MULTISTAGE_GRAPH.C - Code::Blocks 20.03

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MULTISTAGE_GRAPH.C

```c
// BE20E05E062  AKASH SHRIDHARAN
#include<stdio.h>
#include<conio.h>
#define INFINITY 9999
#define MAX 10

void dijkstra(int G[MAX][MAX],int n,int startnode);

int main()
{
    int G[MAX][MAX],i,j,n,u;
    printf("Enter no. of vertices:");
    scanf("%d",&n);
    printf("\nEnter the adjacency matrix:\n");

    for(i=0;i<n;i++)
        for(j=0;j<n;j++)
            scanf("%d",&G[i][j]);

    printf("\nEnter the starting node:");
    scanf("%d",&u);
    dijkstra(G,n,u);

    return 0;
}

void dijkstra(int G[MAX][MAX],int n,int startnode)
{

    int cost[MAX][MAX],distance[MAX],pred[MAX];
    int visited[MAX],count,mindistance,nextnode,i,j;

    for(i=0;i<n;i++)
        for(j=0;j<n;j++)
            if(G[i][j]==0)
                cost[i][j]=INFINITY;
            else
                cost[i][j]=G[i][j];
    for(i=0;i<n;i++)
    {
        distance[i]=cost[startnode][i];
        pred[i]=startnode;
```

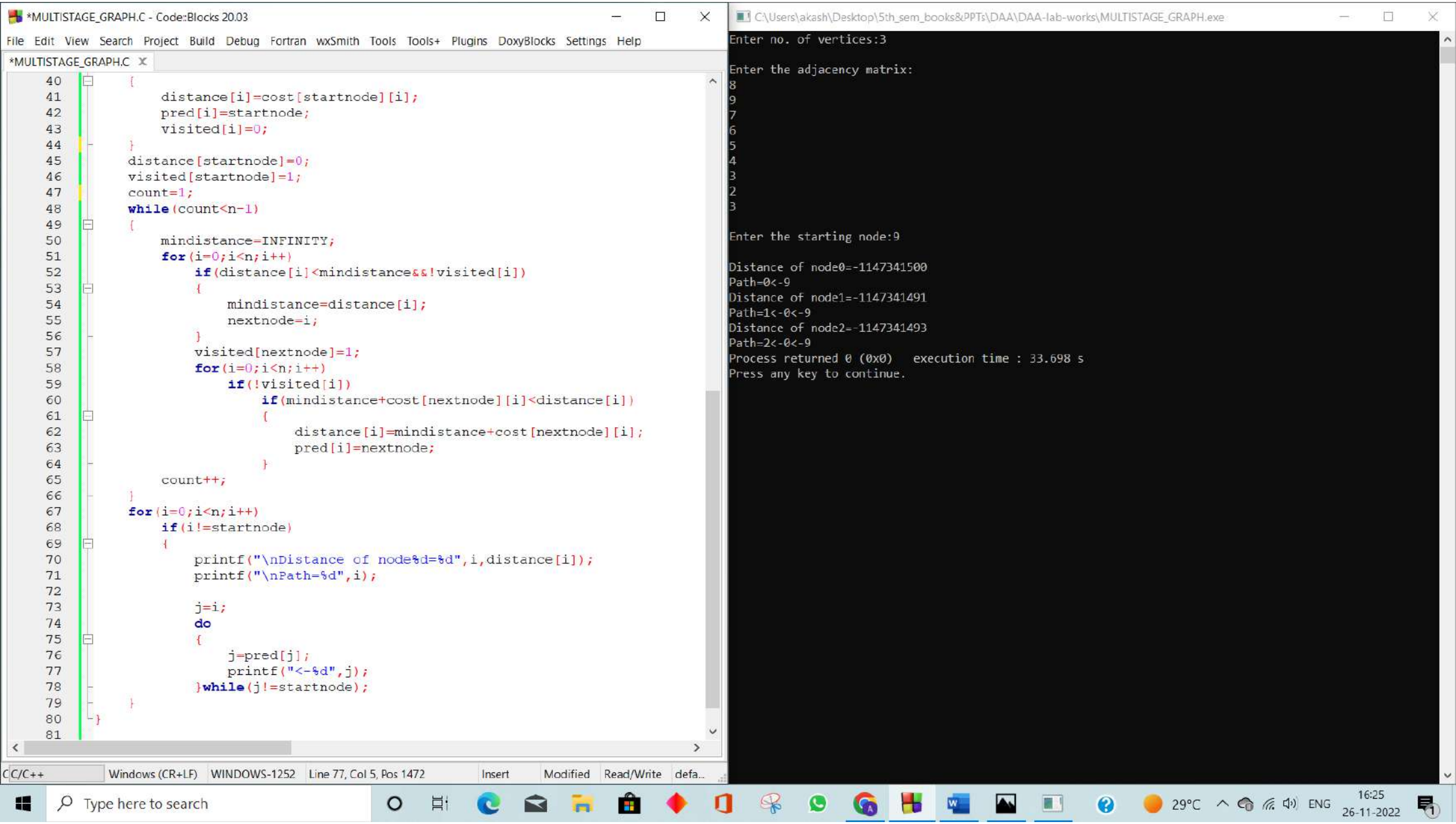
C/C++ | Windows (CR+LF) | WINDOWS-1252 | Line 1, Col 33, Pos 32 | Insert | Read/Write | defa...

C:\Users\akash\Desktop\5th_sem_books&PPTs\DAA\DAA-lab-works\MULTISTAGE_GRAPH.exe

```
Enter no. of vertices:3

Enter the adjacency matrix:
8
9
7
6
5
4
3
2
3

Enter the starting node:9

Distance of node0=-1147341500
Path=0<-9
Distance of node1=-1147341491
Path=1<-0<-9
Distance of node2=-1147341493
Path=2<-0<-9
Process returned 0 (0x0)   execution time : 33.698 s
Press any key to continue.
```

Type here to search

29°C ENG 16:25 26-11-2022


*MULTISTAGE_GRAPH.C - Code::Blocks 20.03
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*MULTISTAGE_GRAPH.C
{
distance[i]=cost[startnode][i];
pred[i]=startnode;
visited[i]=0;
}
distance[startnode]=0;
visited[startnode]=1;
count=1;
while(count<n-1)
{
mindistance=INFINITY;
for(i=0;i<n;i++)
if(distance[i]<mindistance&&!visited[i])
{
mindistance=distance[i];
nextnode=i;
}
visited[nextnode]=1;
for(i=0;i<n;i++)
if(!visited[i])
if(mindistance+cost[nextnode][i]<distance[i])
{
distance[i]=mindistance+cost[nextnode][i];
pred[i]=nextnode;
}
count++;
}
for(i=0;i<n;i++)
if(i!=startnode)
{
printf("\nDistance of node%d=%d",i,distance[i]);
printf("\nPath=%d",i);
j=i;
do
{
j=pred[j];
printf("<-%d",j);
}while(j!=startnode);
}
}
C/C++ Windows (CR+LF) WINDOWS-1252 Line 77, Col 5, Pos 1472 Insert Modified Read/Write defa...
C:\Users\akash\Desktop\5th_sem_books&PPTs\DAA\DAA-lab-works\MULTISTAGE_GRAPH.exe
Enter no. of vertices:3
Enter the adjacency matrix:
8
9
7
6
5
4
3
2
3
Enter the starting node:9
Distance of node0=-1147341500
Path=0<-9
Distance of node1=-1147341491
Path=1<-0<-9
Distance of node2=-1147341493
Path=2<-0<-9
Process returned 0 (0x0) execution time : 33.698 s
Press any key to continue.
Type here to search
29°C
ENG
16:25
26-11-2022