Name: Atharva Salitri **Div: CSAI-B** **Batch: 2** **Roll No.: 37**

Linear Search

```
#include <stdio.h>
int linearSearch(int arr[], int size, int key) {
   for (int i = 0; i < size; i++) {
      if (arr[i] == key) {
         return i;
      }
   }
   return -1; }
int main() {
   int n, key;
   printf("Enter the number of elements in
the array: ");
   scanf("%d", &n);
   int arr[n];
   printf("Enter %d elements:\n", n);
   for (int i = 0; i < n; i++) {
      scanf("%d", &arr[i]); }
   printf("Enter the element to search for: ");
   scanf("%d", &key);
   int result = linearSearch(arr, n, key);
   if (result == -1) {
      printf("Element not found\n"); }
   else {
      printf("Element found at index: %d\n", result); }
   return 0;
}
```

```
linear_search } ; if ($?) { .\01_linear_searc
Enter the number of elements in the array: 5
Enter 5 elements:
33 6 44 90 7
Enter the element to search for: 44
Element found at index: 2
PS E:\VIT PUNE '27\S.Y\ADS\ADS Lab\4. Search
```

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Binary Search

```
#include <stdio.h>
int binarySearch(int arr[], int size, int key) {
   int left = 0;
   int right = size - 1;
   while (left <= right) {
      int mid = left + (right - left) / 2;
      if (arr[mid] == key) {
         return mid;
      }
      if (arr[mid] < key) {
         left = mid + 1;
      } else {
         right = mid - 1;
      }
   }
   return -1;
}
int main() {
   int n, key;
   printf("Enter the number of elements in
the array: ");
   scanf("%d", &n);
   int arr[n];
   printf("Enter %d sorted elements:\n", n);
   for (int i = 0; i < n; i++) {
      scanf("%d", &arr[i]); }
   printf("Enter the element to search for: ");
   scanf("%d", &key);
   int result = binarySearch(arr, n, key);
   if (result != -1) {
      printf("Element found at index: %d\n", result);
   } else {
      printf("Element not found\n");
   }
   return 0;
}
```

```
binary_search } ; if ($?) { .\02_binary_searc
Enter the number of elements in the array: 6
Enter 6 sorted elements:
10 20 30 40 50 60
Enter the element to search for: 40
Element found at index: 3
PS E:\VIT PUNE '27\S.Y\ADS\ADS Lab\4. Search
```