

**NAME**

bsearch – binary search of a sorted array

**SYNOPSIS**

```
#include <stdlib.h>

void *bsearch(const void *key, const void *base,
              size_t nmemb, size_t size,
              int (*compar)(const void *, const void *));
```

**DESCRIPTION**

The **bsearch()** function searches an array of *nmemb* 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
<b>bsearch()</b>	Thread safety	MT-Safe

**CONFORMING TO**

POSIX.1-2001, POSIX.1-2008, C89, C99, SVr4, 4.3BSD.

**EXAMPLE**

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

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

struct mi {
    int nr;
    char *name;
} 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" }
};

#define nr_of_months (sizeof(months)/sizeof(months[0]))

static int
compmi(const void *m1, const void *m2)
{
    struct mi *mi1 = (struct mi *) m1;
    struct mi *mi2 = (struct mi *) m2;
    return strcmp(mi1->name, mi2->name);
}
```

```
int
main(int argc, char **argv)
{
    int i;

    qsort(months, nr_of_months, sizeof(struct mi), compmi);
    for (i = 1; i < argc; i++) {
        struct mi key, *res;
        key.name = argv[i];
        res = bsearch(&key, months, nr_of_months,
                      sizeof(struct mi), 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)**

**COLOPHON**

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