

NAME – RAJDEEP JAISWAL

DATE -

BRANCH – BTECH CSE

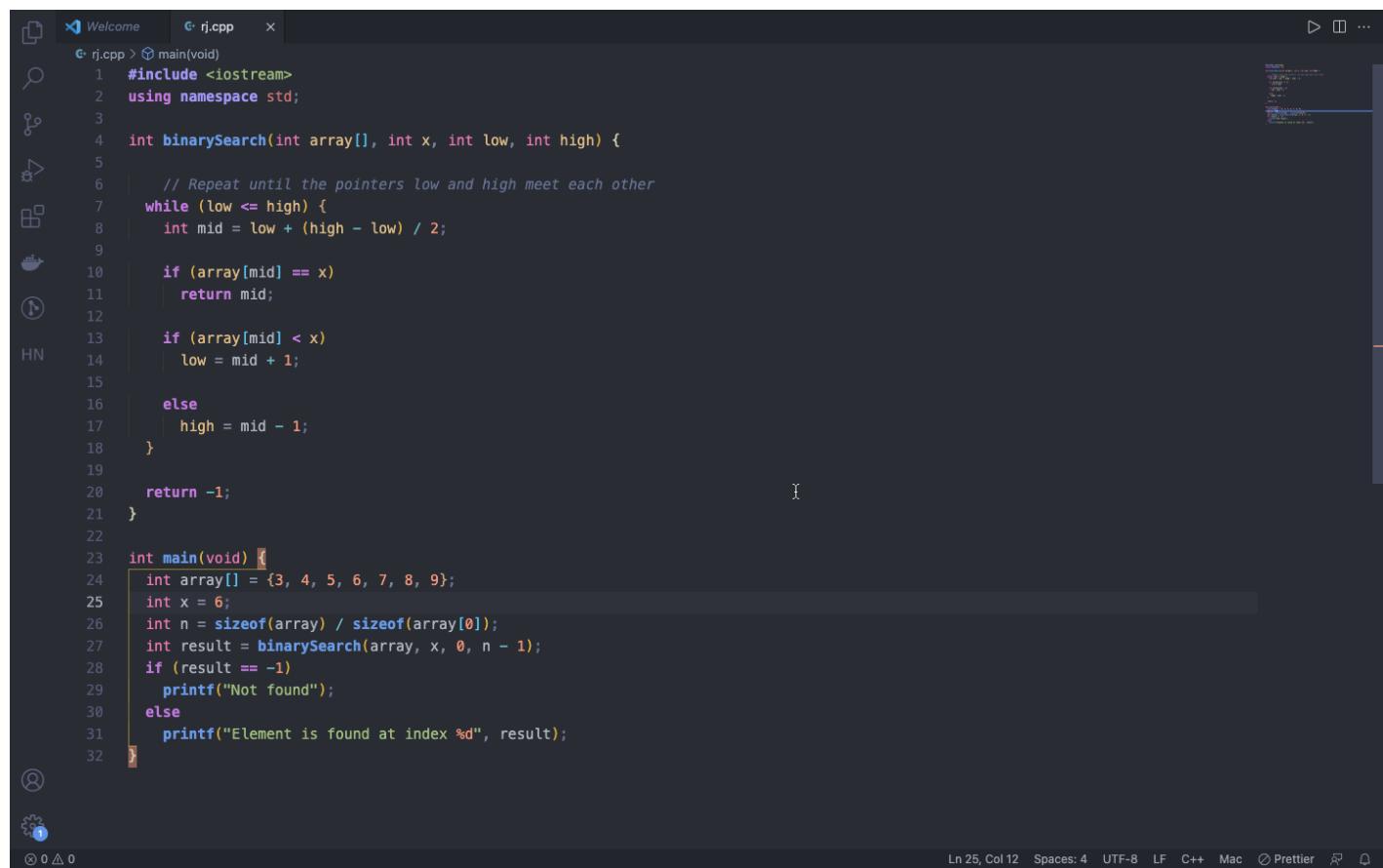
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SUB- DATA STRUCTURE LAB

Write a program to perform binary search

CODE IN COMPILER -



The screenshot shows a code editor interface with a dark theme. On the left, there's a sidebar with various icons for file operations like new, open, save, and search. The main area displays a C++ code file named 'rj.cpp'. The code implements a binary search algorithm. It includes a header file 'iostream' and defines a function 'binarySearch' that takes an array, a target value 'x', and the search range ('low' and 'high'). The function repeatedly narrows the search range until it finds the target or determines it's not present. It also includes a 'main' function that initializes an array with values {3, 4, 5, 6, 7, 8, 9}, sets a target value 'x' to 6, and calls the 'binarySearch' function. The code uses standard C++ syntax with curly braces for blocks and colons for conditionals.

```
#include <iostream>
using namespace std;

int binarySearch(int array[], int x, int low, int high) {
    // Repeat until the pointers low and high meet each other
    while (low <= high) {
        int mid = low + (high - low) / 2;

        if (array[mid] == x)
            return mid;
        if (array[mid] < x)
            low = mid + 1;
        else
            high = mid - 1;
    }
    return -1;
}

int main(void) {
    int array[] = {3, 4, 5, 6, 7, 8, 9};
    int x = 6;
    int n = sizeof(array) / sizeof(array[0]);
    int result = binarySearch(array, x, 0, n - 1);
    if (result == -1)
        printf("Not found");
    else
        printf("Element is found at index %d", result);
}
```

Ln 25, Col 12 Spaces: 4 UTF-8 LF C++ Mac Prettier

CODE IN TEXT FORM-

```
#include <iostream>
using namespace std;

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

    // Repeat until the pointers low and high meet each other
    while (low <= high) {
        int mid = low + (high - low) / 2;

        if (array[mid] == x)
            return mid;

        if (array[mid] < x)
            low = mid + 1;

        else
            high = mid - 1;
    }

    return -1;
}

int main(void) {
    int array[] = {3, 4, 5, 6, 7, 8, 9};
    int x = 6;
    int n = sizeof(array) / sizeof(array[0]);
    int result = binarySearch(array, x, 0, n - 1);
    if (result == -1)
        printf("Not found");
    else
        printf("Element is found at index %d", result);
}
```

OUTPUT -

The screenshot shows a Mac desktop environment. At the top, there is a dark-themed window titled "TERMINAL". The terminal window contains the following text:

```
cd "/Volumes/RAJ 2/CODE/" && g++ rj.cpp -o rj && "/Volumes/RAJ 2/CODE/">rj  
rajdeepjaiswal@Rajdeeps-Air CODE % cd "/Volumes/RAJ 2/CODE/" && g++ rj.cpp -o rj && "/Volumes/RAJ 2/CODE/">rj  
Element is found at index 3.  
rajdeepjaiswal@Rajdeeps-Air CODE %
```

The window has tabs for "PROBLEMS", "OUTPUT", and "TERMINAL", with "TERMINAL" being the active tab. In the bottom right corner of the terminal window, it says "Ln 32, Col 2 (634 selected) Spaces:". Below the terminal window is the Dock, which displays icons for various Apple applications: Finder, Safari, Google Chrome, Mail, iMovie, iPhoto (with a red badge showing 155), iCloud Drive, Contacts, Reminders, Calendar, Notes, Stocks, Music, Photo Booth, tvOS Settings, and the App Store.