Ex 11: Topological Sorting

PROGRAM:

#include<stdio.h>

#include<stdlib.h>

int s[100], j, res[100];

void AdjacencyMatrix(int a[][100], int n) {

int i, j;

for (i = 0; i < n; i++) {

for (j = 0; j <= n; j++) {

a[i][j] = 0;

}

}

for (i = 1; i < n; i++) {

for (j = 0; j < i; j++) {

a[i][j] = rand() % 2;

a[j][i] = 0;

}

}

}

void dfs(int u, int n, int a[][100]) {

int v;

s[u] = 1;

for (v = 0; v < n - 1; v++) {

if (a[u][v] == 1 && s[v] == 0) {

dfs(v, n, a);

}

}

j += 1;

res[j] = u;

}

void topological\_order(int n, int a[][100]) {

int i, u;

for (i = 0; i < n; i++) {

s[i] = 0;

}

j = 0;

for (u = 0; u < n; u++) {

if (s[u] == 0) {

dfs(u, n, a);

}

}

return;

}

int main() {

int a[100][100], n, i, j;

printf("Enter number of vertices\n");

scanf("%d", &n);

AdjacencyMatrix(a, n);

printf("\t\tAdjacency Matrix of the graph\n");

for (i = 0; i < n; i++) {

for (j = 0; j < n; j++) {

printf("\t%d", a[i][j]);

}

printf("\n");

}

printf("\nTopological order:\n");

topological\_order(n, a);

for (i = n; i >= 1; i--) {

printf("-->%d", res[i]);

}

return 0;

}

OUTPUT:

