CSE108
LW 10

- **Using mobile phones, flash disks, internet and any other record or communication media is strictly forbidden during lab sessions. Throughout a lab session, all such media must be kept turned off and in a closed environment. Violation of this rule is punished with a grade 0, -100 or worse. Before doing anything else, make sure that your computer is not attached any such media.**
- **Make sure that you have deleted all of your work PARMANENTLY before leaving the first sessions.**

PART-I (1 PT)

- Write a recursive function that prints a string on the console using printf with "%c" format specifier only. This function should have the following prototype:

  void printStr(char str[])

- Write a recursive function that prints a string in reversed order on the console using printf with "%c" format specifier only. Its return value is the number of characters in the string. This function should have the following prototype:

  int printReversedStr(char str[])

  Do not use any string library function. Do not use any loop. Test your functions with your name.

PART-II (1 PT)

- Write a recursive function that compares 2 given strings. It should return 0 if they are the same and 1 if they are different. This function should have the following prototype:

  int cmpStrRec(char str1[], char str2)

  Test your function with the following couples of strings:

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PART-III (1 PT)

- Write a recursive function that determines if a given string is an element of a given string array. If it is, the return value is the address of its first occurrence, otherwise the return value is a null pointer. Use cmpStrRec() as a helper function. This function should have the following prototype:

  char* getElement(char strArr[][10], char str[])

Testing:

1. Construct the following string array:

C	o	m	p	u	t	e	r		
P	e	n	c	i	l				
P	e	n	c	i	l				
P	e	n							
B	o	o	k						
B	a	g							
P	e	n	c	i	l				
M	o	u	s	e					
B	o	o	k						
P	e	n	c	i	l				

2. Write a function to print this array
3. In main():
    a. Print the initial form of this array
    b. Search “Pencil” in the array
    c. Replace it with an empty string
    d. Print the array again
4. Repeat step 3-b,c,d for the string “Train”

BONUS PART (1 PT)

- Write a recursive function that replaces all occurrences of a search string in a string array with a given replace string. Use getElement() as a helper function. You can also use strcpy function of String.h library or write an equivalent helper function. The return value is 1 if the function realizes a search-replace operation and 0 otherwise. This function should have the following prototype:

    int findAndReplace(char strArr[][10], char searchStr[], char replaceStr[])

    Note that, for full credit, this function should be able to handle the case where search string and replace string are the same.

    Testing:

1. In main():
    a. Print the initial form of the string array
    b. Replace all occurrences of “Pencil” in the array with “***”
    c. Print the array again
    d. Replace “***” with an empty string
    e. Print the array again
2. Repeat step 3-b,c for the following search & replace string couples:
        i. “Train” , “XXX”
        ii. “Book”, “Book”

BONUS PART (1 PT)

Without changing its prototype modify **findAndReplace()** such that its return value becomes the number of find & replace operations it performs.