Assignment - 20

Pointers

1. Write a function to swap values of two in variables of calling function. (TSRS)

Code

#include <stdio.h>

int swap\_numbers(int\* , int\* );

int main()

{

    int a,b;

   printf("Enter value of a : ");

   scanf("%d",&a);

   printf("Enter value of b : ");

   scanf("%d",&b);

   swap\_numbers (&a,&b);

   printf("the swaped values of (a,b) are : (%d,%d)",a,b);

  return 0;

}

int swap\_numbers(int \*a , int \*b )

 {

     \*a= \*a + \*b;

     \*b = \*a - \*b;

     \*a = \*a - \*b;

 }

Output

Enter value of a : 3

Enter value of b : 2

the swaped values of (a,b) are : (2,3)

1. Write a function to swap strings of two char arrays of calling functions. (TSRS)

Code

#include <stdio.h>

#include<string.h>

int swap\_strings(char\*, char\* );

int main()

{

    char str1[100],str2[100];

    int l1 ,l2 ;

    int i ;

   printf("Enter string 1 : ");

    fgets(str1,100,stdin);

   printf("Enter string 2 : ");

    fgets(str2,100,stdin);

   swap\_strings(str1 ,str2);

   printf(" the string 1 becomes string 2 : %s \n",str1);

   printf(" the string 1 becomes string 2 : %s ",str2);

  return 0;

}

int swap\_strings(char \*ctr1 , char \*ctr2)

{

  int i,j ;

  int l1 ,l2;

  char temp[100];

 for(l1=0;\*(ctr1 + l1); l1++);

     //printf (" %d ", l1);

     for(l2=0;\*(ctr2 + l2); l2++);

    // printf (" %d ", l2);

  for (i = 0; temp[i]; i++)

    temp[i]='\0'; // clean a string

   for(i=0; i <= l1-2; i++)

   {

    // printf("%d", i);

       temp[i] = \*(ctr1 + i);

   }

   for (i = 0; \*(ctr1 + i) ; i++)

    \*(ctr1 + i)='\0'; // clean a string

   for(i=0; i <= l2-2 ; i++)

   {

       \*(ctr1 + i) =  \*(ctr2 + i);

   }

   for(i=0; i <= l1-2 ; i++)

   {

       \*(ctr2 + i) = temp[i];

   }

}

Output

Enter string 1 : weqrt

Enter string 2 : sddfgg

the string 1 becomes string 2 : sddfgg

the string 1 becomes string 2 : weqrtg

1. Write a function to sort an array of int type values. [ void sort(int \*ptr,int size); ]

Code

#include<stdio.h>

void sort\_array( int \* , int \* );

int main() {

    int  i, a[1000], n;

    printf("Enter size of array :\n");

    scanf("%d",&n);

    printf("Enter %d numbers :\n",n);

    for(i=0;i<n;i++)

    scanf("%d",&a[i]);

    sort\_array(&a[0],&n);

    for(i=0;i<n;i++)

    printf(" %d ",a[i]);

    return 0;

}

void sort\_array( int \*b , int \*n)

{

     int  i,j;

    for(i=0;i<\*n;i++)

    {

         for(j=0;j<\*n;j++)

         {

              if(\*(b+i)<\*(b+j))   // if(b[i]>b[j]) desending order

              {

                \*(b+i) = \*(b+i) + \*(b+j);

                \*(b+j) = \*(b+i) - \*(b+j);

                \*(b+i) = \*(b+i) - \*(b+j);

              }

         }

    }

 // for(i=0;i<n;i++)

 // printf(" %d ",b[i]);

}

Output

Enter size of array :

3

Enter 3 numbers :

4 3 2

2 3 4

1. Write a program in C to demonstrate how to handle the pointers in the program.

Code

#include <stdio.h>

int max\_num(int\* , int\* );

int main()

{

    int a,b;

   printf("Enter value of a : ");

   scanf("%d",&a);

   printf("Enter value of b : ");

   scanf("%d",&b);

   max\_num (&a,&b);

   printf("the maximum number b/w (a,b) is : %d", max\_num(&a,&b));

  return 0;

}

int max\_num(int \*a , int \*b )

 {

    if(\*a>\*b)

    return \*a;

    else

    return \*b;

 }

Output

Enter value of a : 6

Enter value of b : 4

the maximum number b/w (a,b) is : 6

1. Write a program to find the maximum number between two numbers using a pointer

Code

#include <stdio.h>

int max\_num(int\* , int\* );

int main()

{

    int a,b;

   printf("Enter value of a : ");

   scanf("%d",&a);

   printf("Enter value of b : ");

   scanf("%d",&b);

   max\_num (&a,&b);

   printf("the maximum number b/w (a,b) is : %d", max\_num(&a,&b));

  return 0;

}

int max\_num(int \*a , int \*b )

 {

    if(\*a>\*b)

    return \*a;

    else

    return \*b;

 }

Output

Enter value of a : 6

Enter value of b : 4

the maximum number b/w (a,b) is : 6

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

Code

#include <stdio.h>

int strlen1(char\*);

int main()

{

    char str1[100];

    int l;

   printf("Enter string 1 : ");

    fgets(str1,100,stdin);

   l = strlen1(str1);

    printf("length of a  string 1 : %d",l);

  return 0;

}

int strlen1(char \*ctr1 )

 {

    int i;

    for(i=0;\*(ctr1 + i);i++);

    return i;

 }

Output

Enter string 1 : gfrg

length of a string 1 : 5

7. Write a program to count the number of vowels and consonants in a string using a

pointer.

Code

#include<stdio.h>

void count\_vowels\_consonants( char\*);

int main()

{

    char str[100];

    printf("Enter a String : \n ");

    fgets(str,100,stdin);

    count\_vowels\_consonants(str);

    return 0;

}

void count\_vowels\_consonants  (char \*ctr)

{

   int i , v=0 , c=0;

     for(i=0; \*(ctr + i) ; i++)

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

        || \*(ctr + i)=='A' || \*(ctr + i)=='E' || \*(ctr + i)=='I'|| \*(ctr + i)=='O'|| \*(ctr + i)=='U')

        v++;

        else

        c++;

         printf("Number of vowels in a given string : %d\n ",v);

         printf("Number of consonants in a given string : %d ",c);

}

Output

Enter a String :

dfdghrwgxaeuo

Number of vowels in a given string : 4

Number of consonants in a given string : 10

1. .Write a program to compute the sum of all elements in an array using pointers.

Code

#include<stdio.h>

void sum\_all\_elements\_in\_array( int \* , int \* );

int main() {

    int  i, a[1000], n;

    printf("Enter size of array :\n");

    scanf("%d",&n);

    printf("Enter %d numbers :\n",n);

    for(i=0;i<n;i++)

    scanf("%d",&a[i]);

    sum\_all\_elements\_in\_array(&a[0],&n);

    return 0;

}

void sum\_all\_elements\_in\_array( int \*b , int \*n)

{

     int  i,j;

     int sum=0;

    for(i=0;i<\*n;i++)

    {

        sum =  sum + \*(b+i);

    }

        printf("sum of all elements in a array : %d",sum);

}

Output

Enter size of array :

3

Enter 3 numbers :

4 5 6

sum of all elements in a array : 15

1. Write a program to print the elements of an array in reverse order.

Code

#include<stdio.h>

void reverse\_order(int\* , int\*);

int main() {

    int i, a[10],n=0;

     printf("Enter size of array :\n");

    scanf("%d",&n);

    printf("Enter %d numbers :\n",n);

    for(i=0;i<n;i++)

    scanf("%d",&a[i]);

     reverse\_order(&a[0], &n);

    return 0;

}

void reverse\_order(int \*a, int \*n)

  {

    int i;

    for(i=\*n-1;i>=0;i--)

    printf("%d ",\*(a + i));

   }

Output

Enter size of array :

3

Enter 3 numbers :

4 6 7

1. 6 4

10 Write a program to print a string in reverse using a pointer

Code

#include<stdio.h>

void reverse\_a\_string (char\*);

int main()

{

    char str[100];

    printf("Enter a String : \n ");

    fgets(str,100,stdin);

    reverse\_a\_string(str);

    return 0;

}

void reverse\_a\_string (char \*str1)

 {

    int i,j;

      for(i=0; \*(str1 + i) ; i++);

   for(j=i-2; j>=0 ; j--)

    printf("%c",\*(str1 + j));

 }

Output

Enter a String :

dhruv rastogi

igotsar vurhd