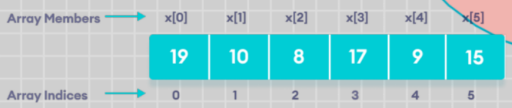
C++ Programs

ARRAY QUESTIONS

ARRAY CREATION

```
#include <iostream>
using namespace std;

int foo [] = {16, 2, 77, 40, 12071};
int n, result=0;

int main ()
{
  for ( n=0 ; n<5 ; ++n )
  {
    result += foo[n];
  }
  cout << result;
  return 0;
}
```



enter size

4

1 2 3 4

sum=10

product=2

ARRAY SUM AND PRODUCT

```
#include<iostream>
using namespace std;
int main ()
{
   int arr[10], n, i, sum = 0, pro = 1;
   cout << "Enter the size of the array : ";
   cin >> n;
   cout << "\nEnter the elements of the array : ";
   for (i = 0; i < n; i++)
   cin >> arr[i];
   for (i = 0; i < n; i++)
   {
      sum += arr[i];
      pro *= arr[i];
   }
   cout << "\nSum of array elements : " << sum;
   cout << "\nProduct of array elements : " << pro;
   return 0;
}
```

```
  int n, i;
  float num[100], sum=0.0, average;

  cout << "Enter the numbers of data: ";
  cin >> n;

  while (n > 100 || n <= 0)
  {
     cout << "Error! number should in range of (1 to 100)." << endl;
     cout << "Enter the number again: ";
     cin >> n;
  }

  for(i = 0; i < n; ++i)
  {
     cout << i + 1 << ". Enter number: ";
     cin >> num[i];
     sum += num[i];
  }

  average = sum / n;
  cout << "Average = " << average;

  return 0;
}
```

AVERAGE ARRAY

```
#include <iostream.h>
void main()
{
?int sum=0;
?int i, a[6];
?int range;
?cout<<"Enter a range"<<endl;
?cin>>range;
?cout<<"Enter some numbers"<<endl;
?for(i=0;i<range; i++)
?{
??cin>>a[i];
?}
?if (a[i]%2==0)
?{
??sum=a[i];
??sum=sum+a[i];
??cout<<"Sum of even numbers="<<sum<<endl;
?}
}
```

SUM OF EVEN ARRAY

REVERSE ARRAY

```
#include<iostream>
using namespace std;
int main()
{
    int arr[100], size, i, j, temp;
    cout<<"\n Enter Array Size : ";
    cin>>size;
    cout<<"\n Enter Array Elements : \n";
    for(i=0; i<size; i++)
    {
        cin>>arr[i];
    }
    cout<<"\n Array Elements : \n\n";
    for(i=0; i<size; i++)
    {
        cout<<arr[i]<<"\t";
    }
    j=i-1;  // j points to the last element and i points to the first element
    i=0;
    while(i<j)
    {
        temp=arr[i];
        arr[i]=arr[j];
        arr[j]=temp;
        i++;
        j--;
    }
    cout<<"\n\n Reverse Array Elements : \n\n";
    for(i=0; i<size; i++)
    {
        cout<<arr[i]<<"\t";
    }
    return 0;
}
```

LARGEST IN ARRAY

```
#include <iostream>
using namespace std;
int main(){
  //n is the number of elements in the array
  int n, largest;
  int num[50];
  cout<<"Enter number of elements you want to enter: ";
  cin>>n;

  for(int i = 0; i < n; i++) {
    cout<<"Enter Element "<<(i+1)<< ": ";
    cin>>num[i];
  }
  // Storing first array element in "largest" variable
  largest = num[0];
  for(int i = 1;i < n; i++) {

    if(largest < num[i])
      largest = num[i];
  }
  cout<<"Largest element in array is: "<<largest;
  return 0;
}
```

SORTED 2ND MAX

```
#include<iostream>
using namespace std;
int main ()
{
   int A[10], n, i, j, x;
   cout << "Enter size of array : ";
   cin >> n;
   cout << "Enter elements of array : ";
   for (i = 0; i < n; i++)
      cin >> A[i];
   for (i = 0; i < n; i++)
   {
      for (j = i + 1; j < n; j++)
      {
         if (A[i] < A[j])
         {
            x = A[i];
            A[i] = A[j];
            A[j] = x;
         }
      }
   }
   cout << "Second largest number : " << A[1];
   cout << "\nSecond smallest number : " << A[n - 2];
   return 0;
}
```

WITHOUT SORTING

```
#include <iostream>
using namespace std;
int main(){
  int n, num[50], largest, second;
  cout<<"Enter number of elements: ";
  cin>>n;
  for(int i=0; i<n; i++){
    cout<<"Enter Array Element"<<(i+1)<<": ";
    cin>>num[i];
  }

  if(num[0]<num[1]){
    largest = num[1];
    second = num[0];
  }
  else{
    largest = num[0];
    second = num[1];
  }
  for (int i = 2; i< n ; i ++) {

    if (num[i] > largest) {
      second = largest;
      largest = num[i];
    }

    else if (num[i] > second && num[i] != largest) {
      second = num[i];
    }
  }
  cout<<"Second Largest Element in array is: "<<second;
  return 0;
}
```

Shrivant

merging

```
#include<iostream>
using namespace std;
int main()
{
   int arrOne[50], arrTwo[50], arrMerge[100];
int sizeOne, sizeTwo, i, k;
   cout<<"Enter the Size for First Array: ";
   cin>>sizeOne;
   cout<<"Enter "<<sizeOne<<" Elements for First Array: ";
   for(i=0; i<sizeOne; i++)
   {
      cin>>arrOne[i];
      arrMerge[i] = arrOne[i];
   }
   k = i;
   cout<<"\nEnter the Size for Second Array: ";
   cin>>sizeTwo;
   cout<<"Enter "<<sizeTwo<<" Elements for Second Array: ";
   for(i=0; i<sizeTwo; i++)
   {
      cin>>arrTwo[i];
      arrMerge[k] = arrTwo[i];
      k++;
   }
   cout<<"\nThe New Array (Merged Array):\n";
   for(i=0; i<k; i++)
      cout<<arrMerge[i]<<" ";
   cout<<endl;
   return 0;
}
```

```
#include<iostream>
using namespace std;
int main()
{
   int arrOne[50], arrTwo[50], arrMerge[100];
   int sizeOne, sizeTwo, sizeMerge, i, j, temp;
   cout<<"Enter the Size for First Array: ";
   cin>>sizeOne;
   cout<<"Enter the Size for Second Array: ";
   cin>>sizeTwo;
   cout<<"\nEnter "<<sizeOne<<" Elements for First Array: ";
   for(i=0; i<sizeOne; i++)
      cin>>arrOne[i];
   cout<<"\nEnter "<<sizeTwo<<" Elements for Second Array: ";
   for(i=0; i<sizeTwo; i++)
      cin>>arrTwo[i];
   // merging the two arrays
   for(i=0; i<sizeOne; i++)
   {
      arrMerge[i] = arrOne[i];
   }
   for(j=0; j<sizeTwo; j++)
   {
      arrMerge[i] = arrTwo[j];
      i++;
   }
   sizeMerge = i;
   // sorting the merged array in ascending order
   for(j=0; j<(sizeMerge-1); j++)
   {
      for(i=0; i<(sizeMerge-1); i++)
      {
         if(arrMerge[i]>arrMerge[i+1])
         {
            temp = arrMerge[i];
            arrMerge[i] = arrMerge[i+1];
            arrMerge[i+1] = temp;
         }
      }
   }
```

```
   cout<<"\nThe New Array
(Merged Array):\n";
   for(i=0; i<sizeMerge; i++)
   {
      if(i==(sizeMerge-1))
         cout<<arrMerge[i];
      else
         cout<<arrMerge[i]<<" ";
   }
   cout<<endl;
   return 0;
}
```

sort MErge

INSERTION

```
#include <iostream>
using namespace std;

int main()
{
   int array[100], position, c, n, value;
   cout<<"Enter number of elements in
array\n"<<endl;
   cin>>n;
   cout<<"Enter elements\n"<<endl;
   for (c = 0; c < n; c++)
   cin>>array[c];
   cout<<"Enter the location where you wish to
insert an element\n"<<endl;
   cin>>position;
   cout<<"Enter the value to insert\n"<<endl;
   cin>>value;
   for (c = n - 1; c >= position - 1; c--)
  array[c+1] = array[c];
   array[position-1] = value;
   cout<<"Resultant array is\n"<<endl;

   for (c = 0; c <= n; c++)
      cout<<array[c];
   return 0;
}
```

DELETION

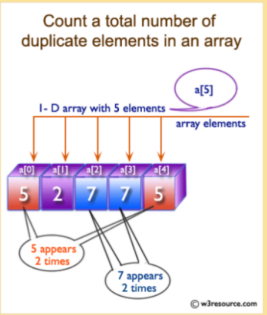
```
#include <iostream>
using namespace std;

int main() {


  int a[100], size, pos, i, count = 0;

  cout << "Enter the size of an array \n";
  cin  >> size;

  cout << "Enter the value in an array \n";

  // Take an input array
  for (i = 0; i < size; i++) {
   cin >> a[i];
  }

  //Input position where we delete an element
  cout << "Enter the position \n";
  cin  >> pos;

  //Shift element from i+1 to i
  for(i = pos-1; i < size; i++) {

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

  // Reduce the size of an array
  size--;

 // Print an array after deleting an element
 for(i = 0; i < size; i++) {

   cout<<"  "<<a[i];

 }

 return 0;
}
```

FIND DUPLICATE

```
#include<iostream>
using namespace std;

int main()
 {
  int i,arr[20],j,no;

  cout<<"Enter Size of array: ";
  cin>>no;
  cout<<"Enter any "<<no<<" num in array: ";
  for(i=0;i<no;i++)
  {
   cin>>arr[i];
  }
  cout<<"Dublicate Values are: ";
  for(i=0; i<no; i++)
   {
    for(j=i+1;j<no;j++)
    {
    if(arr[i]==arr[j])
    {
    cout<<"\n"<<arr[i];
    }
   }
   }

}
```

DELETE DUPLICATE

```
#include<iostream>
using namespace std;

int main()
{
 int arr[20], i, j, k, size;

  cout<<"\nEnter Size of an Array: ";
  cin>>size;

  cout<<"\nEnter any" <<size <<" Numbers : ";
  for (i = 0; i < size; i++)
    cin>>arr[i];

  cout<<"\nArray with Unique list  : ";
  for (i = 0; i < size; i++)
  {
    for (j = i + 1; j < size;)
? {
      if (arr[j] == arr[i])
?? {
        for (k = j; k < size; k++)
???{
          arr[k] = arr[k + 1];
        }
        size--;
      }
?? else
        j++;
    }
  }

  for (i = 0; i < size; i++)
  {
    cout<<arr[i];
  }

}
```



SORTING ASCENDING

```
#include<iostream>
using namespace std;

int main()
{
 int i,a[50],temp,j,n;
 cout<<"Enter size num in array: \n";
 cin>>n;
 for(i=0;i<n;i++)
 {
 cin>>a[i];
 }
 for(i=0;i<n;i++)
 {
 for(j=i+1;j<n;j++)
 {
 if(a[i]>a[j])
 {
 temp=a[i];
 a[i]=a[j];
 a[j]=temp;
 }
 }
 }
 cout<<"\nData after sorting: ";
 for(i=0;i<n;i++)
 {
 cout<<a[i];
 }
 }
```

SORTING DESCENDING

```
#include<iostream>
using namespace std;

int main()
 {
 int i,a[50],temp,j,n;
 cout<<"Enter size num in array: \n";
 cin>>n;
 for(i=0;i<n;i++)
 {
 cin>>a[i];
 }
 for(i=0;i<n;i++)
 {
 for(j=i+1;j<n;j++)
 {
 if(a[i]<a[j])
 {
 temp=a[i];
 a[i]=a[j];
 a[j]=temp;
 }
 }
 }
 cout<<"\nData after sorting: ";
 for(i=0;i<n;i++)
 {
 cout<<a[i];
 }
 }
```