**1.read n number of values in an array and display it in reverse order.**

**Program:-**

#include <stdio.h>

int main() {

int a[10],i,s;

printf("Enter size of array: ");

scanf("%d",&s);

printf("enter elements: \n");

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

{

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

}

printf("elements are : \n");

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

{

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

}

printf("\nreverse of the avove no is: \n");

for(i=s;i>=1;--i)

{

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

}

return 0;

}

**Output:-**

Enter size of array: 3

enter elements:

1

2

3

elements are :

1 2 3

reverse of the avove no is:

3 2 1

**2. find the sum of all elements of the array.**

**Program:-**

#include <stdio.h>

int main() {

int a[10],i,s,sum=0;

printf("Enter size of array: ");

scanf("%d",&s);

printf("enter elements: \n");

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

{

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

sum=sum+i;

}

printf("elements are : \n");

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

{

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

}

printf("\nsum of the above elements are: %d",sum);

return 0;

}

**Output:-**

Enter size of array: 4

enter elements:

1

5

4

10

elements are :

1 5 4 10

sum of the above elements are: 10

**3. copy the elements of one array into another array.**

**Program:-**

#include <stdio.h>

int main() {

int a[15],b[15],i,n;

printf("Enter elements size : ");

scanf("%d",&n);

printf("enter elements : ");

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

{

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

}

printf("after coping elements are :\n");

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

{

b[i]=a[i];

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

}

return 0;

}

**Output:-**

Enter elements size : 4

enter elements: 1

2

3

4

after coping elements are :

1 2 3 4

**4. count a total number of duplicate elements in an array.**

**Program:-**

#include <stdio.h>

int main() {

int a[15],b[15],i,j,n,c=0;

printf("Enter elements size : ");

scanf("%d",&n);

printf("enter elements : ");

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

{

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

}

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

{

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

{

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

{

c++;

break;

}

}

}

printf("total no of duplicate elements are : %d ",c);

return 0;

}

**Output:-**

Enter elements size : 5

enter elements : 4

5

6

4

4

total no of duplicate elements are : 2

**5. find the maximum and minimum element in an array.**

**Program:-**

#include<stdio.h>

int main()

{

int a[30],i,n,min,max;

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

scanf("%d",&n);

printf("Enter elements in array : ");

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

{

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

}

min=max=a[0];

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

{

if(min>a[i])

min=a[i];

if(max<a[i])

max=a[i];

}

printf("minimum of array is : %d",min);

printf("\nmaximum of array is : %d",max);

return 0;

}

**Output:-**

Enter size of the array : 5

Enter elements in array : 6

7

8

9

7

minimum of array is : 6

maximum of array is : 9

**6. separate odd and even integers in separate arrays.**

**Program:-**

#include<stdio.h>

int main()

{

int a[30],i,n,e[30],o[30];

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

scanf("%d",&n);

printf("Enter elements in array : ");

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

{

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

}

printf("even elements are: \n");

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

{

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

e[i]=a[i];

printf("%d \t",e[i]);

}

printf("\n odd elements are: \n");

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

{

if(a[i]%2!=0)

o[i]=a[i];

printf("%d\t",o[i]);

}

return 0;

}

**Output:-**

Enter size of the array : 6

Enter elements in array : 1

2

3

4

5

6

even elements are:

0 2 0 4 0 6

odd elements are:

1 0 3 0 5 0

**7. insert New value in the array.**

**Program:-**

#include <stdio.h>

int main()

{

int a[30], p, i, n,v;

printf("Enter number of elements in array : ");

scanf("%d", &n);

printf("Enter %d elements\n", n);

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

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

printf("Your entered elements are : ");

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

{

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

}

printf("\nEnter the position where to add a element\n");

scanf("%d", &p);

printf("Enter the value of element : \n");

scanf("%d", &v);

if (p> n)

printf("\nEntered wrong postion of array.\n");

else

{

for (i = p ; i>=n ; i--)

a[i] = a[i-1];

a[i-1]=v;

printf("\nafter delete an element the array is :\n");

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

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

}

return 0;

}

**Output:-**

Enter number of elements in array : 3

Enter 3 elements

1

5

3

Your entered elements are : 1 5 3

Enter the position where to add a element

2

Enter the value of element :

2

after delete an element the array is :

1 2 3

**8. delete an element at desired position from an array.**

**Program:-**

#include <stdio.h>

int main()

{

int a[30], p, i, n;

printf("Enter number of elements in array : ");

scanf("%d", &n);

printf("Enter %d elements\n", n);

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

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

printf("Your entered elements are : ");

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

{

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

}

printf("\nEnter the position to delete a element\n");

scanf("%d", &p);

if (p>= n+1)

printf("\nEntered wrong postion of array.\n");

else

{

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

a[i] = a[i+1];

printf("\nafter delete an element the array is :\n");

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

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

}

return 0;

}

**Output:-**

Enter number of elements in array : 5

Enter 5 elements

1

10

11

20

15

Your entered elements are : 1 10 11 20 15

Enter the position to delete a element :

2

after delete an element the array is :

1 11 20 15

**9. find the second largest element in an array.**

**Program:-**

#include <stdio.h>

int main()

{

int a[10], p, i;

int n,l,sl,j;

printf("Enter number of elements in array : ");

scanf("%d", &n);

printf("Enter %d elements\n", n);

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

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

l=a[0];

sl=a[1];

printf("Your entered elements are : \n");

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

{

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

}

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

{

if (a[i]>l)

{

sl=l;

l=a[i];

}

else if (a[i]>sl&&a[i]!=l)

{

sl=a[i];

}}

printf("sl element is : %d",sl);

return 0;

}

**Output:-**

Enter number of elements in array : 3

Enter 3 elements

5

7

9

Your entered elements are :

5 7 9 sl element is : 7

**10. find the median of two sorted arrays of same size.**

**Program:-**

#include <stdio.h>

int getMedian(int ar1[], int ar2[], int n)

{

int i = 0;

int j = 0;

int count;

int m1 = -1, m2 = -1;

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

{

if (i == n)

{

m1 = m2;

m2 = ar2[0];

break;

}

else if (j == n)

{

m1 = m2;

m2 = ar1[0];

break;

}

if (ar1[i] < ar2[j])

{

m1 = m2;

m2 = ar1[i];

i++;

}

else

{

m1 = m2;

m2 = ar2[j];

j++;

}

}

return (m1 + m2)/2;

}

int main()

{

int ar1[] = {1, 12, 15, 26, 38};

int ar2[] = {2, 13, 17, 30, 45};

int n1 = sizeof(ar1)/sizeof(ar1[0]);

int n2 = sizeof(ar2)/sizeof(ar2[0]);

if (n1 == n2)

printf("Median is %d", getMedian(ar1, ar2, n1));

else

printf("Doesn't work for arrays of unequal size");

getchar();

return 0;

}

**Output:-**

Median is 16

**11. multiplication of two square Matrices.**

**Program:-**

#include <stdio.h>

int main() {

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

int i,j,r1,c1,r2,c2,m,sum=0;

printf("Enter size of 1st array row: ");

scanf("%d",&r1);

printf("Enter size of 1st array column: ");

scanf("%d",&c1);

printf("Enter size of 2nd array row: ");

scanf("%d",&r2);

printf("Enter size of 2nd array column: ");

scanf("%d",&c2);

if(c1!=r2)

printf("array is not same size so multiplication not possible.");

else

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

for(i=0;i<r1;i++)

{

for(j=0;j<c1;j++)

{

printf("value of [%d][%d]= ",i,j);

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

}

}

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

for(i=0;i<r2;i++)

{

for(j=0;j<c2;j++)

{

printf("value of [%d][%d]= ",i,j);

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

}

}

//for multiplication

for(i=0;i<r1;i++)

{

for(j=0;j<c2;j++)

{

for(m=0;m<r1;m++)

{

sum=sum+a[i][m]\*b[m][j];

}

mp[i][j]=sum;

sum=0;

}

}

printf("after multiplication: \n") ;

for(i=0;i<r2;i++)

{

for(j=0;j<c2;j++)

{

printf("%d\t",mp[i][j]);

}

printf("\n");

}

return 0;

}

**Output:-**

Enter size of 1st array row: 2

Enter size of 1st array column: 2

Enter size of 2nd array row: 2

Enter size of 2nd array column: 2

Enter elements of 1st matrix:

value of [0][0]= 1

value of [0][1]= 2

value of [1][0]= 3

value of [1][1]= 4

Enter elements of 2nd matrix:

value of [0][0]= 5

value of [0][1]= 6

value of [1][0]= 7

value of [1][1]= 8

after multiplication:

19 22

43 50

**12. find transpose of a given matrix.**

**Program:-**

#include <stdio.h>

int main()

{

int a[10][10],t[10][10];

int i,j,r,c;

printf("Enter size of row: ");

scanf("%d",&r);

printf("Enter size of column: ");

scanf("%d",&c);

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

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

{

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

{

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

}

}

printf("your entered matrix is : \n");

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

{

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

{

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

}

printf("\n");

}

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

{

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

{

t[j][i]=a[i][j];

}

}

printf("transforce of matrix: \n");

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

{

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

{

printf("%d\t",t[i][j]);

}

printf("\n");

}

return 0;

}

**Output:-**

Enter size of row: 2

Enter size of column: 3

Enter the elements of array:

1

2

3

4

5

6

your entered matrix is :

1 2 3

4 5 6

transforce of matrix:

1 4

2 5

3 6

**13. find the sum of left diagonals of a matrix.**

**Program:-**

#include <stdio.h>

void main()

{

int i,j,a[10][10],sum=0,n,m=0;

printf("enter size of the matrix : ");

scanf("%d", &n);

m=n;

printf("enter elements of matrix :\n");

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

{

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

{

printf("value of [%d][%d] : ",i,j);

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

}

}

printf("entered matrix is :\n");

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

{

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

{

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

}

printf("\n");

}

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

{

m=m-1;

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

{

if (j==m)

{

sum= sum+a[i][j];

}

}

}

printf("Adding the left Diagonal elements is :%d \n",sum);

}

**Output:-**

enter size of the matrix : 2

enter elements of matrix :

value of [0][0] : 2

value of [0][1] : 2

value of [1][0] : 2

value of [1][1] : 2

entered matrix is :

2 2

2 2

Adding the left Diagonal elements is :4

**14. check whether a given matrix is an identity matrix.**

**Program:-**

#include <stdio.h>

int main()

{

int a[10][10];

int i,j,r,c,flag=1;

printf("Enter size of row: ");

scanf("%d",&r);

printf("Enter size of column: ");

scanf("%d",&c);

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

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

{

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

{

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

}

}

printf("your entered matrix is : \n");

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

{

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

{

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

}

printf("\n");

}

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

{

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

{

if (a[i][j] != 1 && a[j][i] != 0)

{

flag = 0;

break;

}

}

}

if (flag==1)

printf(" your matrix is a identity matrix. \n");

else

{

printf("your matrix is not a identity matrix. \n");

}

return 0;

}

**Output:-**

Enter size of row: 2

Enter size of column: 2

Enter the elements of array:

1

0

0

1

your entered matrix is :

1 0

0 1

your matrix is a identity matrix.

**15. search an element in a row wise and column wise sorted matrix.**

**Program:-**

#include <stdio.h>

int main()

{

int a[10][10];

int i,j,r,c,f;

printf("Enter size of row: ");

scanf("%d",&r);

printf("Enter size of column: ");

scanf("%d",&c);

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

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

{

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

{

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

}

}

printf("your entered matrix is : \n");

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

{

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

{

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

}

printf("\n");

}

printf("enter whose address want to search : \n");

scanf("%d",&f);

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

{

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

{

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

printf("row[%d] column[%d]= value %d ",i,j,f);

}

}

return 0;

}

**Output:-**

Enter size of row: 2

Enter size of column: 2

Enter the elements of array:

11

12

13

14

your entered matrix is :

11 12

13 14

enter whose address want to search :

14

row[1] column[1]= value 14