12. Binary Search

#include <stdio.h>

int binary\_search(int arr[], int low, int high, int target) {

if (low > high) {

return -1; // Target not found

}

int mid = low + (high - low) / 2;

if (arr[mid] == target) {

return mid; // Target found at mid index

} else if (arr[mid] < target) {

return binary\_search(arr, mid + 1, high, target); // Search right half

} else {

return binary\_search(arr, low, mid - 1, target); // Search left half

}

}

int main() {

int arr[] = {2, 5, 8, 12, 16, 23, 38, 56, 72, 91};

int n = sizeof(arr) / sizeof(arr[0]);

int target;

printf("Enter the target element to search: ");

scanf("%d", &target);

int result = binary\_search(arr, 0, n - 1, target);

if (result == -1) {

printf("Target element not found in the array.\n");

} else {

printf("Target element found at index %d.\n", result);

}

return 0;

} 