Fundamental of Programing

Lab Manual # 09

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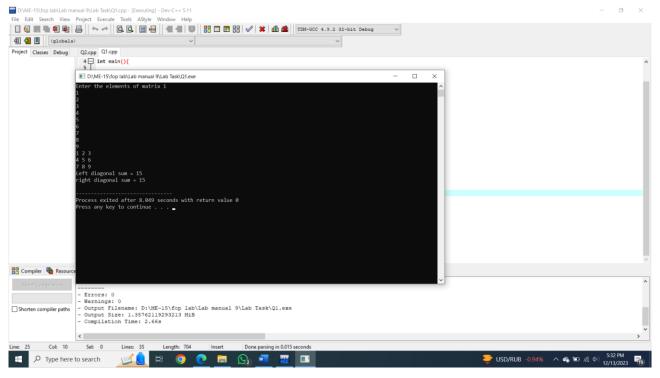**CMS ID:** 453901

Section: C

Q1:

```cpp
#include<iostream>
using namespace std;

int main(){

int arr[3][3];
cout<<"Enter the elements of matrix 1 "<<endl;
for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
cin>>arr[i][j];
}
}
for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
cout<<arr[i][j]<<" ";
}
cout<<endl;
}
int Lsum=0;
for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
if(i == j){
Lsum = Lsum+arr[i][j];
}
}
}
cout<<"Left diagonal sum = "<<Lsum<<endl;
int Rsum=0;
for(int i=0; i<3;i++){

Rsum = Rsum+arr[i][2-i];
}
cout<<"right diagonal sum = "<<Rsum<<endl;
return 0;
}
```

Q2:

```cpp
#include<iostream>
using namespace std;

void sumarray(int arr[3][3], int brr[3][3], int crr[3][3]) {

for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
crr[i][j] = arr[i][j] + brr[i][j];
}
}
}
int main(){
int  arr[3][3],brr[3][3],crr[3][3];

cout<<"Enter the elements of array 1 "<<endl;
for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
cin>>arr[i][j];
}
}
cout<<"Enter the elements of array 2 "<<endl;
for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
cin>>brr[i][j];
}
}
```

```
for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
cout<<arr[i][j]<<" + "<<brr[i][j]<<" ";
}
cout<<endl;
}
sumarray(arr, brr, crr);
cout<<"Sum of 2D Arrays is "<<endl;
for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
cout<<crr[i][j]<<" ";
}
cout<<endl;
}
return 0;
}
```


Q3:

```
#include<iostream>
using namespace std;
void transpose(int arr[3][3]){

cout<<"Transpose of matrix is "<<endl;
for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
```

```cpp
cout<<arr[j][i]<<" ";
}
cout<<endl;

}
}

int main(){

int arr[3][3];
cout<<"Enter the elements of matrix "<<endl;
for(int i=0; i<3;i++){
for(int j=0; j<3; j++){

cin>>arr[i][j];
}
}

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

cout<<arr[i][j]<<" ";
}
cout<<endl;
}

transpose(arr);
return 0;
}
```

Q4:

```cpp
#include<iostream>
using namespace std;
void matrixmulti(int matrix1[3][3], int matrix2[3][3],int mult[3][3]){
for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
int sum = 0;
for(int k = 0; k<3;k++){

sum += matrix1[i][k]*matrix2[k][j];
mult[i][j]=sum;
}
}
}
cout<<"multipication of matrices is "<<endl;

for(int i=0; i<3;i++){
for(int j=0; j<3; j++){
cout<<mult[i][j]<<" ";
}cout<<endl;
}

}
int main(){
```

```cpp
int matrix1[3][3], matrix2[3][3], mult[3][3];
cout<<"Enter the elements of matrix 1 "<<endl;
for(int i=0; i<3;i++){
for(int k=0; k<3; k++){
cin>>matrix1[i][k];
}
}
cout<<"Enter the elements of matrix 2 "<<endl;
for(int k=0; k<3;k++){
for(int j=0; j<3; j++){
cin>>matrix2[k][j];
}
}
cout<<"matrix 1"<<endl;
for(int i=0; i<3;i++){
for(int k=0; k<3; k++){
cout<<matrix1[i][k]<<" ";
}
cout<<endl;
}
cout<<"matrix 2"<<endl;
for(int k=0; k<3;k++){
for(int j=0; j<3; j++){
cout<<matrix2[k][j]<<" ";
}
cout<<endl;
}
matrixmulti(matrix1,matrix2,mult);

return 0;
}
```

```
D:\ME-15\fop lab\Lab manual 9\Lab Task\Q4.exe
Enter the elements of matrix 1
1
2
3
4
5
6
7
8
9
Enter the elements of matrix 2
1
0
0
0
1
0
0
0
1
matrix 1
1 2 3
4 5 6
7 8 9
matrix 2
1 0 0
0 1 0
0 0 1
multipication of matrices is
1 2 3
4 5 6
7 8 9
-------------------------------
Process exited after 27.95 seconds with return value 0
Press any key to continue . . .
```
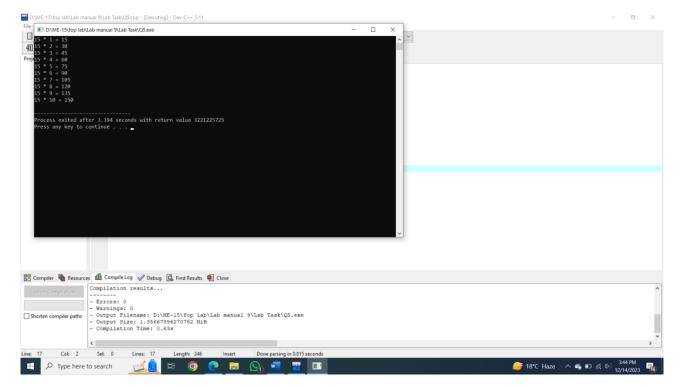
Q5:

```cpp
#include <iostream>
using namespace std;

void table(int N, int i)
{
if (i <= 10)

cout <<N<<" * "<<i<< " = "<< N * i<<endl;
return table(N, i + 1);
}
int main()
{
int N = 15;
table(N, 1);

return 0;
}
```

Home Task

Q1: