Department of Electrical and Computer Engineering, NSU
CSE 115L: Fundamentals of Computer Programming
Week 07 (Strings)

Strings: Strings are actually one-dimensional array of characters terminated by a null character '\0'. Thus a null-terminated string contains the characters that comprise the string followed by a null

Declaration & Initialization of strings

Strings are declared in C in similar manner as arrays. Only difference is that, strings are of char type:

char s[5];

In C strings can be initialized in many ways:

```
char c[ ]="abcd";
    OR,
char c[5]="abcd";
    OR,
char c[ ]={'a','b','c','d','\0'};
    OR;
char c[5]={'a','b','c','d','\0'};
```

a	b	c	d	\0

When, compiler encounters strings, it appends null character at the end of string

(String declaration, input and output)

```
#include<stdio.h>
int main()
{
    char str[10];
    char name[20];
    int i;

//Taking Inputs with Loop
    for(i=0; i<5; i++)
    {
        fflush(stdin);
        printf("Enter character:");
        scanf("%c",&str[i]);
    }
    printf("%s",str);

//Taking Inputs without loops
    printf("\nEnter string:");
    scanf("%s", name);
    printf("%s", name);
    fflush(stdin);

//Taking string with space in between using gets & puts
     printf("\nEnter string2:");
     gets(name);
     puts(name);

    return 0;
}
```

(C supports a wide range of functions that manipulate null-terminated strings)

strcpy(s1, s2) - Copies string s2 into string s1. **strcat(s1, s2) -** Concatenates string s2 onto the end of string s1. **strlen(s) -** Returns the length of string s.	**strcmp(s1, s2)-** Returns 0 if s1 and s2 are the same; less than 0 if s1<s2; greater than 0 if s1>s2. **strchr(s1, ch)-** Returns a pointer to the first occurrence of character ch in string s1. **strstr(s1, s2)-** Returns a pointer to the first occurrence of string s2 in string s1.

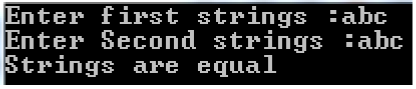
Example: strlen(str), strcat(str1,str2) & strcpy(str1,str2) function in C

```
#include<stdio.h>
#include<string.h>

int main()
{
   char str1[10],str2[10],str3[20];
   int len;

   printf("Enter String 1:");
   gets(str1);
   printf("Enter String 2:");
   gets(str2);

   len=strlen(str1);
   printf("The length of the string 1 is: %d\n", len);

   strcat(str1,str2);
   printf("%s\n",str1);

   strcpy(str3,str1);
   printf("%s",str3);

   return 0;
}
```

Task (10 marks)

1. Take two string inputs, calculate lengths of both (without using strlen()) and display the smaller one.

2. Write a program to compare two strings without using C library function.



```
Enter first strings :abc
Enter Second strings :abc
Strings are equal
```

3. Declare two strings A and B of size 100 and 50, respectively. Then take user input of both strings. Concatenate (join) B at the end of A using loop. Display the concatenated string.

Enter first string: Bangla
Enter second string: desh
After joining, first string: Bangladesh

4. Check whether an input string is palindrome or not. A string is a palindrome if it remains the same after you reverse it. For example, “racecar”, “level”, “12321”, “madam” etc.

```
Enter a string: racecar
It’s a palindrome
```

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