Q.24. Write a menu driven program to do the following using functions which accept 2-D array A, and its size m and n as arguments:

a) Sum of all elements of matrix of size m*n

b) To display row-wise sum of matrix of size m*n

c) To display column-wise sum of matrix of size m*n

d) To create transpose of matrix

```
#include<iostream.h>
#include<conio.h>
void Sumelement(int a[][100],int m1, int n1)
{int sum=0;
for(int i=0;i<m1;i++)
 {
  {for(int j=0;j<n1;j++)
  sum=sum+a[i][j];
  }
 }
cout<<"\nthe sum of all elements: ";
cout<<sum;
}
```

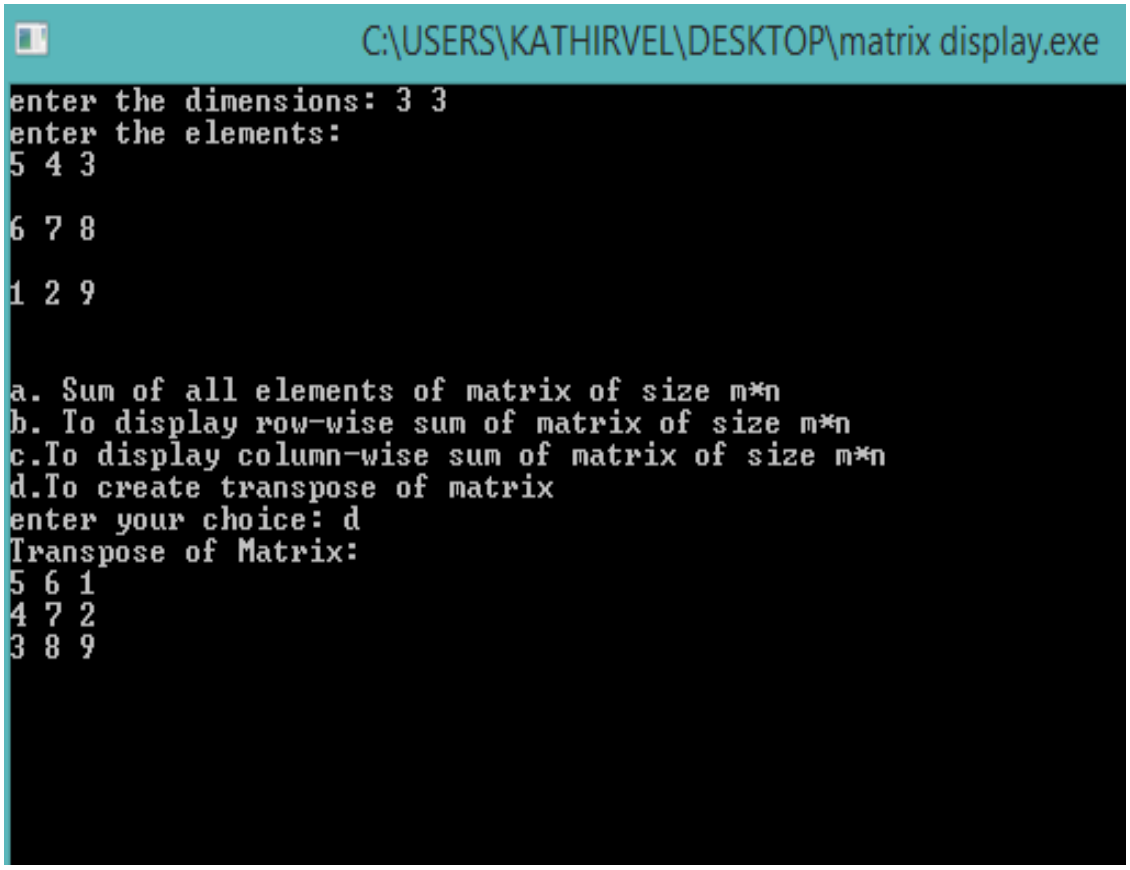
```
void rowwisesum(int a[][100],int m1, int n1)
{int rowsum=0;
for(int i=0;i<m1;i++)
 {
  {for(int j=0;j<n1;j++)
   rowsum=rowsum+a[i][j];
  }
  cout<<"\nThe sum of row"<<(i+1)<<"is"<<rowsum;
  rowsum=0;
 }
}
void columnwisesum(int a[][100],int m1,int n1)
{int columnsum=0, j;
for(int i=0;i<n1;i++)
 { int colomnsum=0;
  {for(int j=0;j<m1;j++)
   columnsum=columnsum+a[i][j];
  }
    cout<<"\nThe sum of column"<<(i+1)<<"is
"<<columnsum;


  }
}
```

```
void transpose(int a[][100],int m1,int n1)
{int arro[100][100];

 for(int i=0;i<m1;i++)
  {
   for(int j=0;j<n1;j++)
    {
     arro[j][i] = a[i][j];
    }
  }

cout<<"Transpose of Matrix: "<<endl;
 for(int i=0;i<n1;i++)
  {
   for(int j=0;j<m1;j++)
   {
     cout<<arro[i][j]<<" ";

     if(j==n1-1)
       cout<<endl;
    }
  }
```

```
}
void main()
{int arr[100][100],m,n;
char ch;
cout<<"enter the dimensions: ";
cin>>m>>n;
cout<<"enter the elements: "<<endl;
for(int i=0;i<m;i++)
{for(int j=0;j<n;j++)
 cin>>arr[i][j];
 cout<<'\n';
}
cout<<"\na. Sum of all elements of matrix of size m*n";
cout<<"\nb. To display row-wise sum of matrix of size
m*n";
cout<<"\nc.To display column-wise sum of matrix of size
m*n";
cout<<"\nd.To create transpose of matrix";
cout<<"\nenter your choice: ";
cin>>ch;
if(ch=='a')
Sumelement(arr,m,n);
if(ch=='b')
```

```
    rowwisesum(arr,m,n);
    if(ch=='c')
    columnwisesum(arr,m,n);
    if(ch=='d')
    transpose(arr,m,n);

    getch();
    }
```

Output:

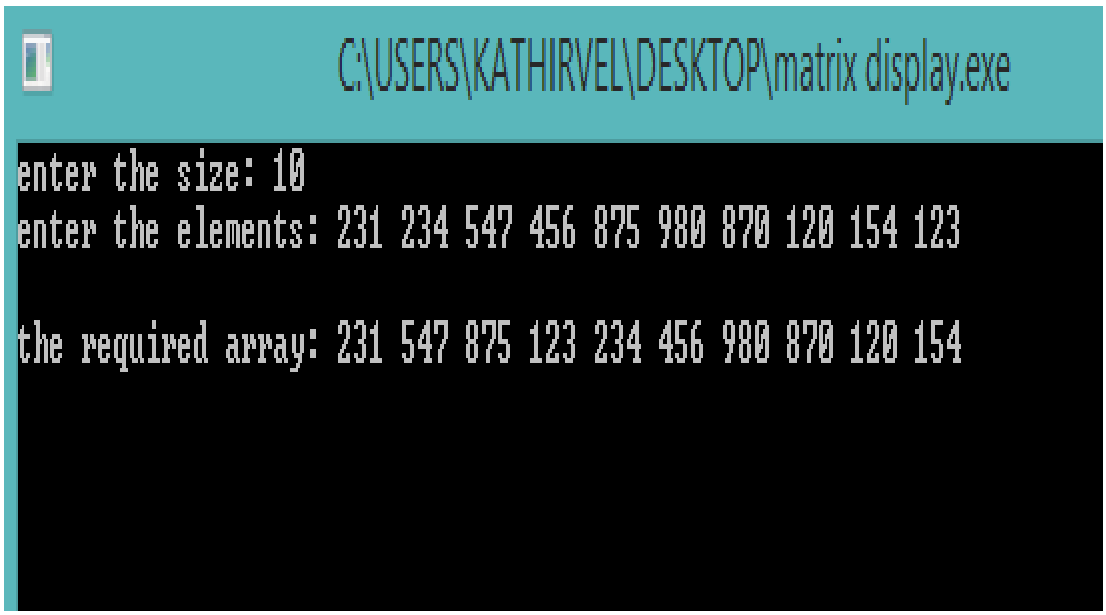

C:\USERS\KATHIRVEL\DESKTOP\matrix display.exe
enter the dimensions: 3 3
enter the elements:
5 4 3
6 7 8
1 2 9
a. Sum of all elements of matrix of size m*n
b. To display row-wise sum of matrix of size m*n
c.To display column-wise sum of matrix of size m*n
d.To create transpose of matrix
enter your choice: d
Transpose of Matrix:
5 6 1
4 7 2
3 8 9

Q.25. Write a program that accepts an integer array and pass the array to a user defined function shift ( ) to shift all odd numbers to left and even numbers to the right.

```
#include<iostream.h>
#include<conio.h>
void shift(int a[100],int n)
{int b[10],i,k=0;
for(i=0;i<n;i++)
{if(a[i]%2!=0)
 {b[k]=a[i];
  k++;
 }
}
for(i=0;i<n;i++)
{ if(a[i]%2==0)
 { b[k]=a[i];
   k++;
```

```
 }
}
cout<<"\nthe required array: ";
for(i=0;i<n;i++)
cout<<b[i]<<" ";
}
void main()
{int arr[100],n1;
cout<<"enter the size: ";
cin>>n1;
cout<<"enter the elements: ";
for(int i=0;i<n1;i++)
cin>>arr[i];
shift(arr,n1);
getch();
}
```

Output:


C:\USERS\KATHIRVEL\DESKTOP\matrix display.exe
enter the size: 10
enter the elements: 231 234 547 456 875 980 870 120 154 123
the required array: 231 547 875 123 234 456 980 870 120 154