

8)Search Techniques

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#include <iostream>
using namespace std;
class search
{
public:
    int arr[25], n, key, i, ch;
    void get_elements()
    {
        cout << "\n\tSEARCHING TECHNIQUES:";
        cout << "\n Enter the size of an array:";
        cin >> n;
        cout << "\n Enter " << n << " elements:\n";
        for (i = 0; i < n; i++)
        {
            cin >> arr[i];
        }
        cout << "\n Enter the element to search:";
        cin >> key;
        cout << "\n Select the searching techniques:";
        cout << "\n 1. Linear Search ";
        cout << "\n 2. Binary Search ";
        cin >> ch;
        switch (ch)
        {
            case 1:
            {
                linear_search();
                break;
            }
            case 2:
            {
                binary_search();
                break;
            }
            default:
                cout << "Invalid Choice";
        }
    }
    void linear_search()
    {
        for (i = 0; i < n; i++)
        {
            if (arr[i] == key)
            {
                cout << "\n The element found at index " << i;
                break;
            }
        }
    }
}
```

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    }
    else //
    if (i == n)
    {
        cout << "\n The element not found ";
    }
}
void binary_search()
{
    int low = 0, high = n - 1;
    while (low <= high)
    {
        int mid = low + (high - low) / 2;
        if (arr[mid] == key)
        {
            cout << "\n The element found at index " << mid;
            key = -1;
            break;
        }
        else if (arr[mid] < key)
        {
            low = mid + 1;
        }
        else
        {
            high = mid - 1;
        }
    }
    if (key == -1)
        cout << "\n The element not found ";
}
} // End of void binary_search()
} // End of class search
int main()
{
    search s;
    s.get_elements();
    return 0;
}

```