**PROGRAM 6**

**Write program to obtain the Topological ordering of vertices in a given digraph**

**CODE:**

#include<stdio.h>

#include<time.h>

void findindegree(int a[10][10],int indegree[10],int n)

{

int i,j,sum;

for(j=1;j<=n;j++)

{

sum=0;

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

sum=sum+a[i][j];

indegree[j]=sum;

}

}

void topological(int n,int a[10][10])

{

int i,k,u,v,top,t[100],stack[20],indegree[20];

k=1;

top=-1;

findindegree(a,indegree,n);

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

{

if(indegree[i]==0)

stack[++top]=i;

}

while(top!=-1){

u=stack[top--];

t[k++]=u;

for(v=1;v<=n;v++)

{

if(a[u][v]==1)

{

indegree[v]--;

if(indegree[v]==0)

stack[++top]=v;

}

}

}

printf("Topological sequence is\n");

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

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

}

void main()

{

int a[10][10],i,j,n;

clock\_t start,end;

double time;

printf("Enter the number of nodes:");

scanf("%d",&n);

printf("Enter the adjacency matrix:\n");

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

for(j=1;j<=n;j++)

scanf("%d",&a[i][j]);

}

start=clock();

topological(n,a);

end=clock();

time=((double)(end-start))/CLOCKS\_PER\_SEC;

printf("\nTime taken=%1f",time);

getch();

}

**OUTPUT:**

