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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