Chapter 15 and 16

Lab1516.

In this assignment you will obtain experience with strings and pointers by designing and implementing your version of several string library functions. You are to implement the following functions:

int Length(char \*s);

This function returns the length of the null-terminted character string s.

char \*FindChar(char \*s, char c);

This function returns a pointer to the first occurrence of character c in string s. If there is no occurrence, NULL is returned. The character string s is assumed to be null terminated.

int Compare(char \*s1, char \*s2);

This function returns an integer based on comparing the null-terminated character strings s1 and s2. If the strings are equal, zero is returned. If not, a positive (negative) integer is returned if s1 is lexicographically greater (less) than s2.

char \*Copy(char \*s1, char \*s2);

This function copies character string s2 to s1, including the null character. It is assumed that s1 has been allocated enough memory. A pointer to character string s1 is returned.

char \*CopyN(char \*s1, char \*s2, int n);

This function copies at most *n* characters of character string s2 to s1. After the copy, character string s1 is always null terminated if the length of s2 is less than *n* (make sure that you stop copying after the null character of s2 if *n* is greater than the length of s2). Otherwise, s1 may or may not be null terminated, depending on the length of s1 before the copy. A pointer to character string s1 is returned.

char \*Dup(char \*s);

This function returns a pointer to a new character string that is a duplicate of character string s. The space for the new string should be allocated using new; if there is no space available, NULL is returned.

char \*Concat(char \*s1, char \*s2);

This function appends a copy of character string s2 to the end of character string s1. The character string s1 should be null terminated. A pointer to s1 is returned. It is assumed that s1 is large enough to hold the concatenated string.

char \*NewConcat(char \*s1, char \*s2);

This function creates a new string that is the result of concatenating character strings s1 and s2. A pointer to the new string is returned. The space for the new string should be allocated using new; if there is no space available, NULL is returned.