* An array in C is a fixed -size collection of similar

data items stored in contiguous memory location. of It can be used to store the collection of primitive data types such as int, char, float, etc and also

derived and user-defined data types such as pointers, structures etc. magge of > count oid

+ C Array declaration:

* Syntax of Array declaration:-

data-type array_name [size];

data-type array_name[size 1] [size 2] __ [sizeN]; where N is the number of dimensions

of the carrays are static in nature i.e. they are allocated memory at the compile time.

include cstdio. h) = [] amon - pomo

int main()

// declaring array of integers.

```
of the second second second
  int arm int [8];
  1/declaring array of characters.
   Chair arrichar (57; 1011- blooms) sold mod into
  return 0;
                      - 1 sections of all provided 2-
- Carray Initiatization:
* When the array is declared or allocated memory,
the element of the array contain some
garbage value
12 Array initialization with declaration:
* An initializer list is the list of values enclosed
  within braces < & separated by commas
  data-type array-name [size]= {value1, value2, --,
                 - Coothrobon framents:
27. Array initialization with declaration without
# The Size of the array in these cases is equal
   to the number of elements presents in the
    initializer list as the compiler can automatically
    deduce the size of the array
   data-type array-name[] = <1,2,3,4,5>2, shinking
3/2 Array initialization after Declaration:
```

(Using Loop) to promo promotor

```
tor (intifficial ich; it) in to more of the
 <aray_name (i) = valuei;
         printy (" Element at anila), har only
#indudecstdio.h>
int main ()
  int arr [5] = <10,20,30,40,507.;
   int arr1[] = <42,3,4,57;
   float arr2[5];
   for (int i=0; i < 5; i++)
     arra(i) = (float)i, +2±;
    return 0;
                     w largement point a ra
 - Access array elements:
* array -name [index];
 of indexing in the array always starting with o, i.e.
  the first element is at index o and the last
    element is at N-1 where N is the number of
    elements in the array.
 #include <stdio.h>
                                  KARISTA DENDONIN
  int maln ()
   int arr[5] = < 15, 25, 35, 45, 55 /;
```

```
Prints (" Element at arr [2]: 1,d \n", arr [2]);
    Printf (" 151 ement at arr [4]: 1.d \n", orr [4]);
    printf(" Element at arr[0]; %d", arr(0]);
    return 0;
  Output;-
   Element at arr [2] :35
   Element at arr[4]:55
   Element at arr [0]:15
            array element:
- Upaale
orray-name [i] = new_value; toll = [i] enc
-> C Array traversal:
of for c, array traversal, we use loops to iterate
    through each element of the array
 for (int i=0; i < N; i++)
                               ( Exobal) sman ( Endex) ;
                    indexing in the array along
   array-name [i];
     program to demonstrate the use of array
 #include < stdio.h>
                                    ( milete a phylania)
 int man ()
                            7 A 36 178 171 × = [2] 100 40
   Marray declaration
                     and initialization
```

```
int arr[5] = <10,20,30,40,50%;
    11 modifying element at index 2
    our [5] =100,
     11 traversing array using for loop.
     print-f(" Elements in Array: ");
        tor (int- i = 0; i, <5; i++)
                   (++i { 75 | { 0 1 | 61)
          brint ( " ", q ", arr [i]);
                     ((1) 110, "bx" of taken
         return 0;
 Output:
  Flements in Array: 10 20 30 100 40 50
-> Types of Array in C: - Point to Tommers
 17. One dimensional Array in C:-
of 10 arrays in c are those hoive only one-dimension
                           and ct would be
* syntax:-
             ornindz hallons
                          character There are
   array_name [size];
@. 11 c program to illustrate the use of 10 array.
 #include < stdio. h>
int main ()
```

1/ 1d array declaration

int arr [5])

```
// 1d Array initialization using for 100p.
      for (int i=0; i <5; i++)
        arr [i] = i*i -2*i+1;
       printf (" Elements of Array: ");
      1/ printing Ld array by traversing using for loop
      for (int i=0; i<5; i++)
       O THELLT
       return 0;
                             GonA- n
   Element of Array: LO 149.
-> Arrays of character (strings):-
* A sequence of characters in the form of an
   array of characters terminated by a NULL
    character. These are called strings in C language
#include(stdio.h)
                         Hortzwill of margary Dill its
int moun ()
  11 creating array of character
                                  's', '10'};
   char com[&] = {'q', 'e', 'e', 'k',
  // printing string,
```

```
int 1=0;
  while (am [i]) <
     printf ("%c", arr [i++]);
   return 0;
  Output:
                                            5 mil 34
  Geeks.
 27. Multidimensional Array in C:-
 Ar. Two-Dimensional Array in C:-
 * They can be visualized in the form of rows
    and columns organized in a two-dimentional
    plane.
 > syntax of 20 Array in C!-
(*). array_name [size] (size 2);
        Sizel: Size of the first dimension.
        Size 2: Size of the second dimension
                                 = (3)(1)(5) 100
 #include(stdio.h)
 int main ()
   11 declaring and initializing 2d array.
   int arr [2](3) = \(\frac{10,20,30,40,50,607;}{}
   byutt (,50 Viral 1/1,1);
                                bill of the tra
   11 printing 2d Array
                                     av ) thinks
```

```
for (int i=0', i<2', i++) <
    tor (in+j=0; j <3; j++) <
        brint ("1 x q ", arr[i][j]);
  > bujutt ("/");
                                       . dedion
  return o;
Output!
 20 Array:
 10 20 30
40 Fo from of sel of brillionaly ou and post of
Br. Three- Dimensional Array in C:-
* array_name [size] [size] [size];
母include < Stdio.hフ
                        corray mame [stich] ( sice 2) }
int main()
  1/30 array declaration
  int am [2][2][2] = <10,20,30,40,50,60);
  1/printing elements.
  for (int i=0; i22; i+t) <
    for (int j=0; ) j <2; j ++) <
      tor (int k=0; K <2; k++) < (5) 15)
       printf["".d", arr[i][j][k]);
   > printf ("\n");
```

```
printf ("In In");
Output:
     20
 10
     40
 30
     60
 50
 0
-> Relationship between Arrays and Pointers:
# include <stdio.h>
 int main ()
  int arr[5] = (10,20,30,40,50);
   int + pt = & arr[0];
  Accomparing address of first element and address
    stored #1.
    11 inside array name
   printf (" Address Stored in Array name: 1.pln
     Address of "" 1st Array element: 1.pin",
      ar , &arr (0));
                                using pointers
               array element
    11 printing
                                using pointer : ");
      print f (" Array elements
     to (int i=0; ics; i++) <
          print (" % d" , + ptr ++);
      return 0;
```

```
Output:-
                               ( (a/ 12/ ) / 1/6 in "
 Address stored in Array name: 0x7ffca667d8e0
 Address of 1st Array Element: 0 x7 ffca6 670 800
 Array elements using pointer: 10 20 30 40 50.
> Passing an Array to afunction in C:-
# include < stdio. h>
 void print Array (int arr [])
  printf ("size of Array in functions; Vid In",
        Size of (am));
                               A include estato by
 printf ("Array element :");
 for (int i=0; i <5; i++) <
       print ( " / d", am [i]); [ ( ) ) ( ) ( )
  recompanion of colders of first element and add &
int main ()
 int au[2] = <10, 50,30,40,50 %;
  print ("size of Array in main (): ".d \n",
     Size of (arr));
                              an , gan (all)
  print Array (arr);
 return of
                     > ( F + 1 17 > 1 10 - 1 1 m)
output!
       Array in main() = 2019
      of Array in Function: 8
 Array Elements : 10 20 30 40 10
```

```
-> Return an Array from a function
                           (Milliand Obl Harris
#in clude astdio.h>
//function
int + funcl)
          int ar(5) = <1,2,3,4,5%;
  return an;
                           ((11) "O . " b. K") flaton
int main ()
                                           10 and gr
            FIFE & Studet
  in- *ptr = func();
  printf ("Array Elements: ");
  tor (int i=o; ict ; itt) <121 0 6 2 1 changes point
      bsivt(,, a1, *bp. ++);
                                Kigs Hindurde estaio. 6>
   return 0;
Output! - id intromate to indone sale ments fraka
  Array element : 12345.
-> Examples of array in C:
# include < stdio. h>
11 c program to perform input and output on array
int main ()
              on integer arry.
in aulili
```

```
tor (int i=0; i <5; i+t) <

Scant ("Y.d", &arr[i]);

>

//printing array element.

Printf ("Array element: ");

tor (int i=0; i <5; i+t) <

Printf ("Y.d", arr [i]);

>

return 0;

Input! - 5 7 9 14.

Output:-

Array Elements: 57 9 14
```