UCS 1211 PROGRAMMING IN C LABORATORY
A4: String Operations in C

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Learning Outcome   :
To be proficient in handling strings in C
> a) string operations
> b) passing strings to a function

To learn modular and incremental programming.

Write the algorithm to solve the following problems and implement them in C. Solving first problem and any 3from problems 2-5is mandatory. You are encouraged to solve all the problems

1. Implement any three of the following functions. Write the required functions such as strlen(str), isUpper (ch), toLower (ch), toUpper (ch) without using library functions. You are encouraged to implement all the functions.

a. strcat	(str1, str2)	Appends str2 to str1
b. strncpy	(dest, src, n)	Copies up to n characters from src to dest string
c. strchr	(str1, ch)	Scans the string str1 for the first occurrence of the character ch and returns the position
d. strset	(str1, ch)	Sets all characters in the string str1 to the character ch
e. strcmpi	(str1, str2)	Compares str1 and str2 ignoring the case sensitivity and returns -1/0/1
f. strncat	(dest, src, n)	Copies atmost n characters of src to the end of dest string

2. Write a program to search the last occurrence of a substring in a given string.

3. Write a program which replaces a substring with another in a given line of text.

4. Write a program to reverse a string without using the library function. No extra string should be used and the source string itself should be modified to store the reversed string. Number of exchanges should be minimum.

5. Write an interactive C program that will encode or decode a line of text. To encode a line of text, proceed as follows.
    1. Convert each character, including blank spaces, to its ASCII equivalent.
    2. Generate a positive random integer. Add this integer to the ASCII equivalent of each character. The same random integer will be used for the entire line of text.

3. Suppose that N1 represents the lowest permissible value in the ASCII code, and N2 represents the highest permissible value. If the number obtained in step 2 above (i.e., the original ASCII equivalent plus the random integer) exceeds N2, then subtract the largest possible multiple of N2 from this number, and add the remainder to N1. Hence the encoded number will always fall between N1 and N2, and will therefore always represent some ASCII character.
4. Display the characters that correspond to the encoded ASCII values.

The procedure is reversed when decoding a line of text. Be certain, however, that the same random number is used in decoding as was used in encoding.

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If you try to solve problems yourself, then you will learn many things automatically.
Spend few minutes and then enjoy the excitement of problem solving.
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