Assignment unit 3

1. If strings are immutable in Python, how can you still “modify” a string using slicing and concatenation?
2. Why does "abc" * 0 return an empty string instead of an error? What does this reveal about string operations?
3. You used binary search on an unsorted list, yet it returned a “correct” result accidentally. How is that possible?
4. If two variables refer to the same list, and one is passed to a function that modifies it, what happens to the other variable? Explain why.
5. Why can recursion sometimes be faster than iteration, even though it uses more memory? Give an example case.
6. What will happen if a recursive function has no base condition? How can Python handle such situations?
7. A lambda function returns another lambda. Explain how this can simulate closures or higher-order functions.
8. When sorting a list of tuples, why might two elements with equal keys still change their relative order in Python’s sort?
9. If a function uses a global variable and you assign to that variable inside the function, what unexpected behavior might occur?
10. Can a function call itself indirectly through another function? What is this concept called, and how does Python handle it?