String

String is different from collection of characters

Char Name [5] = {‘H’, ‘e’, ‘l’, ‘l’, ‘o’};

The string is a collection of characters that end with null

The null is the first ascii value which is not used in any programming concepts.

So, while we are declaring a string, we need to give an extra size for null

Char Name [6] = {‘H’, ‘e’, ‘l’, ‘l’, ‘o’, ‘\0’};

Char Name [6] = “Hello”;

Char Name [] = “Hello World”;

Char Str1[21];

For 2d arrays columns are mandatory but row is not mandatory

Char Name [][20];

Char Name [10][20];

/\*\*\*\*\*\*\*\*\*\*

Q. While sacnf of string we do not give & .Why?

Scanf(“%s”, &Name[0]); //BA

Scanf(“%s”, &\*(Name+0)); // other way of array representation

Scanf(“ %s”, &\*(Name));

Scanf(“%s”, Name)); // &\* --nullify each other

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What is the importance of null character?

Let us take an example

/// Stack smashing occurs

Char Name[5];

For(int i=0;i<5;i++)

Scanf(“%c”,&Name[i]); // input is Bhimashankartest01 test 03(more values)

Printf(“Name); -🡪core dumped as there’s no null character it fetches data from unreserved space and there is a stack segmentation

There will be a segmentation fault for sacnf also when we give an null char and printf works properly

<string.h>

1. Strcpy() /// go through p3.c

Returns base address of destination. The null is not copied but after coping the null is added by src

Consider that while printing the value of string using pointer we should

1. Strcat() ///p4.c

S1->dest,s2->src

S1s2 . Returns base address of destination.

Destination must have more size that fits source and destination

Strcat(dest,src)

Strncat(dest,src,n) 🡪to concatenate few characters

1. Strcmp()

Strcmp(s1,s2)

Strncmp(s1,s2,n)

Returns an integer less than, equal to, greater than zero

Checks the string character by character Ascii value. Whenever there’s a mismatch it terminates

S1< s2 (ascii value) : less than 0

S1== S2: 0

S1> s2 (ascii value): greater than 0

E.g.: strcmp(s1,s2)

/\*\*\*\*\*\*\*\*\*\*\*\* Read about these \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

Memset

Memcpy

Strchr 🡺gives the first occurrence of char in string

Strrchr 🡪from last

Strstr(string,sub) (gives the first occurrence of substring in string)

Returns the location of that address //p5.c

Strtok

Strlen (gives without null characters present in string)

Strerror

strsep

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Strtok(string,delim)

The strtok() function breaks a string into a sequence of zero or more nonempty tokens. The delim argument specifies a set of bytes that delimit the tokens in the parsed string.

// Online C compiler to run C program online

#include <stdio.h>

#include<string.h>

int main() {

char s1[400],s2[20];

char Names[10][20];

char \*ptr=NULL;

printf("\n Enter the string:");

scanf("%[^\n]s",s1); // capture until the new line

ptr= strtok(s1,",");

printf("\nptr=%s",ptr);

printf("\n");

count =0;

while(ptr!=NULL)

{

printf("\nptr=%s", ptr);

ptr=strtok(“NULL, “,”); // We can even have another delimeter here

strcpy(Names[count],ptr);

count++;

}

return 0;

}

Strtok(NULL, “|”) means it should reach to null or delimeter

The first line of strtok should be outside the loop.

* Assignment operator doesnot work on strings

A skeleton without soul is a class

An object is with soul (has space/memory)

//Stream

User Defined Datatypes

Used to declare multiple variables of our own. Multiple Datatypes together

We want to create multiple of that type

1. Structures
2. Unions
3. Enum

Struct tagName

{

Members of structure / elements/properties

};

E.g.: struct square struct chair

{ {

Int Len; int Legs; char make [20]; char material [20];

Int breadth; float price; char DOM [20];

} s4, s5; };

Struct square s1, s2, s3, sq [10];

Like if we give s4, s5 they are fixed we cannot create extra variables.

Void func (struct square s) // passing structure as parameter.

typedef struct square SQR // should be in CAPS it defines that it is done typedef

SQR s7, s8;

void func(SQR s)

typedef struct square

{

Int len;

Int breadth;

}SQR; // Here it is not a variable but a shortcut/ typedef of structure

Accessing members in 2 ways

1. .
2. ->

If it is static variable (.)

If it is pointer variable (->)

E.g.: s1.len

S2->len (SQR \*s2)

In structure we cannot define a function. We can have nested structures

Structure Padding

In memory pages let us take an example in one page theres only 6 bytes and we need to to allocate 8 bytes(4char+4 float). Then the first 4 are in the page and leaves the 2 bytes and moves to next page. And then when we do the length we get it as 10 bytes(including the left)

So to avoid structure padding

We need to define all char at once and then all number types at once