C Pointer [22 exercises with solution]

[*An editor is available at the bottom of the page to write and execute the scripts.*]

**1.**Write a program in C to show the basic declaration of pointer.   
*Expected Output* :

Pointer : Show the basic declaration of pointer :

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Here is m=10, n and o are two integer variable and \*z is an integer

z stores the address of m = 0x7ffd40630d44

\*z stores the value of m = 10

&m is the address of m = 0x7ffd40630d44

&n stores the address of n = 0x7ffd40630d48

&o stores the address of o = 0x7ffd40630d4c

&z stores the address of z = 0x7ffd40630d50

**2.**Write a program in C to demonstrate how to handle the pointers in the program.   
*Expected Output* :

Address of m : 0x7ffcc3ad291c

Value of m : 29

Now ab is assigned with the address of m.

Address of pointer ab : 0x7ffcc3ad291c

Content of pointer ab : 29

The value of m assigned to 34 now.

Address of pointer ab : 0x7ffcc3ad291c

Content of pointer ab : 34

The pointer variable ab is assigned with the value 7 now.

Address of m : 0x7ffcc3ad291c

Value of m : 7

**3.**Write a program in C to demonstrate the use of &(address of) and \*(value at address) operator.   
*Expected Output* :

Pointer : Demonstrate the use of & and \* operator :

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m = 300

fx = 300.600006

cht = z

Using & operator :

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address of m = 0x7ffda2eeeec8

address of fx = 0x7ffda2eeeecc

address of cht = 0x7ffda2eeeec7

Using & and \* operator :

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value at address of m = 300

value at address of fx = 300.600006

value at address of cht = z

Using only pointer variable :

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address of m = 0x7ffda2eeeec8

address of fx = 0x7ffda2eeeecc

address of cht = 0x7ffda2eeeec7

Using only pointer operator :

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value at address of m = 300

value at address of fx= 300.600006

value at address of cht= z

**4.**Write a program in C to add two numbers using pointers.   
Test Data :  
Input the first number : 5  
Input the second number : 6  
*Expected Output* :

The sum of the entered numbers is : 11

**5.**Write a program in C to add numbers using call by reference.   
Test Data :  
Input the first number : 5  
Input the second number : 6  
*Expected Output* :

The sum of 5 and 6 is 11

**6.**Write a program in C to find the maximum number between two numbers using a pointer.   
Test Data :  
Input the first number : 5  
Input the second number : 6  
*Expected Output* :

6 is the maximum number.

**7.**Write a program in C to store n elements in an array and print the elements using pointer.   
Test Data :  
Input the number of elements to store in the array :5  
Input 5 number of elements in the array :  
element - 0 : 5  
element - 1 : 7  
element - 2 : 2  
element - 3 : 9  
element - 4 : 8  
*Expected Output* :

The elements you entered are :

element - 0 : 5

element - 1 : 7

element - 2 : 2

element - 3 : 9

element - 4 : 8

**8.**Write a program in C to print all permutations of a given string using pointers.   
*Expected Output* :

The permutations of the string are :

abcd abdc acbd acdb adcb adbc bacd badc bcad bcda bdca bdac cbad cbda cabd cadb cdab cdba dbca dbac dcba dcab dacb dabc

**9.**Write a program in C to find the largest element using Dynamic Memory Allocation.   
Test Data :  
Input total number of elements(1 to 100): 5  
  
Number 1: 5  
Number 2: 7  
Number 3: 2  
Number 4: 9  
Number 5: 8  
*Expected Output* :

The Largest element is : 9.00

**10.**Write a program in C to Calculate the length of the string using a pointer.   
Test Data :  
Input a string : KDNinfotech  
*Expected Output* :

The length of the given string w3resource

is : 11

**11.**Write a program in C to swap elements using call by reference.   
Test Data :  
Input the value of 1st element : 5  
Input the value of 2nd element : 6  
Input the value of 3rd element : 7  
*Expected Output* :

The value before swapping are :

element 1 = 5

element 2 = 6

element 3 = 7

The value after swapping are :

element 1 = 7

element 2 = 5

element 3 = 6

**12.**Write a program in C to find the factorial of a given number using pointers.   
Test Data :  
Input a number : 5  
*Expected Output* :

The Factorial of 5 is : 120

**13.**Write a program in C to count the number of vowels and consonants in a string using a pointer.   
Test Data :  
Input a string: string  
*Expected Output* :

Number of vowels : 1

Number of constant : 5

**14.**Write a program in C to sort an array using Pointer.   
Test Data :  
testdata  
*Expected Output* :

Test Data :  
Input the number of elements to store in the array : 5  
Input 5 number of elements in the array :  
element - 1 : 25  
element - 2 : 45  
element - 3 : 89  
element - 4 : 15  
element - 5 : 82  
*Expected Output* :

The elements in the array after sorting :

element - 1 : 15

element - 2 : 25

element - 3 : 45

element - 4 : 82

element - 5 : 89

**15.**Write a program in C to show how a function returning pointer.   
Test Data :  
Input the first number : 5  
Input the second number : 6  
*Expected Output* :

The number 6 is larger.

**16.**Write a program in C to compute the sum of all elements in an array using pointers.   
Test Data :  
Input the number of elements to store in the array (max 10) : 5  
Input 5 number of elements in the array :  
element - 1 : 2  
element - 2 : 3  
element - 3 : 4  
element - 4 : 5  
element - 5 : 6  
*Expected Output* :

The sum of array is : 20

**17.**Write a program in C to print the elements of an array in reverse order.   
Test Data :  
Input the number of elements to store in the array (max 15) : 5  
Input 5 number of elements in the array :  
element - 1 : 2  
element - 2 : 3  
element - 3 : 4  
element - 4 : 5  
element - 5 : 6  
*Expected Output* :

The elements of array in reverse order are :

element - 5 : 6

element - 4 : 5

element - 3 : 4

element - 2 : 3

element - 1 : 2

**18.**Write a program in C to show the usage of pointer to structure.   
*Expected Output* :

John Alter from Court Street

**19.**Write a program in C to show a pointer to an array which contents are pointer to structure.   
*Expected Output* :

Exmployee Name : Alex

Employee ID : 1002

**20.**Write a program in C to print all the alphabets using a pointer.   
*Expected Output* :

The Alphabets are :

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

**21.**Write a program in C to print a string in reverse using a pointer.   
Test Data :  
Input a string : w3resource  
*Expected Output* :

Pointer : Print a string in reverse order :

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Input a string : KDNinfotech

Reverse of the string is : hcetofniNDK