Binary Search Algorithm

**Time complexity: O(log n)**

Python code:

def binary\_search(arr, query): # tc: O(log n)

# the lowest and highest index in arr

low, high = 0, len(arr) – 1

# runs until query is found in arr

while True:

# finding the middle index in a list of values

mid = (low + high) // 2

# finding the middle value in a list of a values using mid\_index as an index

mid\_value = arr[mid\_index]

if mid\_value < query:

low = mid + 1

elif mid\_value > query:

high = mid – 1

else:

return mid