **binary search** algorithm?

A. **string**: “abcdefghijk” **target**: a

B. **string**: “abcdefghijk” **target**: f

C. **string**: “abcdefghijk” **target**: k

D. All of the above

E. None of the above
5. Consider the following test data:

   **list**: q, w, r, x, g, a, o, t, e, f  
   **target**: b

   Why is our test data above not representing any of the “case scenarios” of **binary search**?

   A. Because b is not in the list.
   B. Because the list is not sorted.
   C. Because our list is made of letters instead of numbers.
   D. All of the above
   E. None of the above
6. Which of the test data below represent(s) the worst case scenario of the **binary search** algorithm? (when # of elements are even, the middle element is the element to the left of the middle)

- **A.** string: “abcdefghijk”  target: b
- **B.** string: “abcdefghijk”  target: c
- **C.** string: “abcdefghijk”  target: j
- **D.** All of the above
- **E.** None of the above
7. What do we mean when we say that the binary search algorithm is faster than the linear search algorithm (worst case scenario)?

A. We mean that binary search is more reliable than the linear search as it will always find whatever target we are looking for in a list.

B. We mean that binary search finds whether a target is in a list (or not) faster than linear search because it does not look at every element of the list.

C. We mean that binary search always use the best case scenario when searching for a target in a list.

D. All of the above

E. None of the above
8. What does \( n \) represent in the Big O expression of time complexity?

A. \( n \) is the number of times the “critical operations” of our search algorithms execute.

B. \( n \) is the number of times the target is found in the list/string searched.

C. \( n \) is the size of the list/string that is searched.

D. All of the above

E. None of the above
9. What does $O(...) \) represent in our expression of time complexity?

A. It means that the worst case scenario of linear search is of order $n$.
B. It means that the worst case scenario of binary search is of order $\log_2 n$.
C. A and B
D. None of the above