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Sec:ME(B)

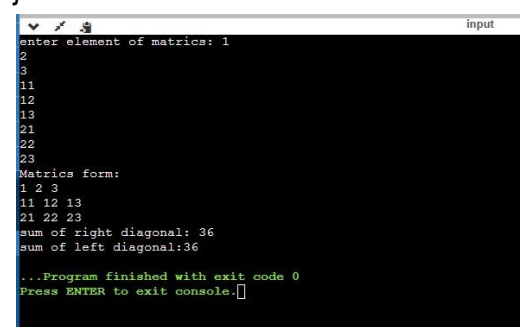
Task#01

//sum of right and left diagonal in 2D array:

```
#include <bits/stdc++.h>
```

```
using namespace std;
```

```
int main()
{int n=3,m=3;
  int a[n][m];
  cout<<"enter element of matrices: ";
  for(int i=0;i<n;i++){
    for(int j=0;j<m;j++){
      cin>>a[i][j];
    }
  }
  cout<<"Matrics form:"<<endl;
  for(int i=0;i<n;i++){
    for(int j=0;j<m;j++){
      cout<<a[i][j]<<" ";
    }
    cout<<endl;
  }
  int sum;
  cout<<"sum of right diagonal: ";
  sum=a[0][0]+a[1][1]+a[2][2];
  cout<<sum<<endl;
  int mali;
  cout<<"sum of left diagonal:";
  mali=a[0][2]+a[1][1]+a[2][0];
  cout<<mali;
  return 0;
}
```

A screenshot of a terminal window showing the execution of the C++ program. The user enters elements for a 3x3 matrix. The program displays the matrix and calculates the sum of the right diagonal (36) and the left diagonal (36). The terminal output is as follows:

```
enter element of matrices: 1
2
3
11
12
13
21
22
23
Matrics form:
1 2 3
11 12 13
21 22 23
sum of right diagonal: 36
sum of left diagonal:36
...Program finished with exit code 0
Press ENTER to exit console.
```

Task#02

//sum of two matrices in 2D array:

```
#include <bits/stdc++.h>
```

```
using namespace std;
```

```

void addArray(int a[3][3],int b[3][3],int result[3][3]){
    for(int i=0;i<3;i++){
        for(int j=0;j<3;j++){
            result[i][j]=a[i][j]+b[i][j];
        }
    }
}

int main(){
    int a[3][3];
    cout<<"enter element of first matrices: ";
    for(int i=0;i<3;i++){
        for(int j=0;j<3;j++){
            cin>>a[i][j];
        }
    }
    cout<<"First Matrices form:"<<endl;
    for(int i=0;i<3;i++){
        for(int j=0;j<3;j++){
            cout<<a[i][j]<<" ";
        }
        cout<<endl;
    }
    int b[3][3];
    cout<<"enter element of second matrices: ";
    for(int i=0;i<3;i++){
        for(int j=0;j<3;j++){
            cin>>b[i][j];
        }
    }
    cout<<"Second Matrices form:"<<endl;
    for(int i=0;i<3;i++){
        for(int j=0;j<3;j++){
            cout<<b[i][j]<<" ";
        }
        cout<<endl;}
    int resultArray[3][3];
    addArray(a,b,resultArray);
    cout<<"resultant array: "<<endl;
    for(int i=0;i<3;+i){
        for(int j=0;j<3;+j){
            cout<<resultArray[i][j]<<" ";
        }
        cout<<endl;
    }
    return 0;
}

```

Task#03

```

#include<iostream>

using namespace std;

void transpose(int arr[3][3],int result[3][3]){

    for(int i=0;i<3;i++){

        for(int j=0;j<3;j++){

            result[j][i]=arr[i][j];

        }

    }

}

int main(){

    int arr1[3][3],res[3][3];

    cout<<"enter desired elements of 3*3 matrix to find its transpose"<<endl;

    for(int i=0;i<3;i++){

        for(int j=0;j<3;j++){

            cin>>arr1[i][j];

        }

    }

    cout<<"the tranpose of given matrix is "<<endl;

    transpose(arr1,res);

    for(int i=0;i<3;i++){

        for(int j=0;j<3;j++){

            cout<<res[i][j]<<" ";

        }

        cout<<endl;

    }

    return 0;

}

```

```
input
enter desired elements of 3*3
matrix to find its transpose
99
98
97
96
95
94
93
92
91
the tranpose of given matrix is
99 96 93
98 95 92
97 94 91

...Program finished with exit
code 0
Press ENTER to exit console.
```

Task#04

//multiplication of two Matrics:

```
#include <iostream>
```

```
using namespace std;
```

```
void multiplyMatrix(int firstMatrix[3][3],int secondMatrix[3][3],int resultMatrix[3][3]){
```

```
    for(int i=0;i<3;i++){
```

```
        for(int j=0;j<3;j++){
```

```
            resultMatrix[i][j]=0;
```

```
            for(int k=0;k<3;k++){
```

```
                resultMatrix[i][j]+=firstMatrix[i][k] * secondMatrix[k][j];
```

```
            }
```

```
        }
```

```
    }
```

```
}
```

```
int main()
```

```
{
```

```
    int firstMatrix[3][3]={1,2,3},{4,5,6},{7,8,9};
```

```
    int secondMatrix[3][3]={9,8,7},{6,5,4},{3,2,1};
```

```
    int resultMatrix[3][3];
```

```
    multiplyMatrix(firstMatrix, secondMatrix, resultMatrix);
```

```
    cout<<"Resultant Matrics : "<<endl;
```

```
    for(int i=0;i<3;++i){
```

```
        for(int j=0;j<3;++j){
```

```
            cout<<resultMatrix[i][j]<<" ";
```

```
        }
```

```
    cout<<endl;
```

```
    }
```

```
    return 0;
```

```
}
```

```
input
Resultant Matrices :
30 24 18
84 69 54
138 114 90
...Program finished with exit code 0
Press ENTER to exit console
```

Task#05

```
#include <iostream>
using namespace std;
void printTable(int n,int m){
    if(m>10){
        return;
    }
    cout<<n<<"* "<<m<<"="<<(n*m)<<endl;
    printTable(n,m+1);
}
int main()
{
    int m,n=15;
    cout<<"Table of 15 given below : ";
    printTable(n,1);
    return 0;
}
```

```
input
Table of 15 given below : 15*1
=15
15*2=30
15*3=45
15*4=60
15*5=75
15*6=90
15*7=105
15*8=120
15*9=135
15*10=150
...Program finished with exit
code 0
Press ENTER to exit console.
```