

Experiment No: 4

Binary Search

CODE:

```
#include <stdio.h>

int binarySearch(int arr[], int l, int r, int x)
{
    while (l <= r) {
        int m = l + (r - l) / 2;

        if (arr[m] == x)
            return m;

        if (arr[m] < x)
            l = m + 1;
        else
            r = m - 1;
    }

    return -1;
}

int main(void)
{
    int arr[] = { 2, 3, 4, 10, 40 };

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

    int x = 10;

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

    (result == -1) ? printf("Element is not present"
                           " in array")
```

```
        : printf("Element is present at "
                "index %d",
                result);

    return 0;
}
```

OUTPUT:

Output

```
/tmp/kjkYXvtydK.o
Original array: 19 17 15 12 16 18 4 11 13
Sorted array: 4 11 12 13 15 16 17 18 19

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