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

**Pointers**

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

#include<stdio.h>

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

int main()

{

    int a,b;

    printf("Ente the two numbers:");

    scanf("%d %d",&a,&b);

    printf("Before swapp a=%d,b=%d\n",a,b);

    swap(&a,&b);

    printf("After swapp a=%d,b=%d\n",a,b);

    return 0;

}

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

{

    int temp;

    temp = \*x;

    \*x = \*y;

    \*y = temp;

}

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

#include<stdio.h>

int main()

{

    char s1[20],s2[20];

    printf("Enter the name:");

    scanf("%s",&s1);

    printf("Enter the 2nd name:");

    scanf("%s",&s2);

    printf("\n");

    printf("Before swapp s1=%s ,s2=%s\n",s1,s2);

    swap(&s1,&s2);

    printf("After swapp s1=%s ,s2=%s",s1,s2);

}

int swap(char \*\*p1,char \*\*p2)

{

    char \*temp;

    \*temp = \*p1;

    \*p1 = \*p2;

    \*p2 = temp;

}

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

#include<stdio.h>

void sort(int \*p,int n);

int main()

{

    int a[10],i,n;

    printf("Enter the size of elements:");

    scanf("%d",&n);

    for(i=0; i<n; i++)

    {

        printf("Enter the array a[%d] elements:",i);

        scanf("%d",&a[i]);

    }

    sort(a,n);

    printf("\n");

}

void sort(int \*p,int n)

{

    int i,temp,j;

    for(i=0; i<n; i++)

    {

        for(j=0; j<n; j++)

        {

            if(\*(p+i) < \*(p+j))

            {

                  temp = \*(p+i);

                \*(p+i) = \*(p+j);

                \*(p+j) = temp;

            }

        }

    }

    printf("\n");

    printf("Ascending Orders:\n");

    for(i=0; i<n; i++)

    {

        printf("%d ",\*(p+i));

    }

    printf("\nDescending Orders:\n");

    for(i=n-1; i>=0; i--)

    {

        printf("%d ",\*(p+i));

    }

}

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

#include<stdio.h>

int main()

{

    int \*p;

    int a=22;

    printf("Address of a : %u\n",&a);

    printf("Value of a : %d\n",a);

    p = &a;

    printf("Address of pointer p: %u\n",p);

    printf("Content of pointer p: %d\n",\*p);

    a=11;

    printf("Address of pointer p: %u\n",p);

    printf("Content of pointer p: %d\n",\*p);

    \*p=2;

    printf("Address of a : %u\n",&a);

    printf("Value of a : %d\n",a);

    return 0;

}

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

#include<stdio.h>

int main()

{

    int a,b;

    int \*p,\*q;

    printf("Enter the two numbers:");

    scanf("%d%d",&a,&b);

    p = &a;

    q = &b;

    if(\*p>\*q)

    {

        printf("Maximum is: %d\n",\*p);

    }

    else

    {

        printf("Maximum is: %d",\*q);

    }

    return 0;

}

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

#include<stdio.h>

#include<string.h>

int main()

{

    char s[20],\*p;

    int i, count=0;

    printf("Enter the string:");

    scanf("%s",&s);

    p = s;

    for(i=0; s[i]; i++)

    {

        count++;

    }

    printf("length of string:%d",count);

    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>

int main()

{

    char s[20],\*p;

    int i,vowel=0, consonant=0;

    printf("Enter the name:");

    scanf("%s",&s);

    p=s;

    for(i=0; s[i]; i++)

    {

        if(s[i]=='a' || s[i]=='e' || s[i]=='i' ||

           s[i]=='o' || s[i]=='u' || s[i]=='A' || s[i]=='E' || s[i]=='I' ||

           s[i]=='O' || s[i]=='U')

            vowel++;

        else

            consonant++;

    }

    printf("Count of vowel %d\n", vowel);

    printf("Count of consonant %d", consonant);

}

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

#include<stdio.h>

int main()

{

    int n,i,sum=0;

    int a[20],\*p;

    printf("Enter the size of elements:");

    scanf("%d",&n);

    p=a;

    for(i=0; i<n; i++)

    {

        printf("Enter the a[%d]:",i);

        scanf("%d",&a[i]);

    }

    for(i=0; i<n; i++)

    {

        sum = sum + \*p;

        \*p++;

    }

    printf("Sum of the elements:%d",sum);

    return 0;

}

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

#include<stdio.h>

int main()

{

    int a[10],n,i;

    int \*p;

    printf("Enter the size of elements:");

    scanf("%d",&n);

    for(i=0; i<n; i++)

    {

        printf("Enter the array elements:a[%d]::",i);

        scanf("%d",&a[i]);

    }

    p = a;

    printf("\n");

    printf("Reverse of the elements:\n");

    for(i=n-1; i>=0; i--)

    {

        printf("%d ",\*(p+i));

    }

    return 0;

}

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

#include<stdio.h>

#include<string.h>

int main()

{

    char s[20],\*p;

    int i,j,n,rev=0;

    p=s;

    printf("Enter the name:");

    gets(s);

    for(i=0; \*(p+i); i++)

    {

        rev++;

    }

    printf("Reverse of the '%s' string:\n",s);

    for(j=rev; j>=0; j--)

    {

        printf("%c",\*(p+j));

    }

    return 0;

}