



Fundamental of Programing

Lab Manual # 09

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Section: C



Q1:

```
#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;
}
```



```

D:\ME-15\top lab\Lab manual 9\Lab Task\Q1.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug Q2.cpp Q1.cpp
int main()
{
    Enter the elements of matrix 1
    1
    2
    3
    4
    5
    6
    7
    8
    9
    1 2 3
    4 5 6
    7 8 9
    Left diagonal sum = 15
    right diagonal sum = 15
    -----
    Process exited after 8.049 seconds with return value 0
    Press any key to continue . . .
}

Compiler Resource
Alert Compilation
Shorten compiler paths
- Errors: 0
- Warnings: 0
- Output Filename: D:\ME-15\top lab\Lab manual 9\Lab Task\Q1.exe
- Output Size: 1.35762119293213 MiB
- Compilation Time: 2.66s
Line: 25 Col: 10 Sel: 0 Lines: 35 Length: 704 Insert Done parsing in 0.015 seconds
Type here to search USD/RUB -0.94% 5:32 PM 12/13/2023

```

Q2:

```
#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;
}

```

The screenshot shows a C++ IDE with the following output:

```

Enter the elements of array 2
1 2 3
4 5 6
7 8 9
Sum of 2D Arrays is
10 10 10
10 10 10
10 10 10
Process exited after 135.2 seconds with return value 0
Press any key to continue . . .

```

The compiler window shows the following compilation results:

```

Compilation results...
- Errors: 0
- Warnings: 0
- Output Filename: D:\ME-15\lab manual 9\Lab Task\Q2.exe
- Output Size: 1.35767841339111 MiB
- Compilation Time: 0.69s

```

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++){

```



```
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;
}
```



```

D:\ME-15\top lab\Lab manual 9\Lab Task\Q3.cpp - [Executing] - Dev-C++ 5.11
Enter the elements of matrix
1
2
3
4
5
6
7
7
7
1 2 3
4 5 6
7 7 7
Transpose of matrix is
1 4 7
2 5 7
3 6 7
-----
Process exited after 8.526 seconds with return value 0
Press any key to continue . . .
32
33
34     transpose(arr);
35     return 0;
36 }
Compiler  Resources  Compile Log  Debug  Find Results  Close
Compilation results...
- Errors: 0
- Warnings: 0
- Output Filename: D:\ME-15\top lab\Lab manual 9\Lab Task\Q3.exe
- Output Size: 1.35766897664795 MiB
- Compilation Time: 0.66s
Line: 32  Col: 6  Sel: 0  Lines: 36  Length: 574  Insert  Done parsing in 0.015 seconds
Type here to search  USD/JPY -0.87%  3:36 PM 12/14/2023

```

Q4:

```

#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<<"multiplication 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(){

```



```
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\top 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
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
multiplication 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:

```
#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;
}
```




```
D:\ME-15\top lab\Lab manual 9\Lab Task\Q5.cpp - [Executing] - Dev-C++ 5.11
D:\ME-15\top lab\Lab manual 9\Lab Task\Q5.exe
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
-----
Process exited after 3.394 seconds with return value 3221225725
Press any key to continue . . .

Compiler Resources Compile Log Debug Find Results Close
Compilation results...
- Errors: 0
- Warnings: 0
- Output Filename: D:\ME-15\top lab\Lab manual 9\Lab Task\Q5.exe
- Output Size: 1.35667896270752 MiB
- Compilation Time: 0.63s
Line: 17 Col: 2 Sel: 0 Lines: 17 Length: 246 Insert Done parsing in 0.015 seconds
Type here to search 18°C Haze 3:44 PM 12/14/2023
```

Home Task

Q1: