**Assignment - 15 A Job Ready Bootcamp in C++, DSA and IOT MySirG**

**Array and Functions in C Language**

1. Write a function to find the greatest number from the given array of any size. (TSRN)

Sol – 1.

#include<stdio.h>

#include<conio.h>

void Garray(int\*,int);

int main()

{

int size,i;

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

scanf("%d",&size);

printf("Enter %d numbers\n",size);

int a[size];

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

{

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

}

Garray(a,size);

getch();

return 0;

}

void Garray(int b[],int size)

{

int i,g=-9999999;

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

{

g=b[i]>g?b[i]:g;

}

printf("%d is greatest",g);

}

1. Write a function to find the smallest number from the given array of any size. (TSRN)

Sol – 2.

#include<stdio.h>

#include<conio.h>

void Garray(int\*,int);

int main()

{

int size,i;

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

scanf("%d",&size);

printf("Enter %d numbers\n",size);

int a[size];

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

{

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

}

Garray(a,size);

getch();

return 0;

}

void Garray(int b[],int size)

{

int i,g=9999999;

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

{

g=b[i]<g?b[i]:g;

}

printf("%d is smallest",g);

}

1. Write a function to sort an array of any size. (TSRN)

Sol – 3.

#include<stdio.h>

#include<conio.h>

void sort(int\*,int);

int main()

{

int size,i;

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

scanf("%d",&size);

printf("\nEnter %d numbers\n",size);

int a[size];

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

{

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

}

sort(a,size);

getch();

return 0;

}

void sort(int b[],int size)

{

int i,j,temp;

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

{

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

{

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

{

temp=b[i];

b[i]=b[j];

b[j]=temp;

}

}

}

printf("################\nAfter sorting : ");

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

{

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

}

}

4. Write a function to rotate an array by n position in d direction. The d is an indicative

value for left or right. (For example, if array of size 5 is [32, 29, 40, 12, 70]; n is 2 and

d is left, then the resulting array after left rotation 2 times is [40, 12, 70, 32, 29] )

Sol – 4.

#include<stdio.h>

#include<conio.h>

int main()

{

int size,i,n,temp,j;

char d;

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

scanf("%d",&size);

printf("Enter %d numbers\n",size);

int a[size];

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

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

printf("If you want to rotate array in :\nLeft direction : Press l\nRight direction : Press r\n");

fflush(stdin);

scanf("%c",&d);

printf("Enter how many positions you want to rotate : ");

scanf("%d",&n);

if(d=='l')

{

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

{

temp=a[size-1];

a[size-1]=a[0];

for(j=0;j<size-2;j++)

a[j]=a[j+1];

a[size-2]=temp;

}

}

else if(d=='r')

{

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

{

temp=a[0];

a[0]=a[size-1];

for(j=size-1;j>1;j--)

a[j]=a[j-1];

a[1]=temp;

}

}

else

printf("Invalid Direction");

printf("Resulting array : ");

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

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

getch();

return 0;

}

OR

#include<stdio.h>

#include<conio.h>

int main()

{

int size,i,n,j;

char d;

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

scanf("%d",&size);

printf("Enter %d numbers\n",size);

int a[size],b[size];

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

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

printf("If you want to rotate array in :\nLeft direction : Press l\nRight direction : Press r\n");

fflush(stdin);

scanf("%c",&d);

printf("Enter how many positions you want to rotate : ");

scanf("%d",&n);

if(d=='r')

{

j=0;

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

{

b[j]=a[i];

j++;

}

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

{

b[j]=a[i];

j++;

}

}

else if(d=='l')

{

j=0;

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

{

b[j]=a[i];

j++;

}

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

{

b[j]=a[i];

j++;

}

}

else

printf("Invalid Direction");

printf("Resulting array : ");

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

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

getch();

return 0;

}

OR

5. Write a function to find the first occurrence of adjacent duplicate values in the array.

Function has to return the value of the element.

Sol – 5.

#include<stdio.h>

#include<conio.h>

int adjacentocc(int\*,int);

int main()

{

int i,n;

printf("Enter size of array : ");

scanf("%d",&n);

int a[n];

printf("Enter array elements\n");

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

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

printf("First same adjacent element is : %d",adjacentocc(a,n));

getch();

return 0;

}

int adjacentocc(int b[],int n)

{

int i;

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

{

if(b[i]==b[i+1])

{

return b[i];

}

}

printf("No adjacent elements are same");

}

OR

#include<stdio.h>

#include<conio.h>

int main()

{

int size,i,j,flag=0;

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

scanf("%d",&size);

printf("Enter %d numbers\n",size);

int a[size];

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

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

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

{

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

{

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

{

printf("Same number is : %d",a[i]);

flag = 1;

break;

}

}

if(flag==1)

break;

}

if(flag==0)

printf("No number is same");

getch();

return 0;

}

6. Write a function in C to read n number of values in an array and display it in reverse

order.

Sol – 6.

#include<stdio.h>

#include<conio.h>

int main()

{

int i,n;

printf("Enter how much numbers : ");

scanf("%d",&n);

printf("Enter %d numbers : ",n);

int a[n];

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

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

printf("In reverse order : ");

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

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

getch();

return 0;

}

7. Write a function in C to count a total number of duplicate elements in an array.

Sol – 7.

#include<stdio.h>

#include<conio.h>

int main()

{

int size,i,b[101]={0},count=0,j;

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

scanf("%d",&size);

printf("Enter %d numbers(Should be under 100)\n",size);

int a[size];

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

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

for(i=0;i<101;i++)

{

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

{

if(a[j]==i)

b[i]++;

}

if(b[i]==2)

count++;

}

printf("Toatal duplicate values are : %d",count);

getch();

return 0;

}

OR

#include<stdio.h>

#include<conio.h>

int main()

{

int size,i,j,count=0;

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

scanf("%d",&size);

printf("Enter %d numbers\n",size);

int a[size];

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

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

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

{

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

{

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

{

count++;

}

}

}

printf("Duplicate numbers are : %d",count);

getch();

return 0;

}

8. Write a function in C to print all unique elements in an array.

Sol – 8.

#include<stdio.h>

#include<conio.h>

int main()

{

int size,i,j,flag;

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

scanf("%d",&size);

int a[size];

printf("Enter %d numbers : \n",size);

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

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

printf("All unique no. in array are : ");

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

{

flag=0;

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

{

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

{

flag = 1;

break;

}

}

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

{

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

{

flag = 1;

break;

}

}

if(flag==0)

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

}

getch() ;

return 0;

}

9. Write a function in C to merge two arrays of the same size sorted in descending

order.

Sol – 9.

#include<stdio.h>

#include<conio.h>

int main()

{

int size,i,j=0,temp;

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

scanf("%d",&size);

int a[size],b[size];

printf("Enter elements of 1st array\n");

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

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

printf("Enter elements of 2nd array\n");

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

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

int c[2\*size];

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

c[i]=a[i];

for(i=size;i<2\*size;i++)

{

c[i]=b[j];

j++;

}

for(i=0;i<2\*size-1;i++)

{

for(j=i+1;j<2\*size;j++)

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

{

temp=c[j];

c[j]=c[i];

c[i]=temp;

}

}

printf("After merge and sorting in decending order\n");

for(i=0;i<2\*size;i++)

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

getch();

return 0;

}

10. Write a function in C to count the frequency of each element of an array.

Sol – 10.

#include<stdio.h>

#include<conio.h>

int main()

{

int size,i,b[101]={0},j;

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

scanf("%d",&size);

printf("Enter %d numbers(Should be under 100)\n",size);

int a[size];

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

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

for(i=0;i<101;i++)

{

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

{

if(a[j]==i)

b[i]++;

}

if(b[i])

printf("Frequency of %d is %d\n",i,b[i]);

}

getch();

return 0;

}

OR

#include<stdio.h>

#include<conio.h>

int main()

{

int size,i,n,count=0;

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

scanf("%d",&size);

int a[size];

printf("Enter elements of array\n");

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

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

printf("Enter the no. for frequency : ");

scanf("%d",&n);

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

{

if(n==a[i])

count++;

}

printf("Frequency of %d is %d",n,count);

getch();

return 0;

}