

## **(ARRAY QUESTIONS SOLUTION)**

**(MADE BY ALI AKBER)**

**(BSCS IST (SS1))**

Qno1:

Write a program that stores 10 elements in an array of integers and print the array on screen.

```
#include <iostream>

using namespace std;

int main ()
{
    int i,arr[10];
    for (i=0; i<10; i++)
    {
        cout<<"enter ten values of integers"<<endl;
        cin>>arr [i];
    }

    cout<<"the ten values in array are"<<endl;
    for (i=0; i<10; i++)
    cout<<arr [i]<<endl;

    return 0;
}
```

Qno2:

Write a program that stores 10 elements in an array of double and print the sum of array on screen.

```
#include <iostream>

using namespace std;
```

```

int main ()
{
int arr[10],i,doubvalue,sum=0;
for (i=0; i<10; i++)
{
cout<<"enter ten integers"<<endl;
cin>>arr[i];
doubvalue=arr[i]*2;
sum=sum+doubvalue;
}
cout<<"the sum value in array are"<<endl;
cout<<sum<<endl;

return 0;
}

```

### Qno 3

Write a program that inputs 10 integers from user and store them in array. It then store double value of each element of one array into another. print the second array on screen.

```

#include <iostream>

using namespace std;

int main ()
{
int arr[10],i, doubvalue;

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

```

```

cout<<"enter ten integers"<<endl;

cin>>arr[i];

}

cout<<"the double value in array are"<<endl;

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

{

doubvalue=arr[i]*2;

cout<<doubvalue<<endl;

}

return 0;

}

```

**Qno4:**

Write a program display sum and average of 1-d integers array.

```

#include <iostream>

using namespace std;

int main ()

{

int arr[5],i,sum=0;

float avg=0.0f;

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

{

cout<<"enter five integers"<<endl;

cin>>arr[i];

sum=sum+arr[i];

avg=sum/5.0;

```

```

}

cout<<"the sum value in array are"<<endl;

cout<<sum<<endl;

cout<<"the average value in array are"<<endl;

cout<<avg<<endl;

return 0;

}

```

**Qno5:**

**Write a program to swap the ist and last element of 1-d array.**

```

#include <iostream>

using namespace std;

int main ()

{

const int size=5;

int arr[size];

int temp;

temp =0;

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

{

cout <<"enter integers"<<endl;

cin>>arr[i];

}

temp=arr[0];

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

arr [size-1]=temp;

```

```
cout<<"new array is"<<endl;

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

{

cout<<arr [j]<<endl;;

}

return 0;

}
```

**Qno6:**

**Write a program to reverse the elements of 1-d array.**

```
#include <iostream>

using namespace std;

int main ()

{

const int size=5;

int arr[size];

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

{

cout <<"enter integers"<<endl;

cin>>arr[i];

}

cout<<"new array is"<<endl;

for (int j=size-1 ; j>=0 ;j--)

{

cout<<arr [j]<<endl;;

}

return 0;
```

```
}
```

**Qno7:**

Write a program to find maximum and minimum element of an array.

```
#include <iostream>
```

```
using namespace std;
```

```
int main ()
```

```
{
```

```
const int size=5;
```

```
int arr[size];
```

```
int max,min;
```

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

```
{
```

```
cout <<"enter integers"<<endl;
```

```
cin>>arr[i];
```

```
}
```

```
max=arr [0];
```

```
min =arr[0];
```

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

```
{
```

```
if (max<arr[j])
```

```
max=arr [j];
```

```
if (min>arr[j])
```

```
min=arr [j];
```

```
}
```

```
cout<<"the maximum value from integers is"<<max<<endl<<"the minimum value from integers  
is"<<min<<endl;
```

```
return 0;
```

```
}
```

**Qno8:**

**Write a program to find sum of all odd and even numbers In an array.**

```
#include <iostream>
```

```
using namespace std;
```

```
int main ()
```

```
{
```

```
const int size=5;
```

```
int arr[size];
```

```
int oddsum=0, evensum=0;
```

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

```
{
```

```
cout <<"enter integers ";
```

```
cin>>arr[i];
```

```
if (arr[i]%2 == 0)
```

```
{
```

```
evensum=evensum+arr [i];
```

```
}
```

```
else
```

```
{
```

```
oddsum=oddsum+arr [i];
```

```
}
```

```
}
```

```
cout<<"the odd sum from integers is"<<oddsum<<endl;
```

```
cout<<"the even sum from integers is"<<evensum<<endl;

return 0;

}
```

**Qno9:**

**Write a program to find total number of all odd and even numbers In an array.**

```
#include <iostream>

using namespace std;

int main ()

{

const int size=5;

int arr[size];

int odd=0, even=0;

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

{

cout <<"enter integers ";

cin>>arr[i];

if (arr[i]%2 == 0)

{

even++;

}

else

{

odd++;

}

}
```



```

cout<<"the odd sum from integers is"<<odd<<endl;

cout<<"the even sum from integers is"<<even<<endl;

return 0;

}

```

### (Class Work Questions)

(QN01)

Write a program of an array of size 10. And find maximum and minimum number in it and then swap their position.

```

#include <iostream>

using namespace std;

int main ()

{

int max,min,m,n, temp;

const int size=10;

int arr[size];

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

{

cout <<" enter a number "<<endl;

cin>>arr[i];

}

max=min=arr[0];

m=n=0;

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

{

if (max<arr[j])

{

```

```

max=arr [j];

m=j;

}

if (min>arr[j])

{

min=arr [j];

n=j;

}

}

temp =arr [m];

arr[m]=arr[n];

arr [n]=temp;

cout<<"new array is"<<endl;

for (int k=0; k<size ; k++)

{

cout<<arr [k]<<endl;

}

return 0;

}

```

**(Qno2)**

Write a program that finds a specific number in the array by searching and then display whether the number is found or not. If it is found then also display it's location.

```

#include <iostream>

using namespace std;

int main ()

{

```

```
int s,found=-1;

const int size=10;

int arr[size];

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

{

cout <<" enter a number "<<endl;

cin>>arr[i];

}

cout<<"enter a searching number "<<endl;

cin>>s;

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

{

if (s==arr[j])

{

found =j;

}

}

if (found!=-1)

{

cout<<s<<" is found at "<< found<<endl;

}

else

cout<<s<<" is not found" <<endl;

return 0;

}
```

### **(2ND METHOD OF THIS Q)**

Searching a number whether it is found in array or not. And display the index of that number if it is found.

```
#include <iostream>

using namespace std;

int linearSearch(int arr [],int n, int key)

{
    for (int i=0; i<n; i++)
    { if (arr[i]==key)
    {
        return i;
    }
    }
    return -1;
}

int main ()

{
    int n;

    cout<<"enter a number"<<endl;

    cin>>n;

    int arr[n];

    for (int i=0; i<n; i++)
    {
        cin>>arr[i];
    }
```

```

int key;

cout<<"enter a key"<<endl;

cin>>key;

cout<<"key is present at index "<<linearSearch(arr,n,key)<<endl;

return 0;

}

```

**(QN03)**

Write a program with an array of size 10 and then user inputs a searching number to check whether the searching number is present or not. If it is present then display how many times it is present. If searching number is not present then display number is not found.

```

#include <iostream>

using namespace std;

int main ()

{

int s,found=-1,count=0;

const int size=10;

int arr[size];

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

{

cout <<" enter a number "<<endl;

cin>>arr[i];

}

cout<<"enter a searching number "<<endl;

cin>>s;

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

{

```

```

if (s==arr[j])
{
found =j;
count++;
}
}

if (found!=-1)
{
cout<<s<<" is found at "<< found<<" and is present "<<count<<" times in the array "<<endl;
}
else
cout<<s<<" is not found" <<endl;

return 0;
}

```

### (HOMEWORK QUESTIONS)

(QN01)

Find the duplicate elementa in an array of size 10.

```

#include <iostream>

using namespace std;

int main ()
{
const int size =10;

int arr[size]={1,2,3,4,3,5,8,5,6,4};

cout<<"duplicate numbers are"<<endl;

```

```

for (int i=0; i<size ;i++)
{
for (int j=i+1; j<size;j++)
if (arr[i]==arr[j])
{
cout<<arr[i]<<endl;
break;
}
}
return 0;
}

```

**(QN02)**

**Find the duplicate elements in two arrays of size 10.**

```

#include <iostream>

using namespace std;

int main ()
{
const int size =10;

int arr[size]={1,2,3,4,3,5,8,5,6,4};

int arr2[size]={2,3,5,6,7,8,9,2,5,6};

cout<<"duplicate numbers are"<<endl;

for (int i=0; i<size ;i++)
{
for (int j=i+1; j<size;j++)
if (arr[i]==arr2[j])

```

```

{
cout<<arr[i]<<endl;
break;
}
}
return 0;
}

```

(QN03)

Find the duplicate elements in two arrays of size 10 and store them in the 3rd array.

```

#include <iostream>
using namespace std;
int main ()
{
int k=0;
const int size =10;
int arr[size]={1,2,3,4,3,5,8,5,6,4};
int arr2[size]={2,3,5,6,7,8,9,2,5,6};
int arr3[size];
cout<<"duplicate numbers are"<<endl;
for (int i=0; i<size ;i++)
{
for (int j=0; j<size;j++)
{
if (arr[i]==arr2[j])
{

```



```

arr3[k]=arr[i];

k++;

break;

}

}

}

cout<<"new array is"<<endl;

for (int l=0; l<k; l++)

{

cout<<arr3[l]<<endl;

}

return 0;

}

```

### **(BINARY SEARCH)**

Write a program with an array of size 10 and find a number in the array using binary search.

```

#include<iostream>

using namespace std;

int main(){

    int arr[10]={10,20,30,40,50,60,70,80,90,100};

    int found=-1;

    int s=0;

    int e=9;

    int mid;

    int key;

    cout<<"enter a number for search"<<endl;

    cin>>key;

```

```

while (s<=e && found==-1)
{

    mid=(s+e)/2;

    if (arr[mid]==key){

        found=mid;

        break;

    }

    else if (arr[mid]>key){

        e=mid-1;

    }

    else

        s=mid+1;

}

if (found!=-1)

    cout<<key<<" not found "<<endl;

else

    cout<<key<<"  found at index "<<found<<endl;

    return 0;

}

```

### **(SELECTION SORTING)**

Write a program with an array of size 10 and sort them in ascending order.

```

#include <iostream>

using namespace std;

int main ()

{

```

```

const int size =10;

int arr[size];

for (int i=0; i<size; i++)
{
    cin>>arr[i];
}

for (int j=0; j<size-1; j++)
{
    for (int k=j+1; k<size ; k++)
    {
        if (arr[k]<arr [j]) {
            int temp =arr[k];
            arr[k]=arr[j];
            arr[j]= temp;
        }
    }
}

for (int j=0; j<size; j++)
    cout<<arr[j]<<" "<<endl;

return 0;
}

```

### **(Bubble Sort)**

```

#include <iostream>

using namespace std;

int main ()

```

```

{

const int size =10;

int arr[size];

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

{

    cin>>arr[i];

}

int counter=1;

while (counter<size) {

    for (int i=0 ; i<size-counter; i++)

    {

        if (arr [i]>arr[i+1]) {

            int temp=arr [i];

            arr[i]=arr [i+1];

            arr[i+1]=temp;

        }

    }

    counter++;

}

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

    cout<<arr[i]<<"  "<<endl;

return 0;

}

```

Write a program with an array of size 05. And find three largest element from them.

```
#include <iostream>

using namespace std;

int main ()
{
    int fmax,smax,tmax;

    const int size =5;

    int arr[size];

    for (int i=0; i<size; i++)
    {
        cout<<"enter number"<< (i+1) <<" : "<<endl;
        cin>>arr[i];
    }

    fmax=smax=tmax=arr[0];

    for (int j=1 ; j<size ; j++)
    {
        if (arr[j]>fmax)
        {
            tmax= smax;
            smax=fmax;
            fmax=arr [j];
        }

        else if (arr[j]>smax)
        {
            tmax= smax;
            smax=arr [j];
        }
    }
}
```

```

else if (arr[j]>tmax)
{
tmax=arr [j];
}
}

cout<<" First largest element is : "<<fmax<<endl;
cout<<" Second largest element is : "<<smax<<endl;
cout<<" Third largest element is : "<<tmax<<endl;

return 0;

}

```

### **NOTE:**

(This program can also be used to find only 2nd largest element from array we just remove the 3rd max number from program)

(Same method will be applied when we have to find 3 minimum numbers from array we just reverse the direction of assignment operators).

THE END.