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COURSE NAME: DATA STRUCTURES FOR MODERN COMPUTING SYSTEMS

COURSE CODE: CSA0302

Experiment 9: Binary Search

CODE:

```
#include <stdio.h>
```

```
int main() {  
    int a[100], n, i, key, low, high, mid, found = 0;  
    printf("Enter number of elements: ");  
    scanf("%d", &n);  
    printf("Enter %d sorted elements:\n", n);  
    for(i = 0; i < n; i++)  
        scanf("%d", &a[i]);  
    printf("Enter element to search: ");  
    scanf("%d", &key);  
    low = 0;  
    high = n - 1;  
    while(low <= high) {  
        mid = (low + high) / 2;  
        if(a[mid] == key) {  
            found = 1;  
            break;  
        } else if(a[mid] < key)  
            low = mid + 1;  
        else  
            high = mid - 1;  
    }  
    if(found)
```

```
        printf("Element found at position %d", mid + 1);  
    else  
        printf("Element not found");  
    return 0;  
}
```

OUTPUT:

```
Enter number of elements: 5  
Enter 5 sorted elements:  
10 20 30 40 50  
Enter element to search: 30  
Element found at position 3  
  
=== Code Execution Successful ===
```