Ds day-04

1.Write a C program to implement Linear Search Algorithm:

#include <stdio.h>

int linearSearch(int arr[], int n, int target) {

int i;

for (i = 0; i< n; i++) {

if (arr[i] == target) {

return i;

}

}

return -1;

}

int main() {

int arr[] = {10, 2, 8, 5, 17};

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

int target = 8;

int result = linearSearch(arr, n, target);

if (result == -1) {

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

} else {

printf("Element found at index: %d\n", result);

}

return 0;

}

Output:



2.Write a C program to implement Binary Search Algorithm:

#include <stdio.h>

int binary\_search(int arr[], int left, int right, int target) {

while (left <= right) {

int mid = left + (right - left) / 2;

if (arr[mid] == target) {

return mid;

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

left = mid + 1;

} else {

right = mid - 1;

}

}

return -1;

}

int main() {

int arr[] = {1, 3, 5, 7, 9};

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

int target = 5;

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

if (index == -1) {

printf("Target not found\n");

} else {

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

}

return 0;

}

Output:

