

Array Solution:

=====

1. Write a program to find average of n students mark.

```
#include <stdio.h>
```

```
int main(){
```

```
    int num[100];
```

```
    int i,n,sum=0;
```

```
    float avg;
```

```
    printf("Enter the amount of students:");
```

```
    scanf("%d", & n);
```

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

```
        printf("Enter marks of num[%d]:", i );
```

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

```
        sum=sum+num[i];
```

```
    }
```

```
    avg=sum/n;
```

```
    printf("The average is:%.2f", avg);
```

```
    return 0;
```

```
}
```

2. Write a program to find maximum number.

```
#include <stdio.h>
```

```
int main(){
```

```
    int num[50];
```

```
    int i,n,max=-9999;
```

```
    printf("Insert how many numbers to store in array:");
```

```
    scanf("%d", &n);
```

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

```
        printf("Enter num[%d]:", i);
```

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

```
        if(num[i]>max)
```

```
            max=num[i];
```

```
    }
```

```
    printf("The maximum is :%d", max);
```

```
    return 0;
```

```
}
```

3. Write a program to find minimum number.

```
#include <stdio.h>
```

```
int main(){
```

```
    int num[50];
```

```
    int i,n,min=9999;
```

```
    printf("Insert how many numbers to store in array:");
```

```
    scanf("%d", &n);
```

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

```
        printf("Enter num[%d]:", i);
```

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

```
        if(num[i]<min)
```

```
            min=num[i];
```

```
    }
```

```
    printf("The minimum is :%d", min);
```

```
    return 0;
```

```
}
```

4. Write a program in C to copy the elements of one array into another array.

```
#include <stdio.h>

int main(){

    int num[50];
    int dest[50];
    int i,n;

    printf("Insert how many elements to store in array:");
    scanf("%d", &n);

    for(i=0; i<n ;i++){
        printf("Enter num[%d]:",i);
        scanf("%d", &num[i]);
        dest[i]=num[i];
    }

    printf("the elements of one array into another array are:");
    for(i=0 ; i<n ; i++){
        printf("%d", dest[i]);
    }
    return 0;
}
```

5. Write a program in C to separate odd and even integers in separate arrays.

```
#include <stdio.h>
```

```
int main(){
```

```
    int num[50];
```

```
    int even[50];
```

```
    int odd[50];
```

```
    int i,n,j=0,k=0;
```

```
    printf("Insert how many elements to store in array:");
```

```
    scanf("%d", &n);
```

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

```
        printf("Enter num[%d]:", i);
```

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

```
    }
```

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

```
        if(num[i]%2==0){
```

```
            even[j]=num[i];
```

```
            j++;
```

```
        }
```

```
        else{
```

```
            odd[k]=num[i];
```

```
            k++;
```

```

    }
}

printf("The even integers:");
for(i=0 ; i<j ; i++){
    printf("%d,", even[i]);
}
printf("\nThe odd integers:");
for(i=0 ; i<k ; i++){
    printf("%d,", odd[i]);
}

    return 0;
}

```

6. Write a program in C to sort elements of array in ascending order.

```

#include <stdio.h>

int main(){

    int num[50];
    int i,j,temp,n;

    printf("Insert how many elements to store in array:");
    scanf("%d", &n);

```

```
for(i=0 ; i<n ; i++){  
    printf("Enter num[%d]:",i);  
    scanf("%d", &num[i]);  
}  
for(i=0 ; i<n ; i++){  
    for(j=i+1 ; j<n ; j++){  
        if(num[j]<num[i]){  
            temp=num[i];  
            num[i]=num[j];  
            num[j]=temp;  
        }  
    }  
}  
printf("The array in ascending order : ");  
for(i=0 ; i<n ; i++){  
    printf("%d,", num[i]);  
}  
return 0;  
}
```

7. Write a program in C to sort elements of the array in descending order.

```
#include <stdio.h>

int main(){

    int num[50];
    int i,j,temp,n;

    printf("Insert how many elements to store in array:");
    scanf("%d", &n);

    for(i=0 ; i<n ; i++){
        printf("Enter num[%d]:",i);
        scanf("%d", &num[i]);
    }
    for(i=0 ; i<n ; i++){
        for(j=i+1 ; j<n ; j++){
            if(num[j]>num[i]){
                temp=num[i];
                num[i]=num[j];
                num[j]=temp;
            }
        }
    }

    printf("The array in descending order : ");
    for(i=0 ; i<n ; i++){
```



```
    printf("%d,", num[i]);  
}  
return 0;  
}
```

8. Write a program to find prime elements and count how many are there.

```
#include <stdio.h>
```

```
int main(){
```

```
    int num[50];
```

```
    int prime[50];
```

```
    int i,j,n;
```

```
    int count=0;
```

```
    printf("Insert how many numbers to store in the array:");
```

```
    scanf("%d", &n);
```

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

```
        printf("Enter num[%d]:", i);
```

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

```
    }
```

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

```
int flag=0;
for(j=2 ; j<=num[i]/2 ; j++){
    if(num[i]%j==0){
        flag=1;
        break;
    }
}
if(flag==0){
    prime[count]=num[i];
    count++;
}
}

printf("The prime numbers are:");
for(i=0 ; i<count ; i++){
    printf("\n%d,",prime[i]);
}

printf("\nTotal primne numbers are:%d", count);

return 0;
}
```

9. Write a program to read the ages of 15 persons and count the number of persons whose age is between 40 and 60 inclusive.

```
#include <stdio.h>
```

```
int main(){
```

```
    int age[15];
```

```
    int i,count=0;
```

```
    for(i=0 ; i<15 ; i++){
```

```
        printf("Insert age[%d]:", i);
```

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

```
        if(age[i]>=40 && age[i]<=60)
```

```
            count++;
```

```
    }
```

```
    printf("Person between age 40 and 60 are:%d", count);
```

```
    return 0;
```

```
}
```

10. Declare two integer arrays, A and B, of size 5. Take user input for both arrays and determine whether the two arrays are identical or not.

```
#include <stdio.h>
```

```
int main(){
```

```
    int a[5];
```

```
    int b[5];
```

```
    int i, flag=0;
```

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

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

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

```
    }
```

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

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

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

```
    }
```

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

```
        if(a[i]!=b[i]){
```

```
            flag=1;
```

```
            break;
```

```
    }
```

```
}  
if(flag==1)  
    printf("Not Identica");  
else  
    printf("Identica");  
return 0;  
}
```

11. Read 10 integers from the user and store them in an array. Take another integer from the user and check whether it is in the array or not.

```
#include <stdio.h>
```

```
int main(){
```

```
    int num[10];
```

```
    int n,i,found=0;
```

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

```
        printf("Insert num[%d]:", i);
```

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

```
    }
```

```
    printf("Enter a number to check:");
```

```
    scanf("%d", &n);
```

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

```
        if(num[i]==n){
            found=1;
            break;
        }
    }
    if(found==1)
        printf("The number %d is in the array", n);
    else
        printf("The number %d is not in the array", n);

    return 0;
}
```

12. Read an integer n from the user. Then, read n integers from the user and store them in an array.

You can assume that n will not exceed 50. Then, reverse the order of the elements in the array and print them.

```
#include <stdio.h>

int main(){

    int num[50];
    int i,n;

    printf("Enter how many numbers to store in the array:");
    scanf("%d", &n);
```

```

for(i=0 ; i<n ; i++){
    printf("Enter num[%d]:",i);
    scanf("%d", &num[i]);
}
printf("The array in reverse order:");
for(i=n-1 ; i>=0 ; i--){
    printf("%d,", num[i]);
}
return 0;
}

```

13. Write down a C program that takes input of a month (as an integer) and prints the corresponding last date of the month and outputs number of days since Jan 1.

You must use the following array to keep number of days of each month: `int days[] = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};`

```
#include <stdio.h>
```

```
int main(){
```

```
    int days[]={31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};
```

```
    int i,month,totalDays=0;
```

```

printf("Enter the month :");
scanf("%d", &month);

printf("The last day of the month:%d", days[month-1]);

for(i=0 ; i<month ; i++){
    totalDays+=days[i];    //totalDays=totalDays+days[i]
}
printf("\nNumber of days since Jan 1:%d", totalDays);
return 0;
}

```

14. Declare two integer arrays (A and B) of size 10. Take inputs (from user) for both the arrays and store their sum in a third array (C) of size 10.

Also, find out the maximum number in array C.

```

#include <stdio.h>

```

```

int main(){

```

```

    int a[10],b[10],c[10];

```

```

    int i,max;

```

```

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

```



```
printf("Enter a[%d]:", i);
scanf("%d", &a[i]);
}
for(i=0 ; i<10 ; i++){
printf("Enter b[%d]:", i);
scanf("%d", &b[i]);
}

for(i=0,max=-9999; i<10 ; i++){
c[i]=a[i]+b[i];
if(c[i]>max)
    max=c[i];
}
printf("The max is:%d", max);
return 0;
}
```

15. Take an integer input from the user and count the repetition of the digit. Print each digit with its corresponding number of repetition.

```
#include <stdio.h>
```

```
int main(){
```

```
    int count[10]={0};
```

```
    int num,i,mod;
```

```
    printf("Enter a number:");
```

```
    scanf("%d", &num);
```

```
    while(num!=0){
```

```
        mod=num%10;
```

```
        count[mod]++;
```

```
        num=num/10;
```

```
    }
```

```
    printf("\nCorresponding number of repetition:");
```

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

```
        printf("\n%d>>>%d",i,count[i]);
```

```
    }
```

```
    return 0;
```

```
}
```

16. Take an integer array as input from the user of size 10. Now, find out if the array is a palindrome or not.

```
#include <stdio.h>
```

```
int main(){
```

```
    int num[10];
```

```
    int rev[10];
```

```
    int i,j,flag=0;
```

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

```
        printf("Enter num[%d]:", i);
```

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

```
    }
```

```
    for(i=10-1 ,j=0 ; i>=0 ; i-- ,j++){
```

```
        rev[j]=num[i];
```

```
    }
```

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

```
        if(rev[i]!=num[i]){
```

```
            flag=1;
```

```
        break;
    }
}
if(flag==1)
    printf("\nIt is not a Palindrome");
else
    printf("\nIt is a Palindrome");

return 0;
}
```

17.You are given an integer array by the user of size 10. Find the maximum product of two elements in the given array.

```
#include <stdio.h>
```

```
int main(){
```

```
    int num[10];
```

```
    int i,j,n;
```

```
    int max_pro=-1;
```

```
printf("Enter the size of the array:");
scanf("%d", &n);

for(i=0 ; i<n ; i++){
    printf("Enter num[%d]:", i);
    scanf("%d", &num[i]);
}

for(i=0 ; i<n ; i++){
    for(j=i+1 ; j<n ; j++){
        if(max_pro<num[i]*num[j]){
            max_pro=num[i]*num[j];
        }
    }
}

printf("The max product of two elements:%d", max_pro);

return 0;
}
```

18. Write a function to find out the 2nd highest number in an integer array.(Sir final)

```
#include <stdio.h>
```

```
int main(){
```

```
    int num[20];
```

```
    int i,max_1,max_2,n;
```

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

```
    scanf("%d", &n);
```

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

```
        printf("Enter num[%d]:", i);
```

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

```
    }
```

```
    for(i=0 , max_1=-9999 ; i<n ; i++){
```

```
        if(num[i]>max_1){
```

```
            max_2=max_1;
```

```
            max_1=num[i];
```

```
        }
```

```
        else if(num[i]>max_2 && num[i]<max_1){
```

```
            max_2=num[i];
```

```
        }
```

```
}

printf("\nThe 1st highest element in the array:%d", max_1);
printf("\nThe 2nd highest element in the array:%d", max_2);

return 0;
}
```

19. Write a function that converts a decimal number to a binary number.

```
#include <stdio.h>

void decTobin(int num){

    int i,bin[10];

    for(i=0 ; num>0 ; i++){
        bin[i]=num%2;
        num=num/2;
    }

    printf("In binary: ");
    for(i=i-1 ; i>=0 ; i--){
        printf("%d", bin[i]);
    }
}
```

```
    }  
}  
  
int main(){  
  
    int num;  
  
    printf("Enter a decimal number:");  
    scanf("%d", &num);  
  
    decTobin(num);  
  
    return 0;  
}
```

20. Write down a function “int primes(int n)” that takes a positive integer number as input parameter and prints all the prime numbers less than n. (Sir final)

```
#include <stdio.h>
```

```
int primes(int n){  
  
    int i,j;  
  
    printf("The prime numbers are:");
```



```
for(i=2 ; i<=n ; i++){  
    int flag=0;  
    for(j=2 ; j<=i/2 ; j++){  
        if(i%j==0){  
            flag=1;  
            break;  
        }  
    }  
    if(flag==0){  
        printf("%d , ", i);  
    }  
}  
return 0;  
}
```

```
int main(){  
  
    int num;  
  
    printf("Enter the highest term:");  
    scanf("%d", &num);  
  
    primes(num);  
  
    return 0;  
}
```

21. Write a program to find an integer number in an array. If the number didn't found add the number at the end of the array.

```
#include <stdio.h>
```

```
int main(){
```

```
    int num[20];
```

```
    int n,i,flag=0,x;
```

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

```
    scanf("%d" , &n);
```

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

```
        printf("Enter element-%d :", i);
```

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

```
    }
```

```
    printf("\nEnter a number to check:");
```

```
    scanf("%d" , &x);
```

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

```
    if(num[i]==x){  
        flag=1;  
        break;  
    }  
}  
  
if(flag==1){  
    printf("\nThe number %d is found",x);  
}  
  
else{  
    num[i]=x;  
  
    printf("\nThe number %d is not found",x);  
    printf("\nAfter addition:");  
    for(i=0 ; i<n+1 ; i++){  
        printf("%d , " , num[i]);  
    }  
}  
  
return 0;  
}
```