

School Of Mechanical & Manufacturing Engineering

Department of Mechanical Engineering

CS-114 - Fundamental of Programing

Lab Manual # 06

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Code:

```
#include<iostream>

using namespace std;

int main()
{
    int i, j, a[3][3], det, adj[3][3];

    float inv[3][3];

    cout<<"Enter the elements of the matrix: ";

    for(i=0;i<3;i++)
        for(j=0;j<3;j++)
            cin>>a[i][j];

    adj[0][0]=a[0][0]*(a[1][1]*a[2][2]-a[1][2]*a[2][1]);
    adj[1][0]=(-1)*a[0][1]*(a[1][0]*a[2][2]-a[1][2]*a[2][0]);
    adj[2][0]=a[0][2]*(a[1][0]*a[2][1]-a[1][1]*a[2][0]);
    adj[0][1]=(-1)*a[1][0]*(a[0][1]*a[2][2]-a[0][2]*a[2][1]);
    adj[1][1]=a[1][1]*(a[0][0]*a[2][2]-a[0][2]*a[2][0]);
    adj[2][1]=(-1)*a[1][2]*(a[0][0]*a[2][1]-a[0][1]*a[2][0]);
    adj[0][2]=a[2][0]*(a[0][1]*a[1][2]-a[0][2]*a[1][1]);
    adj[1][2]=(-1)*a[2][1]*(a[0][0]*a[1][2]-a[0][2]*a[1][0]);
    adj[2][2]=a[2][2]*(a[0][0]*a[1][1]-a[0][1]*a[1][0]);

    det=adj[0][0]+adj[1][0]+adj[2][0];

    cout<<det<<endl;

    if(det==0)
        {cout<<"It is a singular matrix. It's Inverse does not exist.";
        return 0;}

    for(i=0;i<3;i++)
        for(j=0;j<3;j++)
```

```
inv[i][j]=(float)adj[i][j]/det;
```

```
cout<<"The inverse of the matrix is: \n";
```

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

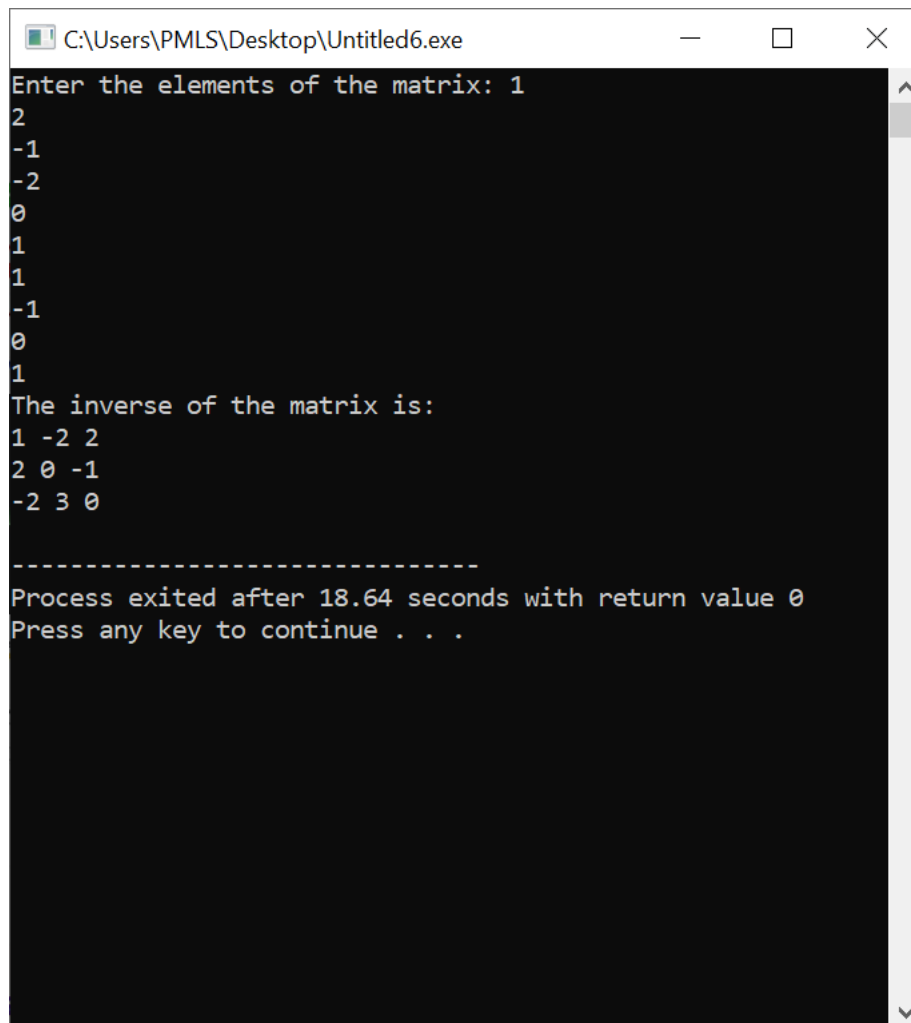
```
{for(j=0;j<3;j++)
```

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

```
cout<<endl;}
```

```
}
```

Output:



```
C:\Users\PMLS\Desktop\Untitled6.exe
Enter the elements of the matrix: 1
2
-1
-2
0
1
1
-1
0
1
1
1
The inverse of the matrix is:
1 -2 2
2 0 -1
-2 3 0

-----
Process exited after 18.64 seconds with return value 0
Press any key to continue . . .
```