Ds-prac array methods

```
#include <stdio.h>
int main() {
 int array[100];
 int i, pos, value, n;
 printf("Enter size of an array (max 100):\n");
 scanf("%d", &n);
 printf("Enter elements:\n");
 for(i = 0; i < n; i++) {
 scanf("%d", &array[i]);
 }
 printf("Enter position to insert (1 to %d):\n", n + 1);
 scanf("%d", &pos);
 pos--;
 printf("Enter value to insert:\n");
 scanf("%d", &value);
 for(i = n; i > pos; i--) {
 array[i] = array[i - 1];
 }
 array[pos] = value;
 n++;
 printf("New array:\n");
 for(i = 0; i < n; i++) {
 printf("%d ", array[i]);
 }
 printf("\n");
 return 0;
}
```

o/p

```
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Enter size of an array (max 100):
5
Enter elements:
1
2
3
4
5
Enter position to insert (1 to 6):
4
Enter value to insert:
5
New array:
1 2 3 5 4 5
```

---

linear search in C++

```
#include <stdio.h>
int linearSearch(int arr[], int n, int key)
 {
 for (int i = 0; i < n; i++) {
 if (arr[i] == key) {
 return i;
 }
 }
 return -1;
}
int main() {
 int arr[] = {10, 50, 30, 70, 80, 60, 20, 90, 40};
 int n = sizeof(arr) / sizeof(arr[0]);
 int key = 30;
 int result = linearSearch(arr, n, key);
 if (result == -1) {
```

```
 printf("Key Not Found\n");
 } else {
 printf("Key Found at Index: %d\n", result);
 }
 return 0;
}
```

o/p

```
Key Found at Index: 2
```

Binary Search in c

```
#include <stdio.h>
int binarySearch(int arr[], int left, int right, int x) {
while (left <= right) {
int mid = left + (right - left) / 2;
if (arr[mid] == x)
return mid;
if (arr[mid] < x)
left = mid + 1;
else
right = mid - 1;
}
return -1;
}
int main() {
int arr[] = {2, 3, 4, 10, 40};
int n = sizeof(arr) / sizeof(arr[0]);
int x = 10;
int result = binarySearch(arr, 0, n - 1, x);
if (result != -1)
printf("Element is present at index %d\n", result);
else
printf("Element is not present in array\n");
return 0;
}
```

o/p

```
Element is present at index 3
```
