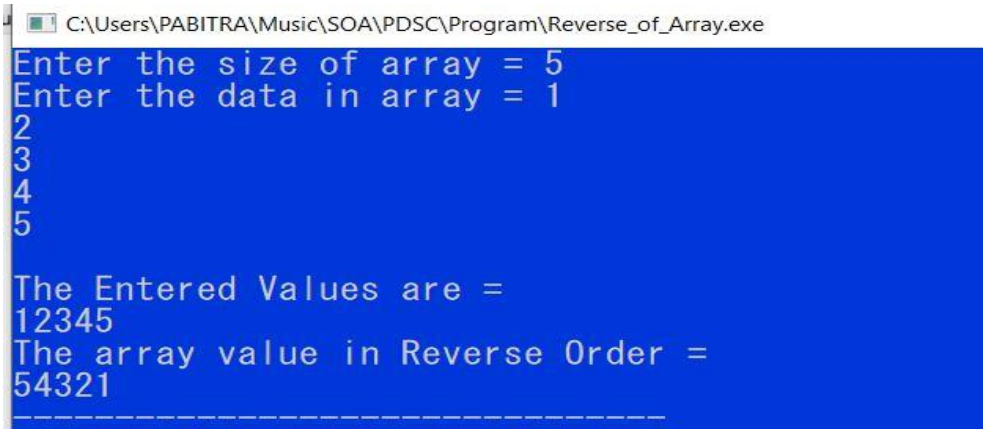
Assignment 7

1. Read n number of values in an array and display it in reverse order ?

Answer :

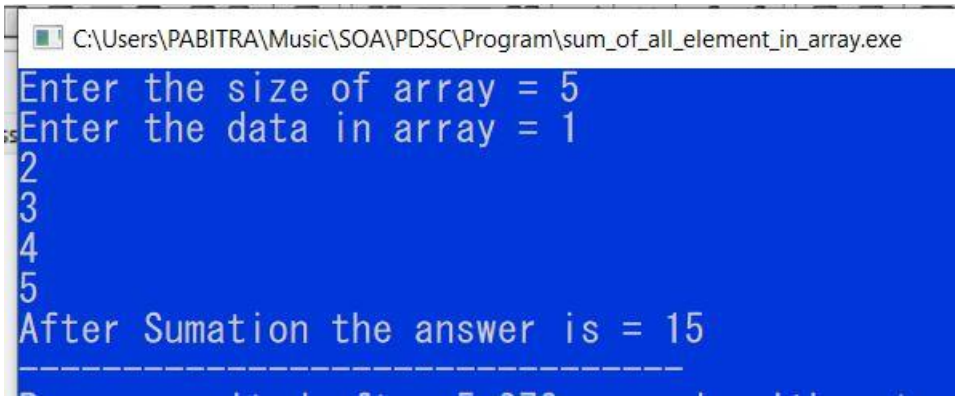
```
#include <stdio.h>
int main()
{
  int i,n,a[100];
  printf("Enter the size of array = ");
  scanf("%d",&n);
  printf("Enter the data in array = ");
  for(i=0;i<n;i++)
        {
              scanf("%d",&a[i]);
        }
  printf("\nThe Entered Values are = \n");
  for(i=0;i<n;i++)
   {
         printf("%d",a[i]);
        }
  printf("\nThe array value in Reverse Order = \n");
  for(i=n-1;i>=0;i--)
    {
         printf("%d",a[i]);
        }
        return 0;
}
```



2. Find the sum of all elements of the array ?

Answer :

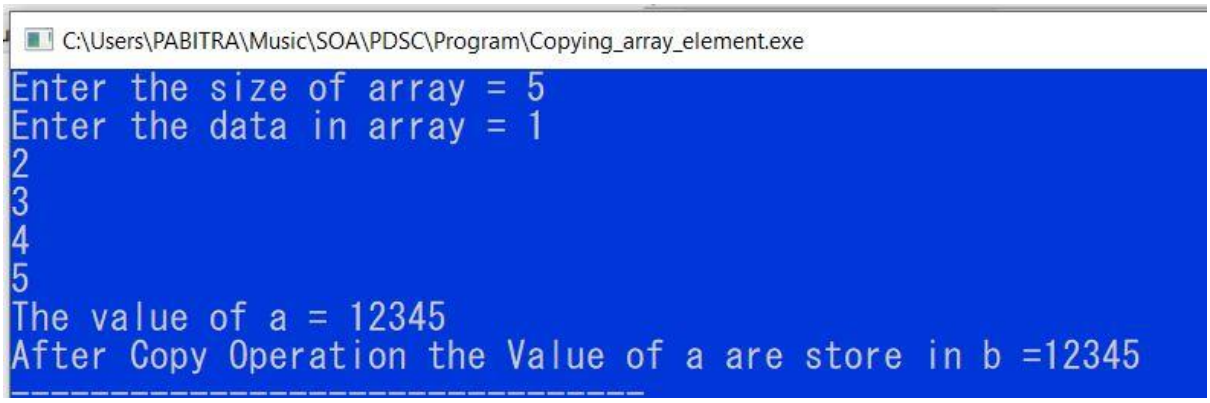
```
#include<stdio.h>
int main()
{
    int a[10],n,i,sum=0;
    printf("Enter the size of array = ");
  scanf("%d",&n);
  printf("Enter the data in array = ");
  for(i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
  for(i=0;i<n;i++)
   {
     sum=sum+a[i];
    }
    printf("After Sumation the answer is = %d",sum);
    return 0;
}
```



3. Copy the elements of one array into another array ?

Answer :

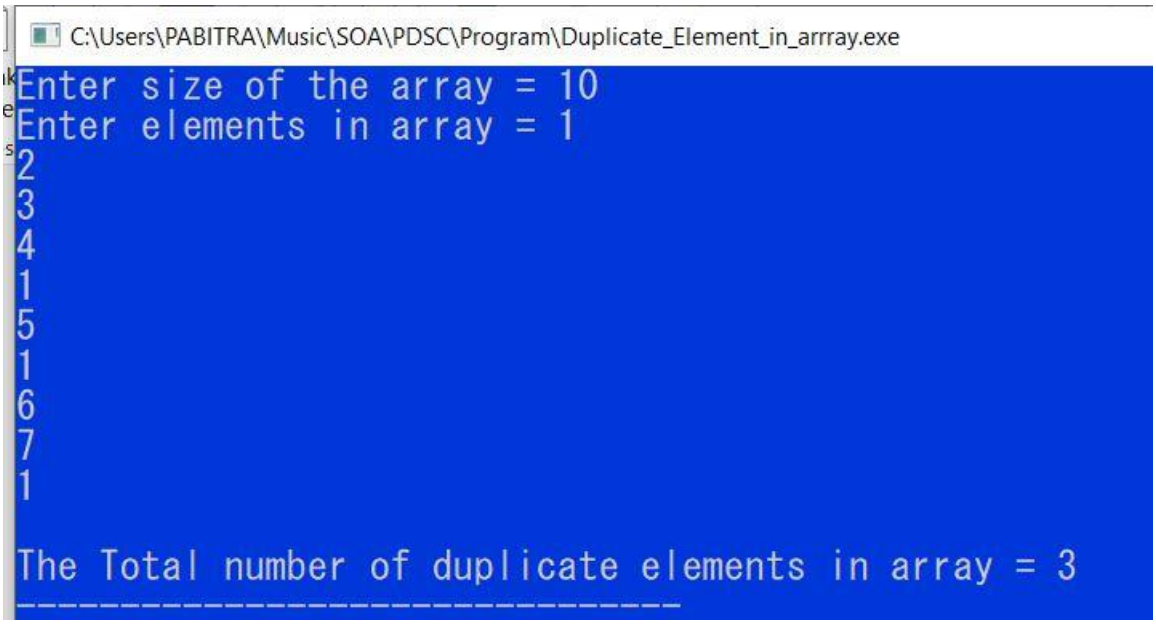
```
#include<stdio.h>
int main()
{
        int a[10],n,i,b[10];
        printf("Enter the size of array = ");
  scanf("%d",&n);
  printf("Enter the data in array = ");
  for(i=0;i<n;i++)
        {
                scanf("%d",&a[i]);
        }
  for(i=0;i<n;i++)
   {
         b[i]=a[i];
        }
        printf("The value of a = ");
        for(i=0;i<n;i++)
   {
          printf("%d",a[i]);
        }
        printf("\nAfter Copy Operation the Value of a are store in b =");
        for(i=0;i<n;i++)
   {
          printf("%d",b[i]);
        }
        return 0;
}
```



4. Count a total number of duplicate elements in an array ?

Answer :

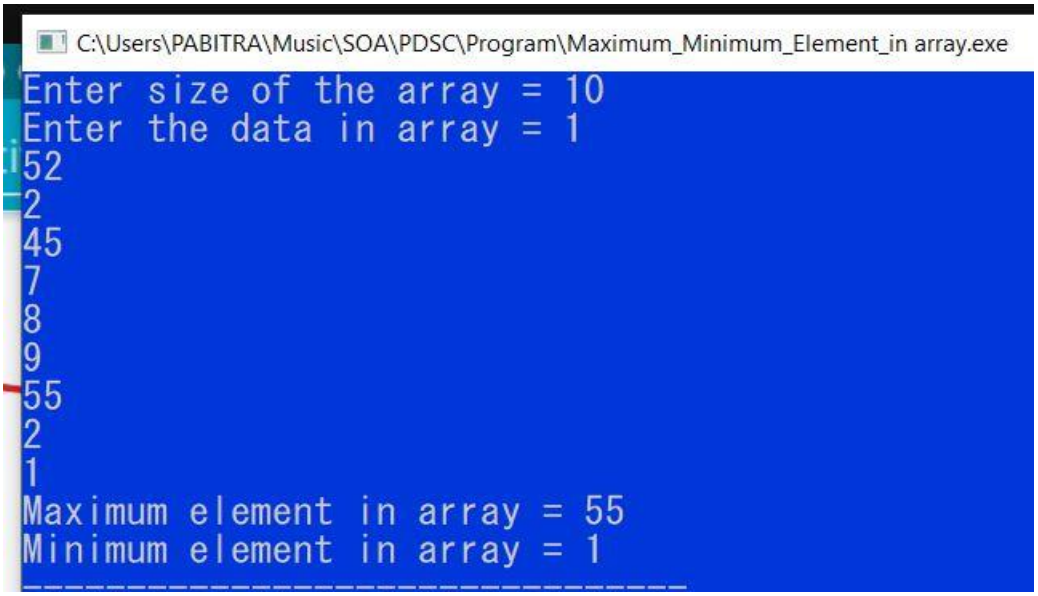
```
#include <stdio.h>
int main()
{
   int a[50],i,j,n,c = 0;
   printf("Enter size of the array = ");
   scanf("%d", &n);
   printf("Enter elements in array = ");
   for(i=0; i<n; i++)
   {
      scanf("%d", &a[i]);
   }
   for(i=0; i<n; i++) {
      for(j=i+1; j<n; j++) {
         if(a[i] == a[j]){
            c++;
            break;
        } } }
   printf("\nThe Total number of duplicate elements in array = %d", c);
   return 0;
}
```



5. Find the maximum and minimum element in an array ?

Answer :

```
#include <stdio.h>
void main()
{
   int a[50], i, max, min, n;
     printf("Enter size of the array = ");
      scanf("%d",&n);
      printf("Enter the data in array = ");
      for(i=0;i<n;i++){
              scanf("%d",&a[i]);
         }
   max = min = a[0];
   for(i=1; i<n; i++) {
      if(a[i]>max)
      {
         max = a[i];
      }
      if(a[i]<min)
      {
         min = a[i];
      } }
   printf("Maximum element in array = %d", max);
   printf("\nMinimum element in array = %d", min);
}
```

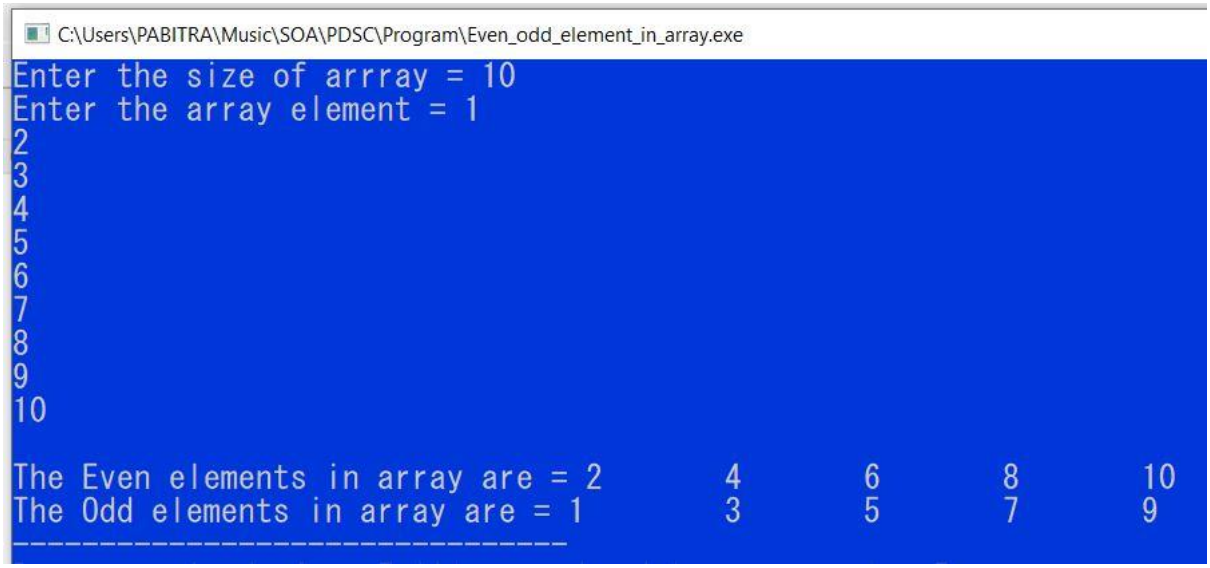


6. Separate odd and even integers in separate arrays ?

Answer :

```
#include <stdio.h>
void main()
 {
   int a[50], even[50], odd[50];
   int i,k=0,m=0,n;
     printf("Enter the size of arrray = ");
     scanf("%d",&n);
     printf("Enter the array element = ");
     for(i=0;i<n;i++)
      {
            scanf("%d",&a[i]);
          }
   for(i=0;i<n;i++)
   {
        if (a[i]%2 == 0)
        {
          even[k] = a[i];
          k++;
        }
        else
        {
          odd[m] = a[i];
          m++;
        }
   }
   printf("\nThe Even elements in array are = ");
   for(i=0;i<k;i++)
   {
        printf("%d\t ",even[i]);
   }
   printf("\nThe Odd elements in array are = ");
   for(i=0;i<m;i++)
   {
        printf("%d\t ", odd[i]);
   }
```

```
}
```



7. Insert new value in the array ?

Answer :

```
#include <stdio.h>
void main()
{
  int a[50], p, i, n, val;
  printf("Enter the size of array = ");
  scanf("%d", &n);
  for (i = 0; i < n; i++)
  {
  printf("Enter the value at the position %d = ", i);
    scanf("%d", &a[i]);
  }
  printf("Enter the position where the value insert = ");
  scanf("%d", &p);
  printf("Enter the value to insert = ");
  scanf("%d", &val);
  for (i = n - 1; i >= p - 1; i--)
  {
  a[i+1] = a[i];
  }
   a[p-1] = val;
  printf("After Insert Operation The Array is = ");
  for (i = 0; i <= n; i++)
```

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

```
C:\Users\PABITRA\Music\SOA\PDSC\Program\Inset_Element_In_array.exe
Enter the size of array = 5
Enter the value at the position 0 = 1
Enter the value at the position 1 = 3
Enter the value at the position 2 = 4
Enter the value at the position 3 = 5
Enter the value at the position 4 = 6
Enter the position where the value insert = 2
Enter the value to insert = 2
After Insert Operation The Array is = 1  2  3  4  5  6
--------------------------------
```

8. Delete an element at desired position from an array ?

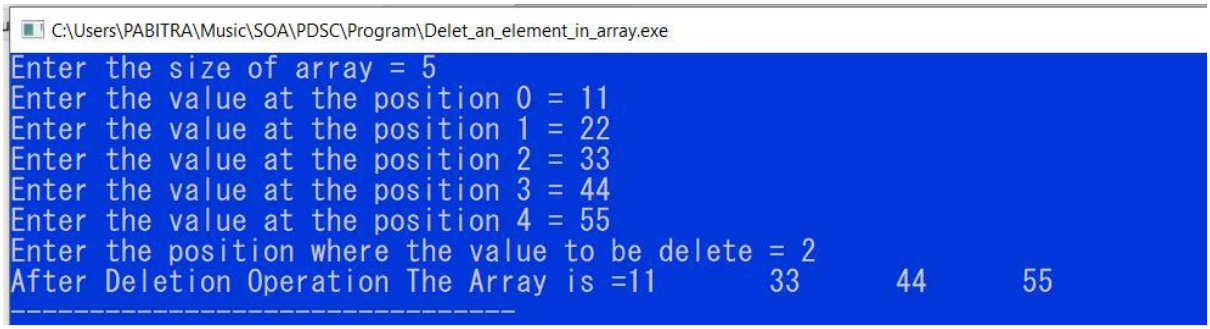
Answer :

```
#include <stdio.h>
void main()
{
  int a[100], p, i, n;
  printf("Enter the size of array = ");
  scanf("%d", &n);
  for (i = 0; i < n; i++)
  {
  printf("Enter the value at the position %d = ", i);
    scanf("%d", &a[i]);
}
  printf("Enter the position where the value to be delete = ");
  scanf("%d", &p);

  if (p >= n+1)
  {
    printf("Deletion not possible.\n");
 }
  else
  {
    for (i = p - 1; i < n - 1; i++)
```

```
    {
      a[i] = a[i+1];
}
    printf("After Deletion Operation The Array is =");

    for (i = 0; i < n - 1; i++)
    {
      printf("%d\t", a[i]);
  }
}
}
```

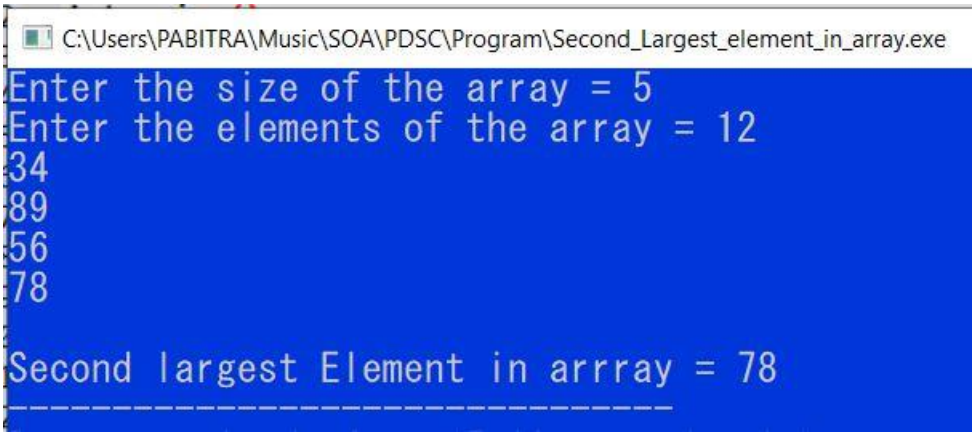


9. Find the second largest element in an array ?

Answer :

```
#include<stdio.h>
int main ()
{
int arr[100],i,n,largest,sec_largest;
printf("Enter the size of the array = ");
scanf("%d",&n);
printf("Enter the elements of the array = ");
for(i = 0; i<n; i++)
{
scanf("%d",&arr[i]);
}
largest = arr[0];
sec_largest = arr[1];
for(i=0;i<n;i++)
{
if(arr[i]>largest)
{
```

```
sec_largest = largest;
largest = arr[i];
}
else if (arr[i]>sec_largest && arr[i]!=largest)
{
sec_largest=arr[i];
}
}
printf(" \nSecond largest Element in arrray = %d",sec_largest);
return 0;
}
```



10. Find the median of two sorted arrays of same size?

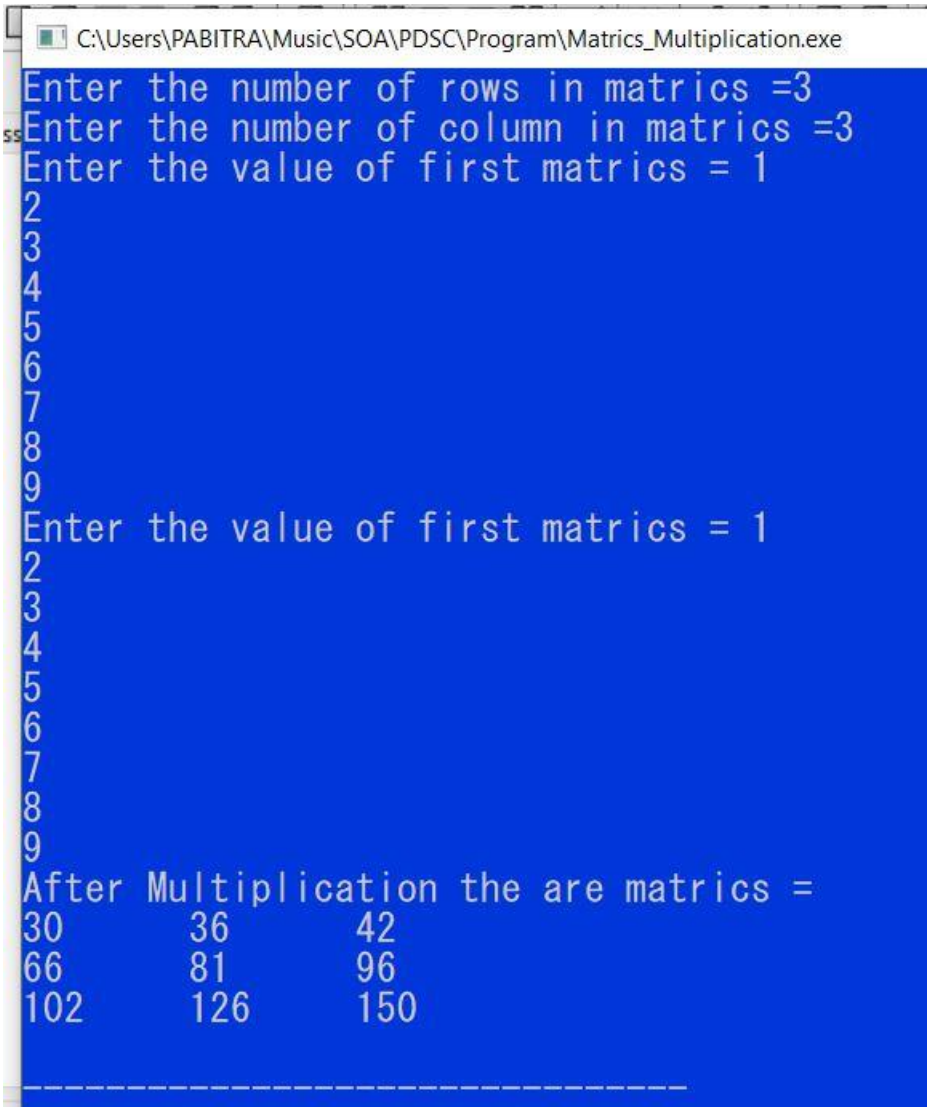
Answer :

11. Multiplication of two square matrices ?

Answer :

```
#include<stdio.h>
void main()
{
int a[10][10],b[10][10],mul[10][10];
int r,c,i,j,k;
printf("Enter the number of rows in matrics =");
scanf("%d",&r);
printf("Enter the number of column in matrics =");
scanf("%d",&c);
printf("Enter the value of first matrics = ");
```

```
for(i=0;i<r;i++)
{
for(j=0;j<c;j++)
{
scanf("%d",&a[i][j]);
}
}
printf("Enter the value of first matrics = ");
for(i=0;i<r;i++)
{
for(j=0;j<c;j++)
{
scanf("%d",&b[i][j]);
}
}
for(i=0;i<r;i++)
{
for(j=0;j<c;j++)
{
mul[i][j]=0;
for(k=0;k<r;k++)
{
mul[i][j]=mul[i][j]+(a[i][k]*b[k][j]);
}
}
}
printf("After Multiplication the are matrics = \n");
for(i=0;i<r;i++)
{
for(j=0;j<c;j++)
{
printf("%d\t",mul[i][j]);
}
printf("\n");
}
}
```

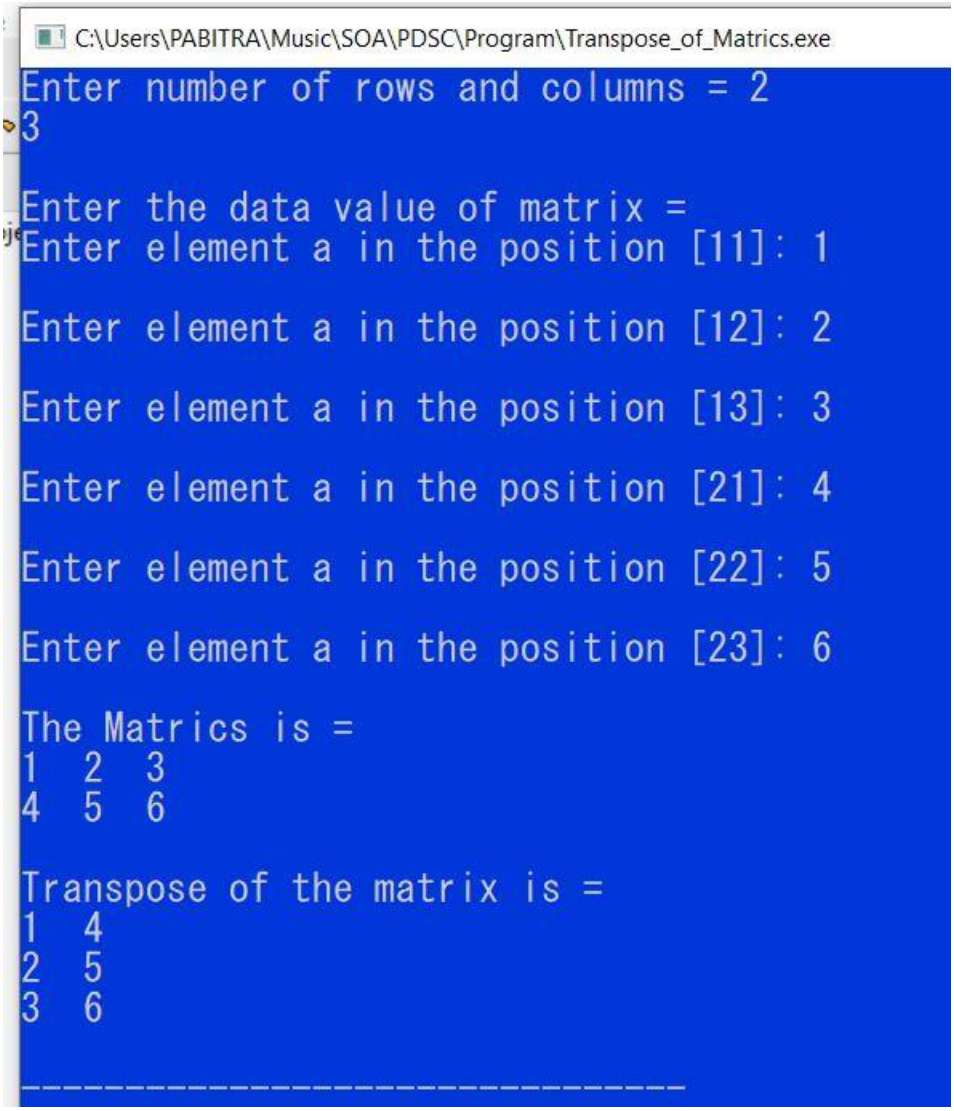


12. Find transpose of a given matrix ?

Answer :

```
#include <stdio.h>
void main()
{
   int a[10][10], trans[10][10],i, j, r, c;
   printf("Enter number of rows and columns = ");
   scanf("%d %d", &r, &c);
   printf("\nEnter the data value of matrix = ");
   for (i = 0; i < r; i++)
   {
      for (j = 0; j < c; j++)
                {
         printf("\nEnter element a in the position [%d%d]: ", i + 1, j + 1);
```

```
            scanf("%d", &a[i][j]);
        }
    }
    printf("\nThe Matrics is =  \n");
    for (i = 0; i < r; i++)
    {
        for (j = 0; j < c; j++)
                    {
            printf("%d  ", a[i][j]);
            if (j == c - 1)
                printf("\n");
        }
                    }
    for (i = 0; i < r; i++)
    {
        for (j = 0; j < c; j++)
                    {
            trans[j][i] = a[i][j];
        }
          }
    printf("\nTranspose of the matrix is = \n");
    for (i = 0; i < c; i++)
    {
        for (j = 0; j < r; j++)
                    {
            printf("%d  ", trans[i][j]);
            if (j == r - 1)
                printf("\n");
        }
    }
}
```



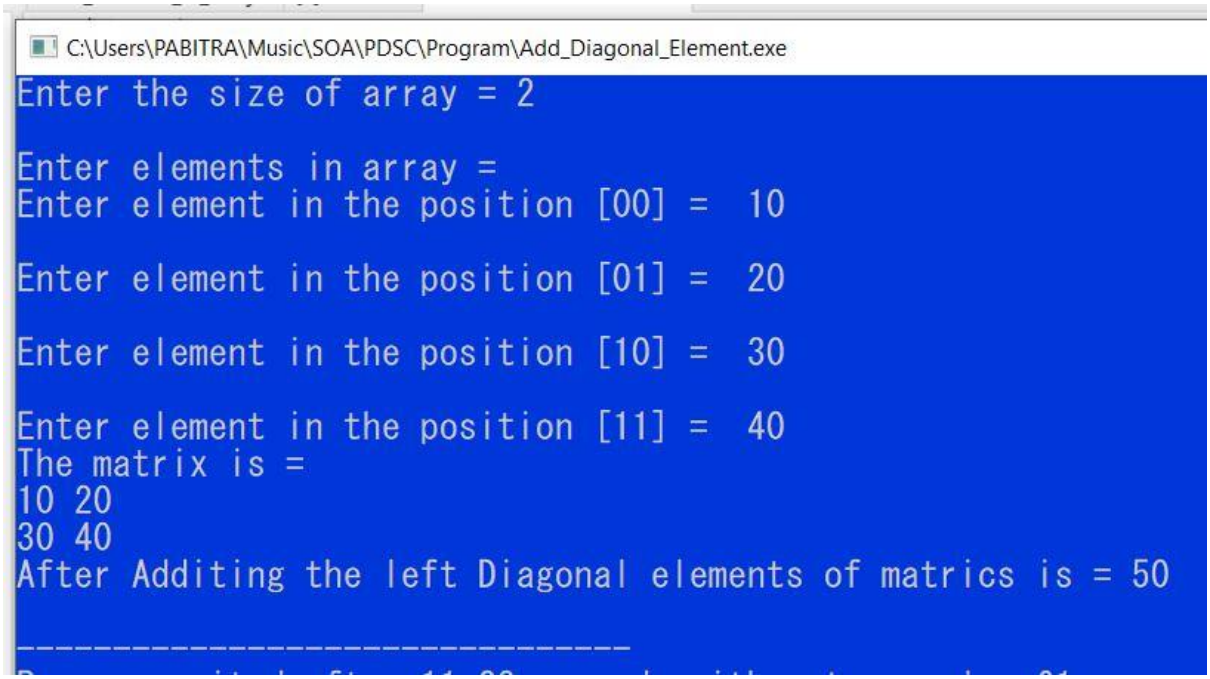
13. Find the sum of left diagonals of a matrix ?

Answer :

```
#include <stdio.h>
void main()
  {
    int a[50][50], sum=0, n, m=0, i, j;
          printf("Enter the size of array = ");
    scanf("%d", &n);
       m=n;
          printf("\nEnter elements in array = ");
     for(i=0;i<n;i++)
      {
         for(j=0;j<n;j++)
         {
```

```
                printf("\nEnter element in the position [%d%d] =  ",i,j);
                scanf("%d",&a[i][j]);
          }
       }
          printf("The matrix is = \n");
          for(i=0;i<n;i++)
          {
            for(j=0;j<n ;j++)
            {
              printf("%d ",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("After Additing the left Diagonal elements of matrics is =
%d\n",sum);
   }
```



14. Check whether a given matrix is an identity matrix ?

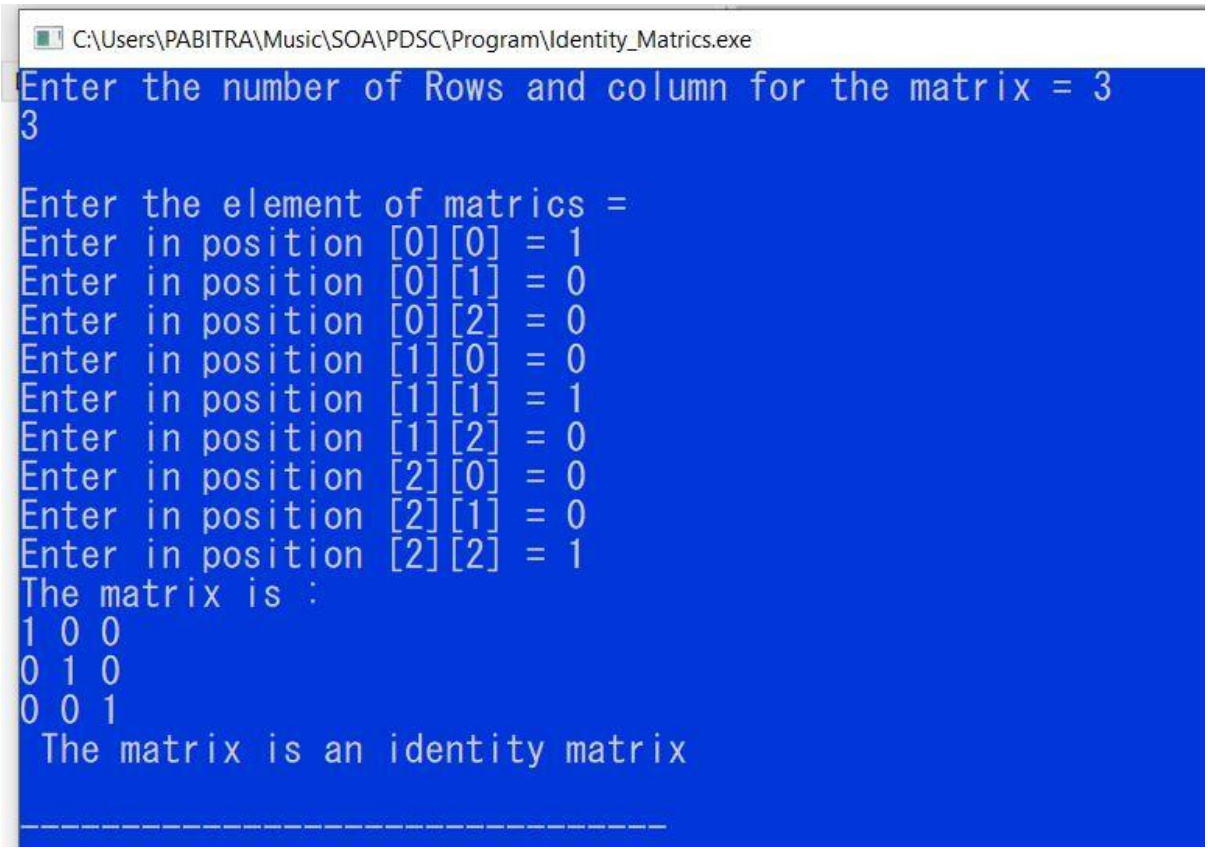
Answer :

```
#include <stdio.h>
void main()
{
  int a[10][10];
  int r, c, i, j, value =1;
  printf("Enter the number of Rows and column for the matrix = ");
  scanf("%d %d", &r,&c);
        printf("\nEnter the element of matrics = \n");
    for(i=0;i<r;i++)
     {
        for(j=0;j<c;j++)
        {
              printf("Enter in position [%d][%d] = ",i,j);
              scanf("%d",&a[i][j]);
        }
     }
        printf("The matrix is :\n");
        for(i=0;i<r;i++)
        {
         for(j=0;j<c;j++)
```

```
            printf("%d ",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)
         {
           value = 0;
           break;
         }
        }
  }

  if(value == 1 )
        printf(" The matrix is an identity matrix \n ");
  else
        printf(" The matrix is not an identity matrix \n");
}
```



15. Search an element in a row wise and column wise sorted matrix ?

Answer :