

8/24/21

1. Given the following:

$L = ["blue", "green", "indigo", "mauve", "orange", "red", "violet", "yellow"]$

(a) How many steps does it take to search for the value "orange" in the list using linear search? Show your work.

blue \rightarrow green \rightarrow indigo \rightarrow mauve \rightarrow orange
 1 2 3 4 5
 5 steps

(b) How many steps does it take to search for the value "orange" in the list using binary search? Show your work.

blue, green, indigo, mauve, orange, red, violet, yellow 1
 ↓
 orange, red, violet, yellow 2
 ↓
 orange, red 3
 ↓
 orange 4 4 steps

(c) Show the values for low, high, and mid for each comparison step in searching for the color "violet" in the list using binary search.

blue, green, indigo, mauve, orange, red, violet, yellow L:0, H:7, M:3
 ↓
 orange, red, violet, yellow L:4, H:7, M:5
 ↓
 violet, yellow L:6, H:7, M:6
 ↓
 violet L:6, H:6, M:6

4 steps