Write binary search using c. write its algorithm and program.

ALOGORITHM:

Step 1 : Find the middle element of array. using ,

middle = initial\_value + end\_value / 2 ;

Step 2 : If middle = element, return ‘element found’ and index.

Step 3 : if middle > element, call the function with end\_value = middle - 1 .

Step 4 : if middle < element, call the function with start\_value = middle + 1 .

Step 5 : exit.

PROGRAM:

#include <stdio.h>

int binarySearch(int array[], int x, int low, int high) {

if (high >= low) {

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

// If found at mid, then return it

if (array[mid] == x)

return mid;

// Search the left half

if (array[mid] > x)

return binarySearch(array, x, low, mid - 1);

// Search the right half

return binarySearch(array, x, mid + 1, high);

}

return -1;

}

int main(void) {

int array[] = {3, 4, 5, 6, 7, 8, 9};

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

int x = 4;

int result = binarySearch(array, x, 0, n - 1);

if (result == -1)

printf("Not found");

else

printf("Element is found at index %d", result);

}

OUTPUT:

