

**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.

**CONFORMING TO**

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

**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 monthn, argv[i]);
    else
        printf("%s: month #%%dn, res->name, res->nr);
    }
    exit(EXIT_SUCCESS);
}
```

**SEE ALSO**

[hsearch\(3\)](#), [lsearch\(3\)](#), [qsort\(3\)](#), [tsearch\(3\)](#)

**COLOPHON**

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