

Topological sort

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#include<stdio.h>

#define MAX 200

int n,adj[MAX][MAX];

int front = -1,rear = -1,queue[MAX];

void main() {

    int i,j = 0,k;

    int topsort[MAX],indeg[MAX];

    create_graph();

    printf("The adjacency matrix is:\n");

    display();

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

        indeg[i]=indegree(i);

        if(indeg[i]==0)

            insert_queue(i);

    }

    while(front<=rear) {

        k=delete_queue();

        topsort[j++]=k;

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

            if(adj[k][i]==1) {

                adj[k][i]=0;
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        indeg[i]=indeg[i]-1;
        if(indeg[i]==0)
            insert_queue(i);
    }
}

printf("Nodes after topological sorting are:\n");
for (i=0;i<=n;i++)
    printf("%d",topsort[i]);
printf("\n");
}

create_graph() {
    int i,max_edges,origin,destin;

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

    scanf("%d",&n);

    max_edges = n * (n - 1);

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

        printf("\n Enter edge %d (00 to quit):",i);

        scanf("%d%d",&origin,&destin);

        if((origin == 0) && (destin == 0)) {

            printf("Invalid edge!!\n");

            i--;

        } else

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        adj[origin][destin] = 1;

    }

    return;
}

display() {

    int i,j;

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

        for (j = 1;jrear) {

            printf("Queue Underflow");

            return;

        } else {

            del_item = queue[front];

            front = front + 1;

            return del_item;

        }

    }

}

int indegree(int node) {

    int i,in_deg = 0;

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

        if(adj[i][node] == 1)

            in_deg++;

    return in_deg;

}

```