

NAME

lsearch, **lfind** - linear search and append

LIBRARY

Standard C Library (libc, -lc)

SYNOPSIS

```
#include <search.h>
```

```
void *
```

```
lsearch(const void *key, void *base, size_t *nelp, size_t width,  
        int (*compar)(const void *, const void *));
```

```
void *
```

```
lfind(const void *key, const void *base, size_t *nelp, size_t width,  
        int (*compar)(const void *, const void *));
```

DESCRIPTION

The **lsearch()** and **lfind()** functions walk linearly through an array and compare each element with the one to be sought using a supplied comparison function.

The *key* argument points to an element that matches the one that is searched. The array's address in memory is denoted by the *base* argument. The width of one element (i.e., the size as returned by **sizeof()**) is passed as the *width* argument. The number of valid elements contained in the array (not the number of elements the array has space reserved for) is given in the integer pointed to by *nelp*. The *compar* argument points to a function which compares its two arguments and returns zero if they are matching, and non-zero otherwise.

If no matching element was found in the array, **lsearch()** copies *key* into the position after the last element and increments the integer pointed to by *nelp*.

RETURN VALUES

The **lsearch()** and **lfind()** functions return a pointer to the first element found. If no element was found, **lsearch()** returns a pointer to the newly added element, whereas **lfind()** returns NULL. Both functions return NULL if an error occurs.

EXAMPLES

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

```
static int
element_compare(const void *p1, const void *p2)
{
    int left = *(const int *)p1;
    int right = *(const int *)p2;

    return (left - right);
}

int
main(int argc, char **argv)
{
    const int array[10] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
    size_t element_size = sizeof(array[0]);
    size_t array_size = sizeof(array) / element_size;
    int key;
    void *element;

    printf("Enter a number: ");
    if (scanf("%d", &key) != 1) {
        printf("Bad input\n");
        return (EXIT_FAILURE);
    }

    element = lfind(&key, array, &array_size, element_size,
        element_compare);

    if (element != NULL)
        printf("Element found: %d\n", *(int *)element);
    else
        printf("Element not found\n");

    return (EXIT_SUCCESS);
}
```

SEE ALSO

bsearch(3), hsearch(3), tsearch(3)

STANDARDS

The **lsearch()** and **lfind()** functions conform to IEEE Std 1003.1-2001 ("POSIX.1").

HISTORY

The **lsearch()** and **lfind()** functions appeared in 4.2BSD. In FreeBSD 5.0, they reappeared conforming to IEEE Std 1003.1-2001 ("POSIX.1").