EXPERIMENT NO.4

Binary Search Algorithm

Program:-

```
#include <stdio.h>

// Function to perform binary search
int binarySearch(int arr[], int left, int right, int target) {
    while (left <= right) {
        int mid = left + (right - left) / 2;

        // Check if target is present at mid
        if (arr[mid] == target)
            return mid;

        // If target is greater, ignore left half
        if (arr[mid] < target)
            left = mid + 1;

        // If target is smaller, ignore right half
        else
            right = mid - 1;
    }

    // If target is not found, return -1
    return -1;
}

// Driver program to test above function
int main() {
    int arr[] = {2, 3, 4, 10, 40};
    int target = 10;
    int arr_size = sizeof(arr) / sizeof(arr[0]);

    int result = binarySearch(arr, 0, arr_size - 1, target);

    if (result != -1)
        printf("Element is present at index %d\n", result);
    else
        printf("Element is not present in array\n");

    return 0;
}
```

Output:-

```
/tmp/onxTs0TVHL.o
Element is present at index 3


=== Code Execution Successful ===
```