

NAME – RAJDEEP JAISWAL

DATE –4 oct 2021

BRANCH – BTECH CSE

SEC = 13 A

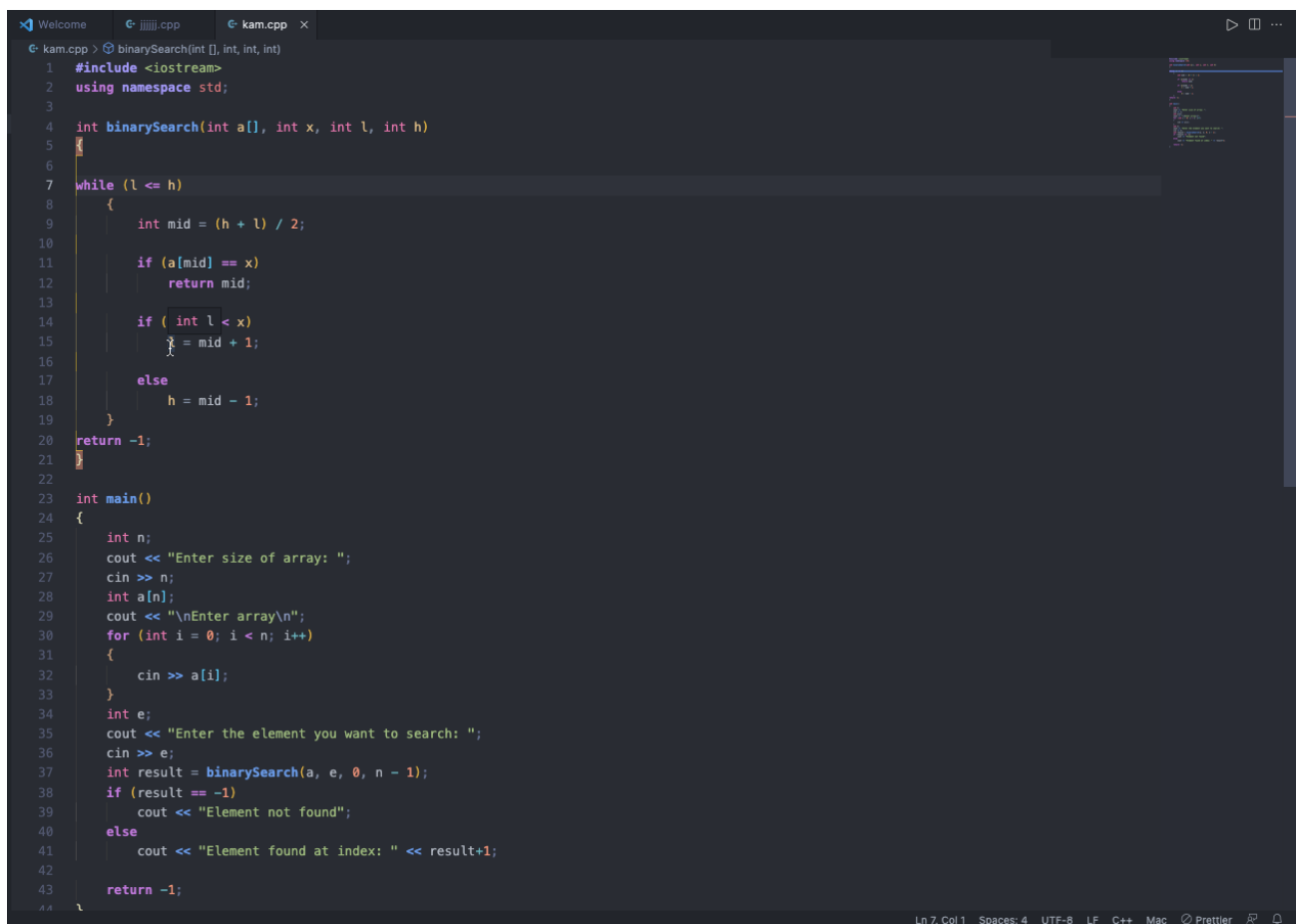
UID -20BCS2761

SUB- DS LAB MST

Q - Write a menu driven program that implements Binary Search (for successful and unsuccessful search)

Solution –

Code in Compiler –

A screenshot of a C++ code editor with a dark theme. The code implements a binary search algorithm. It includes a `binarySearch` function that takes an array, a target value, and low/high indices. The `main` function prompts the user for array size, elements, and a search value, then calls `binarySearch` and prints the result. The status bar at the bottom shows 'Ln 7, Col 1', 'Spaces: 4', 'UTF-8', 'LF', 'C++', 'Mac', and 'Prettier'.

```
1 #include <iostream>
2 using namespace std;
3
4 int binarySearch(int a[], int x, int l, int h)
5 {
6     while (l <= h)
7     {
8         int mid = (h + l) / 2;
9
10        if (a[mid] == x)
11            return mid;
12
13        if (int l < x)
14            l = mid + 1;
15        else
16            h = mid - 1;
17    }
18    return -1;
19 }
20
21 int main()
22 {
23     int n;
24     cout << "Enter size of array: ";
25     cin >> n;
26     int a[n];
27     cout << "\nEnter array\n";
28     for (int i = 0; i < n; i++)
29     {
30         cin >> a[i];
31     }
32     int e;
33     cout << "Enter the element you want to search: ";
34     cin >> e;
35     int result = binarySearch(a, e, 0, n - 1);
36     if (result == -1)
37         cout << "Element not found";
38     else
39         cout << "Element found at index: " << result+1;
40
41     return -1;
42 }
```

Code IN Text Form-

```
#include <iostream>

using namespace std;

int binarySearch(int a[], int x, int l, int h)
{

    while (l <= h)

    {

        int mid = (h + l) / 2;

        if (a[mid] == x)

            return mid;

        if (a[mid] < x)

            l = mid + 1;

        else

            h = mid - 1;

    }

    return -1;

}

int main()

{

    int n;

    cout << "Enter size of array: ";
```

```
cin >> n;

int a[n];

cout << "\nEnter array\n";

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

{

    cin >> a[i];

}

int e;

cout << "Enter the element you want to search: ";

cin >> e;

int result = binarySearch(a, e, 0, n - 1);

if (result == -1)

    cout << "Element not found";

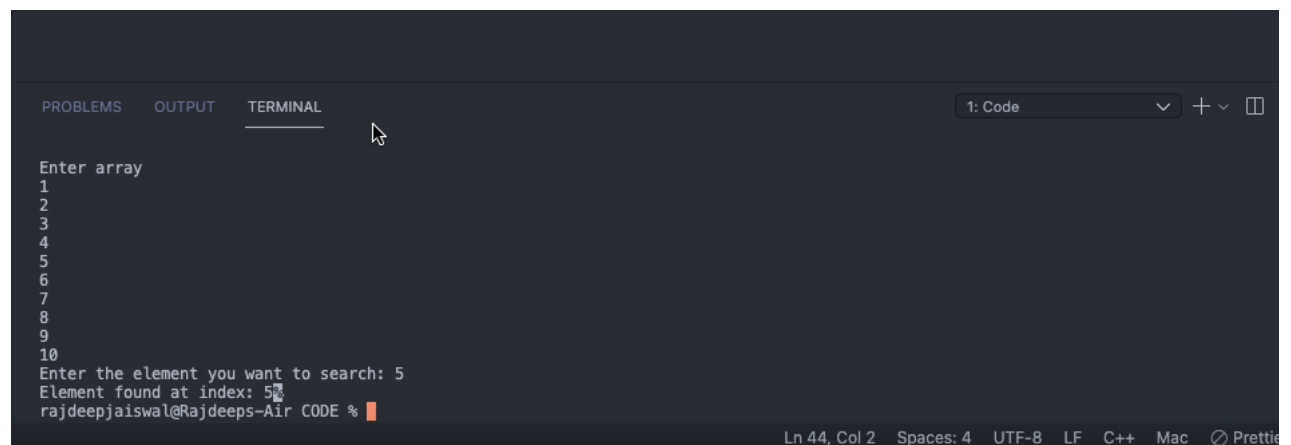
else

    cout << "Element found at index: " << result+1;

return -1;

}
```

OUTPUT



The screenshot shows a C++ IDE with a terminal window. The terminal output is as follows:

```
Enter array
1
2
3
4
5
6
7
8
9
10
Enter the element you want to search: 5
Element found at index: 5
rajdeepjaiswal@Rajdeeps-Air CODE %
```

The IDE interface includes tabs for PROBLEMS, OUTPUT, and TERMINAL. The TERMINAL tab is active. The status bar at the bottom indicates the cursor is at Line 44, Column 2, with 4 spaces, UTF-8 encoding, LF line endings, C++ language, and Mac OS.