**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)

Sol – 1.

#include<stdio.h>

#include<conio.h>

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

int main()

{

int a,b;

printf("Enter the values of a and b : ");

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

swap(&a,&b);

printf("After Swapping a and b : %d %d",a,b);

getch();

return 0;

}

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

{

int temp;

temp=\*p;

\*p=\*q;

\*q=temp;

}

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

Sol – 2.

#include<stdio.h>

#include<conio.h>

#include<string.h>

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

int main()

{

char a[10],b[10],\*p,\*q;

printf("Enter string a : ");

fgets(a,10,stdin);

a[strlen(a)-1]=0;

printf("Enter string b : ");

fgets(b,10,stdin);

b[strlen(b)-1]=0;

p=a;

q=b;

swap(&p,&q);

printf("After swapping a and b : %s and %s",p,q);

getch();

return 0;

}

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

{

char\* temp;

temp=\*x;

\*x=\*y;

\*y=temp;

}

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

Sol – 3.

#include<stdio.h>

#include<conio.h>

void sort(int\*,int);

int main()

{

int n,z;

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

scanf("%d",&n);

int a[n];

printf("Enter %d elements\n",n);

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

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

sort(a,n);

printf("After sorting : ");

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

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

getch();

return 0;

}

void sort(int\* p,int i)

{

int j,q,temp;

for(j=0;j<i-1;j++)

{

for(q=j+1;q<i;q++)

{

if(\*(p+j)>\*(p+q))

{

temp=\*(p+j);

\*(p+j)=\*(p+q);

\*(p+q)=temp;

}

}

}

}

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

Sol – 4.

#include<stdio.h>

#include<conio.h>

int main()

{

int x=10,\*p,\*\*q,\*\*\*r;

p=&x;

q=&p;

r=&q;

printf("%d %d %d %d\n",x,\*p,\*\*q,\*\*\*r);

printf("%d %d %d %d\n",&x,p,\*q,\*\*r);

printf("%d %d %d\n",&p,q,\*r);

printf("%d %d\n",&q,r);

printf("%d \n",&r);

getch();

return 0;

}

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

Sol – 5.

#include<stdio.h>

#include<conio.h>

int main()

{

int a,b,\*p,\*q;

printf("Enter two numbers : ");

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

p=&a;

q=&b;

if(\*p>\*q)

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

else if(\*p<\*q)

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

else

printf("Both are equal");

getch();

return 0;

}

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

Sol – 6.

#include<stdio.h>

#include<conio.h>

#include<string.h>

int main()

{

char str[50],\*p;

int i;

printf("Enter a string\n");

fgets(str,50,stdin);

str[strlen(str)-1]=0;

p=str;

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

printf("Length of string is : %d",i);

getch();

return 0;

}

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

pointer.

Sol – 7.

#include<stdio.h>

#include<conio.h>

#include<string.h>

int main()

{

char str[50],\*p;

int i,count=0,count2=0;

printf("Enter a string\n");

fgets(str,50,stdin);

str[strlen(str)-1]=0;

p=str;

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

{

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

count++;

else if(\*(p+i)!=' '&&\*(p+i)!='.'&&\*(p+i)!='?'&&\*(p+i)!='!'&&\*(p+i)!='/')

count2++;

}

printf("Total number of vowels : %d\nTotal number of consonants : %d",count,count2);

getch();

return 0;

}

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

Sol – 8.

#include<stdio.h>

#include<conio.h>

int main()

{

int i,sum=0,n;

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

scanf("%d",&n);

int a[n],\*p;

p=a;

printf("Enter %d elements\n",n);

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

{

scanf("%d",(p+i));

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

}

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

getch();

return 0;

}

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

Sol – 9.

#include<stdio.h>

#include<conio.h>

int main()

{

int i,n;

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

scanf("%d",&n);

int a[n],\*p;

p=a;

printf("Enter %d elements\n",n);

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

scanf("%d",(p+i));

printf("Elements of array in reverse order\n");

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

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

getch();

return 0;

}

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

Sol – 10.

#include<stdio.h>

#include<conio.h>

#include<string.h>

int main()

{

int i,n;

char a[20],\*p;

printf("Enter a string : ");

p=a;

fgets(p,20,stdin);

p[strlen(p)-1]=0;

printf("Elements of string in reverse order : ");

for(i=strlen(p)-1;i>=0;i--)

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

getch();

return 0;

}