

Name: Tirth Hihoriya

Roll no.: 18bce244

Prac-9 : Write a program to find the maximum clique from a given graph

```
#include <bits/stdc++.h>
using namespace std;

const int MAX = 100;
int clique[MAX], vertices;
int graph[MAX][MAX];

bool is_clique(int b)
{
    for (int i = 1; i <= b; i++)
        for (int j = i + 1; j <= b; j++)
            if (graph[clique[i]][clique[j]] == 0)
                return false;
    return true;
}

int max_cliques(int i, int len)
{
    int max_length = 0;

    for (int j = i+1; j <= vertices; j++) {
        clique[len] = j;

        if (is_clique(len)) {
            max_length = max(max_length, len);
            max_length = max(max_length, max_cliques(j, len+1));
        }
    }
    return max_length;
}

int main()
{
    /*      GRAPH

          1 ----- 2 ----- 5
          | \         / |         /
          |  \       /  |         /
          |   \   /   |         /
          |    / \   |         /
          |   /   \  |         /
          3 ----- 4
```

```
*/  
int edges[][2] = { { 1, 2 }, { 2, 3 }, { 3, 1 }, {4,5}, //{3,5},{1,5},  
                  { 4, 3 }, { 4, 2 }, { 4, 1 }, { 2, 5}};  
int size = sizeof(edges) / sizeof(edges[0]);  
  
vertices = 5;  
  
for (int i = 0; i < size; i++) {  
    graph[edges[i][0]][edges[i][1]] = 1;  
    graph[edges[i][1]][edges[i][0]] = 1;  
}  
  
cout<<"\nMaximum clique is : "<< max_cliques(0, 1) << endl;  
  
return 0;  
}
```

OUTPUT :

```
Maximum clique is : 4
```