LAB-12

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Q1. (in cpp)

```cpp
//CS23B1034
//K V Jaya Harsha
#include <iostream>
using namespace std;

int main()
{
    int vertices;
    cin >> vertices;

    int adj[vertices][vertices];

    for (int i = 0; i < vertices; i++)
    {
        for (int j = 0; j < vertices; j++)
        {
            adj[i][j] = 0;
        }
    }

    for (int i = 0; i < vertices; i++)
    {
        int tempgroup;
        cin >> tempgroup;
        for (int j = 0; j < tempgroup; j++)
        {
            int versec;
            cin >> versec;
            int edgeval;
            cin >> edgeval;
            adj[i][versec] = edgeval;
        }
    }

    cout << "Adjacency Matrix:" << endl;
    for (int i = 0; i < vertices; i++)a
    {
        for (int j = 0; j < vertices; j++)
        {
            cout << adj[i][j] << " ";
        }
        cout << endl;
    }
```

```cpp
    cout << "\nAdjacent nodes for each vertex:" << endl;
    for (int i = 0; i < vertices; i++)
    {
        cout << "Vertex " << i << ":";
        bool hasAdjacents = false;
        for (int j = 0; j < vertices; j++)
        {
            if (adj[i][j] != 0)
            {
                cout << " " << j << "(weight: " << adj[i][j] << ")";
                hasAdjacents = true;
            }
        }
        if (!hasAdjacents)
        {
            cout << " No adjacent nodes";
        }
        cout << endl;
    }

    return 0;
}
```

```
e.cpp -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
7
3 2 2 5 13 6 35 2 3 9 5 7 1 4 22 3 3 11 4 3 7 72 0 0
0
Adjacency Matrix:
0 0 2 0 0 13 35
0 0 0 9 0 7 0
0 0 0 0 22 0 0
0 0 0 11 3 0 0
72 0 0 0 0 0 0
0 0 0 0 0 0 0
0 0 0 0 0 0 0

Adjacent nodes for each vertex:
Vertex 0: 2(weight: 2) 5(weight: 13) 6(weight: 35)
Vertex 1: 3(weight: 9) 5(weight: 7)
Vertex 2: 4(weight: 22)
Vertex 3: 3(weight: 11) 4(weight: 3)
Vertex 4: 0(weight: 72)
Vertex 5: No adjacent nodes
Vertex 6: No adjacent nodes
PS C:\Users\harsh\OneDrive\Documents\Desktop\challenge\dsa\labs>
```