NAME: SUBASH KRISHNAN A

REG NO : 230701345

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;

}