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Roll no.: 48

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//write a program to find the shortest path using all pair path

#include<iostream>
#include<conio.h>
#include<stdio.h>
using namespace std;
class shortest
{
private:
    int i,j, n, cost[20][20],a[50][50];
public:
    void getdata();
    void allpair();
    void putdata();

};
void shortest::getdata()
{
    cout << "Enter the number of the vertices:\n";
    cin >> n;
    cout << "\nEnter the cost:";
    for (int i = 0; i < n; i++)
    {
        for (int j = 0; j < n; j++)
        {
            cin >> cost[i][j];
        }
    }
}
void shortest::allpair()
{
    int k, b;
    for (int i = 0; i < n; i++)
    {
        for (j = 0; j < n; j++)
        {
            a[i][j] = cost[i][j];
        }
    }
    for (k = 0; k < n; k++)
    {
        for (i = 0; i < n; i++)
        {
            for (j = 0; j < n; j++)
            {
```

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                b = a[i][k] + a[k][j];
                a[i][j] = (a[i][j] < b )? a[i][j] : b;
            }
        }
    }
}
void shortest::putdata()
{
    cout << "\n Shortest path distance:";
    cout << "\n";
    for (i = 0; i < n; i++)
    {
        for(j=0;j<n;j++)
        {
        cout<<a[i][j]<<"\t";

        }
        cout << "\n";
    }
}
int main()
{

    shortest obj;
    obj.getdata();
    obj.allpair();
    obj.putdata();
}
```

```
Output:
Enter the number of the vertices:
3

Enter the cost:0 4 11 6 0 2  3 9 0

 Shortest path distance:
0       4       6
5       0       2
3       7       0
```