Pointers

**Coding Challenge – I**

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.

#include<stdio.h>

int main() {

int \*p,\*n;

int a,b;

printf("Input the first number : ");

scanf("%d",&a);

printf("Input the Second number : ");

scanf("%d",&b);

p=&a;

n=&b;

puts(\*p>\*n?"1st number is big":\*n>\*p?"2nd number is big":"Both are equal");

return 0;

}

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

#include<stdio.h>

int main() {

int \*p,\*n;

int a,b;

printf("Input the first number : ");

scanf("%d",&a);

printf("Input the second number : ");

scanf("%d",&b);

p=&a;

n=&b;

printf("The sum of the entered numbers is : %d",\*p+\*n);

return 0;

}

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

#include<stdio.h>

int main() {

int \*p,\*n;

int a,b;

printf("Input the first number : ");

scanf("%d",&a);

printf("Input the second number : ");

scanf("%d",&b);

p=&a;

n=&b;

printf("The sum of %d and %d is : %d",\*p,\*n,\*p+\*n);

return 0;

}

 Write a program in C to store n elements in an array and print the elements using a 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

#include<stdio.h>

int main() {

int \*p;

int a[50],n,i;

printf("Input the number of elements to store in the array :");

scanf("%d",&n);

printf("Input %d number of elements in the array :\n",n);

for(i=0;i<n;i++)

{

printf("element - %d :",i);

scanf("%d",&a[i]);

}

p=&a[0];

printf(" The elements you entered are : \n");

for(i=0;i<n;i++)

{

printf(" element - %d :%d\n",i,\*(p+i));

}

return 0;

}

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

#include<stdio.h>

#include<stdlib.h>

void swap(int \*a)

{

int t=a[0];

a[0]=a[2];

a[2]=a[1];

a[1]=t;

}

int main(){

int \*p;

int a[50],n=3,i;

printf("enter 3 elements in an array:\n");

for(i=0;i<n;i++)

{

printf("Input the value of %d element :",i+1);

scanf("%d",&a[i]);

}

p=&a[0];

printf("The value before swapping are : \n");

for(i=0;i<n;i++)

{

printf("element %d = %d\n",i+1,\*(p+i));

}

printf("The value after swapping are : \n");

swap(a);

for(i=0;i<n;i++)

{

printf("element %d = %d\n",i+1,\*(p+i));

}

return 0;

}

**Coding Challenge - II**

Write a program in C to calculate the length of a string using a pointer.

Test Data :

Input a string : NareshIt26

Expected Output :

The length of the given string NareshIt26

is : 10

#include<stdio.h>

int main() {

char \*p; // charecter pointer

char s[50];

int i;

printf("Input a string :");

scanf("%s",s);

p=s; //base address

for(i=0;\*(p+i)!='\0';i++);

printf("The length of the given string \n%s \nis : %d ",s,i);

return 0;

}

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

#include<stdio.h>

int main()

{

char s[50],\*p;

int i,v=0,c=0;

printf("Input a string: ");

scanf("%s",s);

p=s;

for(i=0;\*(p+i)!='\0';i++)

{

if((\*(p+i)>'a'&&\*(p+i)<'z')||(\*(p+i)>'A'&&\*(p+i)<'z'))

{

if(\*(p+i)=='a'||\*(p+i)=='e'||\*(p+i)=='i'||\*(p+i)=='o'||\*(p+i)=='u')

v++;

else if(\*(p+i)=='A'||\*(p+i)=='E'||\*(p+i)=='I'||\*(p+i)=='O'||\*(p+i)=='U')

v++;

else c++;

}

}

printf("Number of vowels :%d\n",v);

printf("Number of constant : %d",c);

return 0;

}

Write a c program to find the median of a merged sorted Array by using pointer and function.

input as : Enter the size of 1st array : 2

       Enter two element :1 3

      Enter the size of 2nd array : 1

       Enter one element :2

After sorting Array is :1 2 3

Median is : 2

input as : Enter the size of 1st array : 2

       Enter two element :1 4

      Enter the size of 2nd array : 2

       Enter two element :2 3

After sorting Array is :1 2 3 4

Median is : 2.5

#include<stdio.h>

int main() {

int \*p,\*q,t;

int a[20],b[20];

int l1,l2,i,s=0;

printf("Enter the size of 1st array :");

scanf("%d",&l1);

printf("Enter %d element :",l1);

for(i=0;i<l1;i++)scanf("%d",&a[i]);

printf("Enter the size of 2nd array :");

scanf("%d",&l2);

printf("Enter %d element :",l2);

for(i=0;i<l2;i++)scanf("%d",&b[i]);

p=a;

q=b;

for(i=0;i<l2;i++) \*(p+l1+i)=\*(q+i);

for(i=0;i<(l1+l2-1);i++)

{

if(\*(p+i)>\*(p+i+1))

{

t=\*(p+i);

\*(p+i)=\*(p+i+1);

\*(p+i+1)=t;

}

}

printf("After sorting Array is :");

for(i=0;i<l1+l2;i++)

printf("%d ",\*(p+i));

for(i=0;i<l1+l2;i++)

{

s+=\*(p+i);

}

printf("\nMedian is : %.1f",(float)s/(l1+l2));

return 0;

}

Write a C program to rotate an array of integers to the right by a specified number of positions. For example, if you have an array [1, 2, 3, 4, 5] and you want to rotate it to the right by 2 positions, the result should be [4, 5, 1, 2, 3].(Develop it by using pointers & function).

#include<stdio.h>

void rotateright(int\*a,int n,int p) // dec and inti func

{

int t;

for(int i=0;i<p;i++)

{

t=a[n-1];

for(int j=n-1;j>0;j--)

{

a[j]=a[j-1];

}

a[0]=t;

}

}

void printarray(int \*a,int n) // dec and inti func

{

for(int i=0;i<n;i++)

{

printf("%d ",a[i]);

}

printf("\n");

}

int main() { //caller

int a[20],n,i,p;

printf("enter an array size:");

scanf("%d",&n);

printf("enter %d elements:",n);

for(i=0;i<n;i++)scanf("%d",&a[i]);

printf("enter position :");

scanf("%d",&p);

printf("original array:");

printarray(a,n); // calling func //callie

rotateright(a,n,p);

printf("Rotate it to the right by %d positions\nOutput :",p);

printarray(a,n);

return 0;

}

You are given a **large integer** represented as an integer array digits, where each digits[i] is the ith digit of the integer. The digits are ordered from most significant to least significant in left-to-right order. The large integer does not contain any leading 0's.

Increment the large integer by one and return *the resulting array of digits*.

**Example 1:**

Input: digits = [1,2,3]

Output: [1,2,4]

Explanation: The array represents the integer 123.

Incrementing by one gives 123 + 1 = 124.

Thus, the result should be [1,2,4].

**Example 2:**

Input: digits = [9,9,9]

Output: [1,0,0,0]

Explanation: The array represents the integer 999.

Incrementing by one gives 999 + 1 = 1000.

Thus, the result should be [1,0,0,0].

**Example 3:**

Input: digits = [4,3,2,1]

Output: [4,3,2,2]

Explanation: The array represents the integer 4321.

Incrementing by one gives 4321 + 1 = 4322.

Thus, the result should be [4,3,2,2].

#include<stdio.h>

int main() {

int a[20],n,i,s,c=1;

printf("enter an array size:");

scanf("%d",&n);

printf("enter %d elements:",n);

for(i=0;i<n;i++)

scanf("%d",&a[i]);

for(i=n-1;i>=0;i--)

{

s=a[i]+c; //for 123--> 1st--3+1=4

a[i]=s%10; //---> 1st--4%10=4

c=s/10; // ----> 1st--4/10=0

printf("%d %d %d\n",s,a[i],c);

}

printf("Output:");

if(c)printf("1 ");

for(i=0;i<n;i++)

printf("%d ",a[i]);

return 0;

}

/\*

input array=1 , 5 , 9 output= 1 , 6 , 0

explanation code == s a[i] c

10 0 1

6 6 0

1 1 0

answera[i]=160

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

--s=a[i]+c

1st

carry(c)- 1----c=s/10

3rd

same like addition 1 5 9

+1---intial carry

\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a[i]=s%10 1 6 0

2nd

\*/