4. Create a python program to implement binary search algorithm.

def binary\_search(arr, target):

low = 0

high = len(arr) - 1

while low <= high:

mid = (low + high) // 2 # Find the middle index

if arr[mid] == target:

return mid # Target found at index mid

elif arr[mid] < target:

low = mid + 1 # Search in the right half

else:

high = mid - 1 # Search in the left half

return -1 # Target not found

# Example usage

if \_\_name\_\_ == "\_\_main\_\_":

sorted\_list = [2, 4, 6, 8, 10, 12, 14, 16, 18]

target\_value = int(input("Enter the number to search: "))

result = binary\_search(sorted\_list, target\_value)

if result != -1:

print(f"Element found at index {result}")

else:

print("Element not found in the list")