



GONO BISHWABIDYALAY
A UNIVERSITY WITH A DIFFERENCE

Course Code: CSE – 1103

Course Title: Structure Programming Language

Assignment 03

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1. Define String and Array with example ?

String :-

In programming, a string is a sequence of characters terminated with a null character ($\backslash 0$). For example;

```
char s[] = "is a string";
```

When the compiler encounters a sequence of characters enclosed in the double quotation marks, it appends a null character ($\backslash 0$) at the end by default.

Array

Array :-

In programming an array is a variable that can store multiple values. For example, if you want to store 100 integers, you can create an array for it.

For declare an array you should follow this rules

dataType arrayName[array size]

Example

```
float mark[5];
```

2. Write down the details of the following predefined function of string: `strcat()`, `strcmp()`, `strcpy()` and `strlen()` ?

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Strcat :-

In the C programming language the `strcat` function appends a copy of the string pointed to by `s2` to the end of the string pointed to by `s1`. It returns a pointer to `s1` where the resulting concatenated string resides.

strcmp :-

In "C" programming the `strcmp` function compares two strings and returns 0 if both strings are identical.

The `strcmp()` function takes two strings and returns an integer.

strcpy :-

In "C" programming language the strcpy function copies the string pointed by source to the destination.

The strcpy function also returns the copied string.

```
char* strcpy(char* destination, const char* source)
```

strlen :-

In "C" programming the strlen() function takes a string as an argument and returns its length. The return value is of type size_t. It is defined in the <string.h> header file.

3. What is recursion? Describe recursion with example ?

A function that calls itself is known as a recursion function. And, this technique is known as recursion.

The recursion continues until some condition is met to prevent it. To prevent infinite loop, if-else statement can be used where one branch makes the recursive call, and other doesn't.

Example :-

```
#include <stdio.h>
int sum (int n);
int main () {
    int number, result;
    printf("Enter a positive integer");
    scanf ("%d", &number);
    result = sum (number);
    printf ("Sum = %d", result);
    return 0;
```

```
}
int sum (int n) {
    if (n != 0) {
        return n + sum (n-1);
    } else {
        return n;
    }
}
```


4. What are the differences between array and structure?

Difference between Structure and Array	
Array	Structure
Array refers to a collection consisting of elements of homogenous data type.	Structure refers to a collection consisting of elements of heterogeneous data type.
Array uses subscripts or "[]" for element access.	Structure uses "." for element access.
Array is pointer as it points to the first element of the collection.	Structure is not a pointer.
Instantiation of Array is not possible.	Instantiation of structure is possible.
Array is a primitive datatype.	Structure is a user defined datatype.

5. Write a C program to find the numbers between 1 to 150 that are divisible by 3 or 7 ?

5

```
#include <stdio.h>

int main () {
    for (int i = 1; i <= 150; i++) {
        if (i % 3 == 0 || i % 7 == 0) {
            printf("%d", i);
        }
    }
    return (0);
}
```