ADA LAB PROGRAM 2

AIM: write a program to obtain the topological ordering of vertices in a given digraph.

SOURCE CODE

```
#include <stdio.h>
const int MAX = 10;
void fnTopological(int a[MAX][MAX], int n);
int main(void)
{
   int a[MAX][MAX],n;
   int i,j;

   printf("Topological Sorting Algorithm -\n");
   printf("\nEnter the number of vertices : ");
    scanf("%d",&n);

   printf("Enter the adjacency matrix -\n");
   for (i=0; i<n; i++)
      for (j=0; j<n; j++)
         scanf("%d",&a[i][j]);

   fnTopological(a,n);
   printf("\n");
   return 0;
}

void fnTopological(int a[MAX][MAX], int n)
{
   int in[MAX], out[MAX], stack[MAX], top=-1;
   int i,j,k=0;
```

```
for (i=0;i<n;i++)
{
   in[i] = 0;
   for (j=0; j<n; j++)
      if (a[j][i] == 1)
         in[i]++;
}

while(1)
{
   for (i=0;i<n;i++)
   {
      if (in[i] == 0)
      {
         stack[++top] = i;
         in[i] = -1;
      }
   }

   if (top == -1)
      break;

   out[k] = stack[top--];

   for (i=0;i<n;i++)
   {
      if (a[out[k]][i] == 1)
         in[i]--;
   }
   k++;
}
```

```
    printf("Topological Sorting (JOB SEQUENCE) is:- \n");
    for (i=0;i<k;i++)
        printf("%d ",out[i] + 1);
}
```

OUTPUT SCREENSHOT