CSE 101-02 1-17-23

- PA1 ext. to Thur. 10:00 PM
- Ed Post on grading scripts

Don't use VLAs (variable length arrays) as of ISO C99. The following is possible

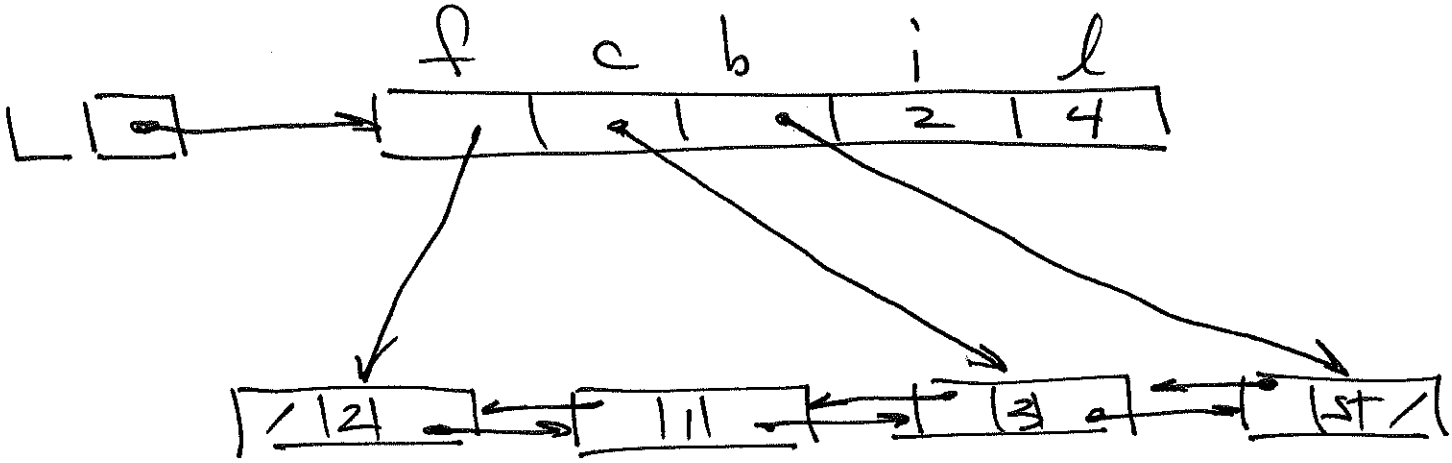
```
int n; // get n from user...
int A[n]; // do something with A
```

stack stack

List ADT

client: (2 1 3 5)
0 1 2 3

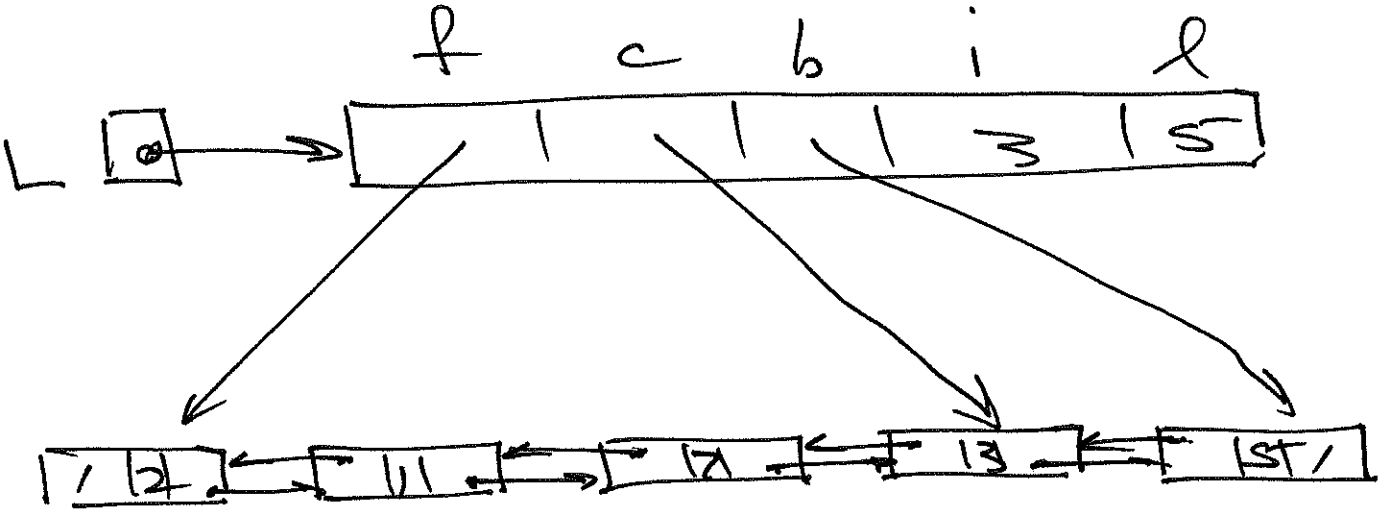
inside:



Do insertBefore(L, 7)

client: (2 1 7 3 5)
0 1 2 3 4

Inside:



Pal example

0 1 2 3

A = ["c" "a" "b" "d"]

Want: L = (1 2 0 3)

Sub-array

Start: L = ( ) [ ]

Insert 0: L = (0) [c]

Insert 1: L = (0)

L = (1 0) [a c]

Insert 2: L = (1 0)

L = (1 0)

L = (1 2 0) [a b c]

Insert 3: L = (1 2 0)

L = (1 2 0)

L = (1 2 0)

L = (1 2 0 3) [a b e d]

Handout: ADTs & Data Structs

Handout: • Graph Theory
• Graph Algorithms

Defn

A graph G is a pair of sets

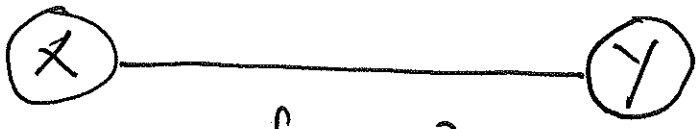
$$G = (V, E)$$

V: Vertices, E: Edges

where

$$V \neq \phi$$

$$E \subseteq V^{(2)} = \{2\text{-subsets of } V\}$$

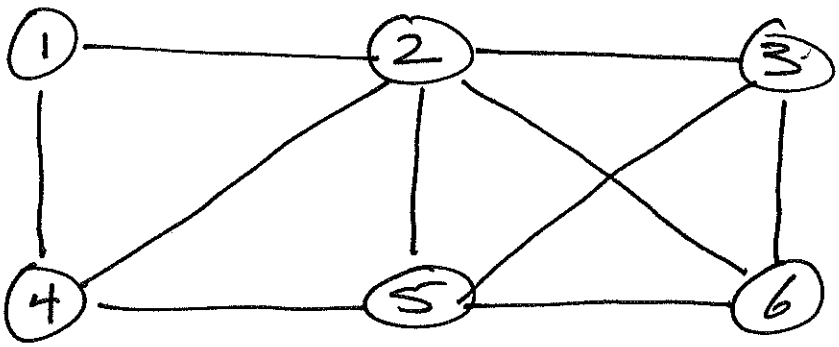


$\{x, y\} = xy$

Ex. $V_1 = \{1, 2, 3, 4, 5, 6\}$

$E_1 = \{12, 14, 23, 24, 25, 26, 35, 36, 45, 56\}$

G_1

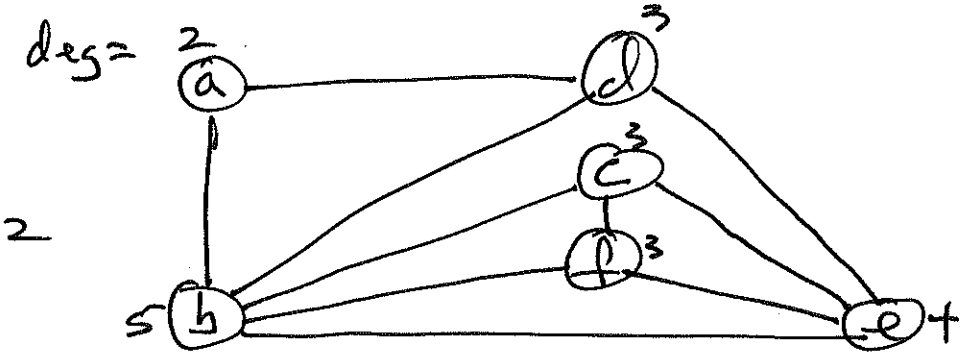


x	deg(x)
1	2
2	5
3	3
4	3
5	4
6	3

Ex. $V_2 = \{a, b, c, d, e, f\}$

$E_2 = \{ab, ad, bc, bd, be, bf, ce, cf, de, ef\}$

G_2



Defn

We say G_1 is isomorphic to G_2 iff there exists a bijection $\phi : V(G_1) \longrightarrow V(G_2)$ such that

$\{x, y\} \in E(G_1)$ iff $\{\phi(x), \phi(y)\} \in E(G_2)$