**SD – Seminar 8 – GRAFURI. DIGRAFURI**

**08.12.2020**

**Graf.**

**Digraf.**

Exemplu de digraf:

|  |  |
| --- | --- |
|  | n = 6, V = {0, 1, 2, 3, 4, 5}  m = 9  A = {(0,1), (0,4), (1,2), (1,3), (1,4), (2,5), (3,5), (4,2), (5,2)} |

**Parcurgere BFS** (din varful 0**):**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| coada: |  |  |  |  |  |  |
| 5vizitare: |  |  |  |  |  |  |

**Parcurgere DFS:** (din varful 0)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| stiva: |  |  |  |  |  |  |
| vizitare: |  |  |  |  |  |  |

***I Reprezentarea cu matrici de adiacenta***

n = 6

a[0..n-1, 0..n-1], a[i,j] = 1 daca (i,j) ∊A si 0 in caz contrar.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 |
| 0 |  | 1 |  |  | 1 |  |
| 1 |  |  | 1 | 1 | 1 |  |
| 2 |  |  |  |  |  | 1 |
| 3 |  |  |  |  |  | 1 |
| 4 |  |  | 1 |  |  |  |
| 5 |  |  | 1 |  |  |  |

struct Digraf{

int n

// int m

int a[0..nMax][0..nMax]

}

***II Reprezentarea cu liste de adiacenta (exterioara)***

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 |  |  | 1 |  |  | 4 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 |  |  | 2 |  |  | 3 |  |  | 4 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  | 5 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  | 5 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  | 2 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  | 2 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |

struct nod {

Elt inf

nod \* succ

}

struct Digraf {

int n

// int m

nod \* a[0..nMax-1]

}

**Pr. 1** Citirea unui digraf in cele doua reprezentari

n

m

perechi de forma x, y pentru cele m arce

**procedure** citesteDigraf(Digraf D)

**begin**

D <- digrafVid()

read D.n

read D.m

for i <- 0 to D.m-1 do {

read x, y

insereazaArc(D, x, y)

}

**end**

**I matrice de adiacenta**

**procedure** insereazaArc(D, x, y)

**begin**

**end**

**II liste de adiacenta**

**procedure** insereazaArc(D, x, y)

**begin**

**end**

**Pr. 2** Determinarea componentelor conexe cu numar maxim de varfuri a unui graf implementat cu matrici de adiacenta.

|  |  |
| --- | --- |
|  | G = (V, E), G.n = 8, G.m = 5 |

struct Graf{

int n

int m

int a[0..nMax][0..nMax]

}

Input: Graf G

Output: Componentele conexe cu numar maxim de varfuri