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EX NO 11 IMPLEMENTATION OF DFS AND BFS

Implementation of BFS

#include <stdio.h>

#include <stdlib.h>

#define MAX\_SIZE 7

int queue[MAX\_SIZE];

int front = -1, rear = -1;

int isEmpty() { return front == -1 && rear == -1; }

int isFull() { return rear == MAX\_SIZE - 1; }

void enqueue(int val) {

if (!isFull()) {

if (isEmpty()) {

front = rear = 0;

} else {

rear = (rear + 1) % MAX\_SIZE;

}

queue[rear] = val;

} else {

printf("\nQUEUE IS FULL!\n");

}

}

int dequeue() {

if (!isEmpty()) {

int val = queue[front];

if (front == rear) {

front = rear = -1;

} else {

front = (front + 1) % MAX\_SIZE;

}

return val;

} else {

printf("\nQUEUE IS EMPTY!\n");

return -1;

}

}

int visited[MAX\_SIZE] = {0};

int main() {

int g[MAX\_SIZE][MAX\_SIZE] = {

{0, 1, 1, 0, 0, 0, 0},

{0, 0, 0, 0, 0, 0, 0},

{0, 0, 0, 1, 0, 1, 0},

{1, 1, 0, 0, 0, 0, 1},

{0, 1, 0, 0, 0, 0, 0},

{0, 0, 0, 0, 0, 0, 1},

{0, 0, 0, 0, 1, 0, 0}

};

int i = 0;

visited[i] = 1;

printf("%d -> ", i);

enqueue(i);

while (!isEmpty()) {

int i = dequeue();

for (int j = 0; j < MAX\_SIZE; j++) {

if (g[i][j] && !visited[j]) {

visited[j] = 1;

printf("%d -> ", j);

enqueue(j);

}

}

}

return 0;

}

Implementation of DFS

#include<stdio.h>

#include<stdlib.h>

#define size 7

int s[size];

int top=-1;

int pop();

void push(int);

void main(){

int g[size][size]={{0,1,1,0,0,0,0},{0,0,0,0,0,0,0},{0,0,0,1,0,1,0},{1,1,0,0,0,0,1},{0,1,0,0,0,0,0},{0,0,0,0,0,0,1},{0,0,0,0,1,0,0}};

int visited[size]={0};

int j,i=0;

while(i>-1 && i<size)

{

if(visited[i]!=1)

{

printf("%d ",i);

visited[i]=1;

}

for(i,j=0;j<size;j++)

{

if(g[i][j]==1 && visited[j]!=1){

push(j);

}

}

i=pop();

}

}

void push(int data)

{

top=top+1;

s[top]=data;

}

int pop()

{

int temp;

temp=s[top];

top=top-1;

return temp;

}