Assignment - 20 A Job Ready Bootcamp in C++, DSA and IOT MySirG

Pointers

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

#include<stdio.h>

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

{

int temp=\*a;

\*a=\*b;

\*b=temp;

}

int main()

{

int x,y;//2variables

printf("Enter two numbers:\n");

scanf("%d %d",&x,&y);

printf("The numbers are %d %d\n",x,y);

swap(&x,&y);

printf("After swaping the numbers are %d %d\n",x,y);

printf("\n");

return 0;

}

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

#include<stdio.h>

#include<string.h>

void removeNewline(char \*str) {

str[strcspn(str, "\n")] = '\0';

}

void swapString(int n, char cr[], char cr2[]) {

char temp[n];

strcpy(temp, cr);

strcpy(cr, cr2);

strcpy(cr2, temp);

}

int main() {

int n = 20;

char cr[n], cr2[n];

printf("Enter two strings:\n");

fflush(stdin);

fgets(cr, n, stdin);

removeNewline(cr);

fflush(stdin);

fgets(cr2, n, stdin);

removeNewline(cr2);

printf("Before swapping:\n");

printf("1st String= %s\n", cr);

printf("2nd String= %s\n", cr2);

swapString(n, cr, cr2);

printf("After swapping:\n");

printf("1st String = %s\n", cr);

printf("2nd String = %s\n", cr2);

return 0;

}

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

#include <stdio.h>

void sortArray(int n, int a[n])

{

for (int i = 0; i < n - 1; i++)

{

for (int j = i + 1; j < n; j++)

{

if (a[i] > a[j])

{

int temp = a[i];

a[i] = a[j];

a[j] = temp;

}

}

}

}

int main()

{

int n;

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

scanf("%d", &n);

int arr[n];

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

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

{

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

}

printf("Before sorting:\n");

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

{

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

}

printf("\n");

sortArray(n, arr);

printf("After sorting:\n");

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

{

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

}

printf("\n");

return 0;

}

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

#include<stdio.h>

void swap (int \*x,int \*y)

{

int temp;

temp=\*x;

\*x=\*y;

\*y=temp;

}

int main()

{

int a,b;

printf("Enter two number:\n");

scanf("%d %d",&a,&b);

//using pointer we will swap the value stored in 'a' and 'b'

swap(&a,&b);

printf("%d %d",a,b);

}

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

#include<stdio.h>

void findMAX(int \*p,int \*q)

{

if(\*p==\*q)

printf("both number are same\n");

else if(\*p>\*q)

printf("%d is greater than %d",\*p,\*q);

else

printf("%d is greater than %d\n",\*q,\*p);

}

int main()

{

int x,y;

printf("Enter two numbers:\n");

scanf("%d %d",&x,&y);

findMAX(&x,&y);

return 0;

}

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

#include<stdio.h>

int main()

{

char string[100];

printf("Enter a String:\n");

fflush(stdin);

fgets(string,100,stdin);

char \*ptr=string;

for(;\*ptr!='\n';ptr++){

}

printf("Length of string %s is %d\n",string,(ptr-string));

return 0;

}

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

Pointer.

#include <stdio.h>

#include <string.h>

void count(char \*ptr)

{

int countV=0,countC=0;

while (\*ptr != '\0')

{

if (\*ptr == 'a' || \*ptr == 'e' || \*ptr == 'i' || \*ptr == 'o' || \*ptr == 'u' || \*ptr == 'A' || \*ptr == 'E' || \*ptr == 'I' || \*ptr == 'O' || \*ptr == 'U')

countV++;

else

countC++;

ptr++;

}

printf("Number of Vowels is %d \n",countV);

printf("Number of consonent is %d\n",countC);

}

int main()

{

char word[20];

printf("Enter a word\n");

fflush(stdin);

fgets(word, 20, stdin);

word[strlen(word) - 1] = '\0';

printf("In %s\n", word);

int \*ptr;

count(&word[0]);

return 0;

}

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

#include <stdio.h>

void input(int \*ar)

{

printf("Enter an element:\n");

scanf("%d", ar);

}

void display(int n, int arr[])

{

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

{

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

}

printf("\n");

}

int main()

{

int n, sum = 0;

printf("Enter the number of elements:\n");

scanf("%d", &n);

int arr[n];

int \*ptr = arr;

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

{

input(&arr[i]);

}

printf("Entered elements are");

display(n,arr);

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

{

sum += \*(ptr + i);

}

printf("Sum of all elements is %d\n",sum);

return 0;

}

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

#include <stdio.h>

void input(int \*ar)

{

printf("Enter an element:\n");

scanf("%d", ar);

}

void display(int n, int arr[])

{

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

{

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

}

printf("\n");

}

int main()

{

int n;

printf("Enter the number of elements:\n");

scanf("%d", &n);

int arr[n];

int \*ptr = &arr[n-1];

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

{

input(&arr[i]);

}

printf("Entered elements are:\n");

display(n,arr);

printf("In reverse order:\n");

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

{

printf("%d ",\*(ptr-i));

}

printf("\n");

return 0;

}

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

#include <stdio.h>

#include<string.h>

int main()

{

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

char string[50];

fflush(stdin);

fgets(string,50,stdin);

int len=strlen(string);

string[len-1]='\0';

char \*ptr = &string[len];

printf("Entered string is:\n");

printf("%s\n",string);

printf("In reverse order:\n");

for (int i = 1; i <= len; i++)

{

printf("%c",\*(ptr-i));

}

printf("\n");

return 0;

}