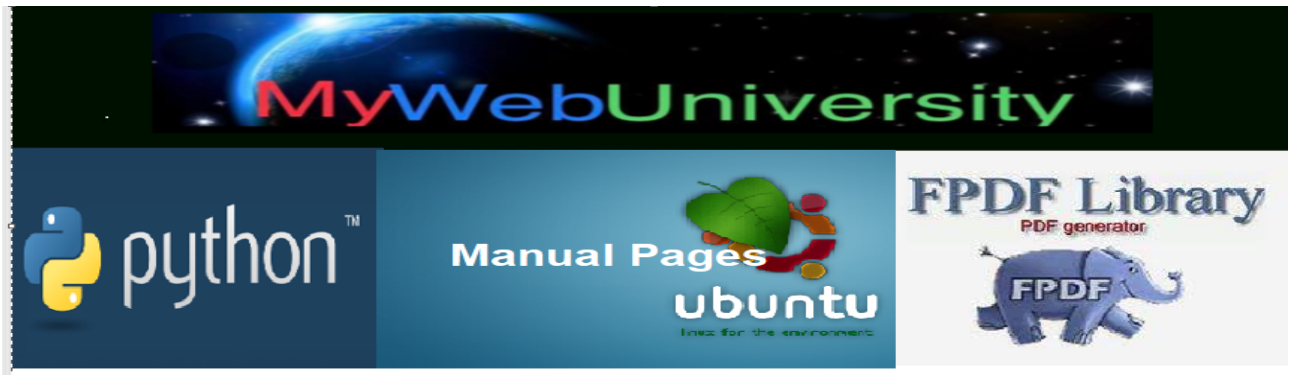

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Linux Ubuntu 26.04 Manual Pages on command 'bsearch.3'

$ man bsearch.3

bsearch(3) Library Functions Manual bsearch(3)

NAME

bsearch - binary search of a sorted array

LIBRARY

Standard C library (libc, -lc)

SYNOPSIS

```
#include <stdlib.h>

void *bsearch(size_t n, size_t size;
        const void key[size], const void base[size * n],
        size_t n, size_t size,
        typeof(int (const void [size], const void [size]))
          *compar);
```

DESCRIPTION

The bsearch() function searches an array of n objects, the initial member of which is pointed to by base, for a member that matches the object pointed to by key. The size of each member of the array is specified by size.

The contents of the array should be in ascending sorted order according to the comparison function referenced by compar. The compar routine is expected to have two arguments which point to the key object and to an array member, in that order, and should return an integer less than, equal to, or greater than zero if the key object is found, respectively, to be less than, to match, or be greater than the array member.

RETURN VALUE

The bsearch() function returns a pointer to a matching member of the array, or NULL if no

match is found. If there are multiple elements that match the key, the element returned is unspecified.

ATTRIBUTES

For an explanation of the terms used in this section, see attributes(7).

Interface	Attribute	Value
bsearch()	Thread safety	MT-Safe

STANDARDS

C11, POSIX.1-2008.

HISTORY

POSIX.1-2001, C89, C99, SVr4, 4.3BSD.

EXAMPLES

The example below first sorts an array of structures using qsort(3), then retrieves desired elements using bsearch().

```
#include <stdcountof.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
struct mi {
    int         nr;
    const char  *name;
};
static struct mi  months[] = {
    { 1, "jan" }, { 2, "feb" }, { 3, "mar" }, { 4, "apr" },
    { 5, "may" }, { 6, "jun" }, { 7, "jul" }, { 8, "aug" },
    { 9, "sep" }, {10, "oct" }, {11, "nov" }, {12, "dec" }
};
static int
compmi(const void *m1, const void *m2)
{
    const struct mi *mi1 = m1;
```

```
    const struct mi *mi2 = m2;
    return strcmp(mi1->name, mi2->name);
}
int
main(int argc, char *argv[])
{
    qsort(months, countof(months), sizeof(months[0]), compmi);
    for (size_t i = 1; i < argc; i++) {
        struct mi key;
        struct mi *res;
        key.name = argv[i];
        res = bsearch(&key, months, countof(months),
                      sizeof(months[0]), compmi);
        if (res == NULL)
            printf("'%s': unknown month\n", argv[i]);
        else
            printf("%s: month #%d\n", res->name, res->nr);
    }
    exit(EXIT_SUCCESS);
}
```

SEE ALSO

hsearch(3), lsearch(3), qsort(3), tsearch(3)