**Assignment – 20**

**A Job Ready Bootcamp in C++, DSA and IOT**

**Pointers**

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

#include<stdio.h>

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

{

int temp=0;

temp=\*p;

\*p=\*q;

\*q=temp;

}

int main()

{

int a=12,b=22;

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

swap(&a,&b);

printf("Swape value of a=%d and b=%d",a,b);

return 0;

}

**OUTPUTa=12 and b=22**

**Swap value of a=22 and b=12**

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

#include<stdio.h>

#include<string.h>

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

int main()

{

char \*a[10];

char \*b[10];

printf("Enter first string a= ");

gets(a);

printf("\nEnter second string b= ");

gets(b);

swap(&a,&b);

printf("a=%s,b=%s",a,b);

return 0;

}

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

{

char \*temp;

temp=\*p;

\*p=\*q;

\*q=temp;

}

***#include<stdio.h>***

***#include<string.h>***

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

***int main()***

***{***

***int \*a[10];***

***int i;***

***printf("Enter numbers");***

***for(i=0;i<10;i++)***

***{***

***scanf("%d",a+i);***

***}***

***printf("Shorting element is>>");***

***sort(&a,10);***

***for(i=0;i<10;i++)***

***{***

***printf("%d ",a+i);***

***}***

***return 0;***

***}***

***void sort(int \*\*str,int size)***

***{***

***int \*temp;***

***int i,j;***

***for(i=0;i<size-1;i++)***

***{***

***for(j=i+1;j<size;i++)***

***{***

***if(\*str[i]>\*str[j])***

***{***

***temp=\*str[i];***

***\*str[i]=\*str[j];***

***\*str[j]=temp;***

***}***

***}***

***}***

***}***

OUTPUT: Enter first string a= AMAN

Enter second string b= RITIK

a=RITIK,b=AMAN

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

#include<stdio.h>

#include<string.h>

void shorte(int\*,int);

int main()

{

int a[10];

int i;

printf("Enter your numbers ");

for(i=0;i<10;i++)

{

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

}

printf("Shorting values is ");

shorte(a,10);

for(i=0;i<10;i++)

{

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

}

return 0;

}

void shorte(int \*ptr,int size)

{

int i,j;

int temp;

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

{

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

{

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

{

temp=ptr[i];

ptr[i]=ptr[j];

ptr[j]=temp;

}

}

}

}

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

#include<stdio.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",&r);

return 0;

}

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

#include<stdio.h>

int max(int \*,int);

int main()

{

int a[10];

int b;

b=max(a,10);

printf("Maximum number is %d",b);

return 0;

}

int max(int \*ptr,int size)

{

int i,max=-1;

printf("Enter numbers");

for(i=0;i<10;i++)

{

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

}

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

{

if(ptr[i]>max)

max=ptr[i];

}

return max;

}

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

#include<stdio.h>

#include<stdio.h>

int length(char \*);

int main()

{

int l;

char a[10];

printf("Enter strinf ");

gets(a);

l=length(a);

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

return 0;

}

int length(char \*ptr)

{

int len;

for(len=0;\*(ptr+len);len++);

return len;

}

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

#include<stdio.h>

#include<stdio.h>

void count(char \*,int);

int main()

{

char str[20];

int l;

printf("Enter string ");

gets(str);

l=strlen(str);

count(str,l);

return 0;

}

void count(char \*st,int l)

{

int i,C1=0,C2=0;

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

{

if(st[i]=='a'||st[i]=='e'||st[i]=='i'||st[i]=='o'||st[i]=='u'||st[i]=='A'||st[i]=='E'||st[i]=='I'||st[i]=='O'||st[i]=='U')

{

C1++;

}

else

C2++;

}

printf("Vovel in the string is %d and consonent is %d",C1,C2);

}

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

#include<stdio.h>

#include<stdio.h>

int add(int \*,int);

int main()

{

int arr[5];

int i,sum;

printf("Enter numbers ");

for(i=0;i<5;i++)

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

sum=add(arr,5);

printf("Sum of all numbers is %d",sum);

return 0;

}

int add(int \*s,int size)

{

int sum=0,i;

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

{

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

}

return sum;

}

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

#include<stdio.h>

//#include<stdio.h>

void reverse(int \*,int);

int main()

{

int arr[10];

int i;

printf("Enter array elements");

for(i=0;i<10;i++)

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

reverse(arr,10);

return 0;

}

void reverse(int \*p,int size)

{

int i,temp[10];

for(i=0;i<10;i++)

{

temp[i]=p[10-1-i];

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

}

}

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

#include<stdio.h>

#include<stdio.h>

void reverse(char \*,int);

int main()

{

int arr[10];

int i;

printf("Enter string ");

gets(arr);

reverse(arr,10);

return 0;

}

void reverse(char \*p,int size)

{

int i,temp[10],l;

l=strlen(p);

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

{

temp[i]=p[l-1-i];

printf("%c",temp[i]);

}

}