tcasemap.c

```
/* Tests the case-mapping functions */

#include <ctype.h>
#include <stdio.h>

int main(void)
{
  char *p;

  for (p = "aA0!"; *p != '\0'; p++) {
    printf("tolower('%c') is '%c'; ", *p, tolower(*p));
    printf("toupper('%c') is '%c'\n", *p, toupper(*p));
  }
  return 0;
}
```

The program produces the following output:

```
tolower('a') is 'a'; toupper('a') is 'A'
tolower('A') is 'a'; toupper('A') is 'A'
tolower('0') is '0'; toupper('0') is '0'
tolower('!') is '!'; toupper('!') is '!'
```

23.6 The <string.h> Header: String Handling

We first encountered the <string.h> header in Section 13.5, which covered the most basic string operations: copying strings, concatenating strings, comparing strings, and finding the length of a string. As we'll see now, there are quite a few string-handling functions in <string.h>, as well as functions that operate on character arrays that aren't necessarily null-terminated. Functions in the latter category have names that begin with mem, to suggest that these functions deal with blocks of memory rather than strings. These memory blocks may contain data of any type, hence the arguments to the mem functions have type `void *` rather than `char *`.

<string.h> provides five kinds of functions:

- *Copying functions.* Functions that copy characters from one place in memory to another place.
- *Concatenation functions.* Functions that add characters to the end of a string.
- *Comparison functions.* Functions that compare character arrays.
- *Search functions.* Functions that search an array for a particular character, a set of characters, or a string.
- *Miscellaneous functions.* Functions that initialize a memory block or compute the length of a string.

We'll now discuss these functions, one group at a time.