

CSE 101 10-2-25

11

Pal: extended 1 day

Pal: example

how to insert array indices into

list.

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

want

$L = (1, 2, 0, 3)$

start: $L = ()$

insert 0: $L = (0)$

insert 1: $L = (0)$

$L = (1, 0)$

insert 2: $L = (1, 0)$

$L = (1, 0)$

$L = (1, 2, 0)$

insert 3: $L = (1, 2, 0)$

$L = (1, 2, 0)$

$L = (1, 2, 0)$

$L = (1, 2, 0)$

$L = (1, 2, 0, 3)$

Pal : client Words.c

See example FileIO.c

Do not !

```
int n;  
// get n somehow
```

```
int A[n];
```

instead do

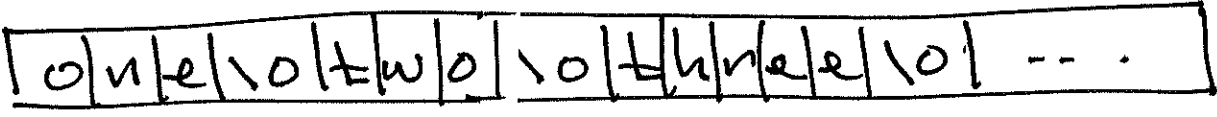
```
int n;  
// get n somehow
```

```
int* A = calloc(n, sizeof(int))
```

```
⋮  
free(A);
```

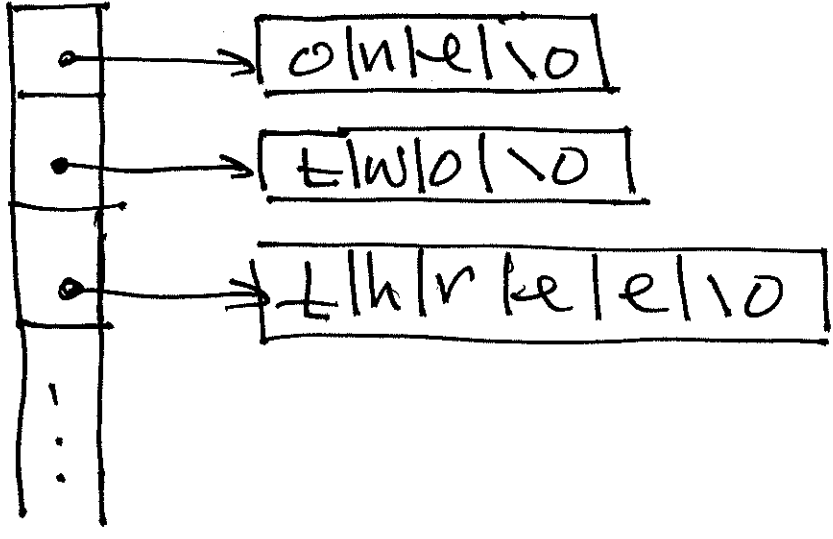
note, in FileIO.c

char*
B



in Words.c

A L-type char**



Graph Theory Handout

A Graph consists of 2 sets

$$G = (V, E)$$

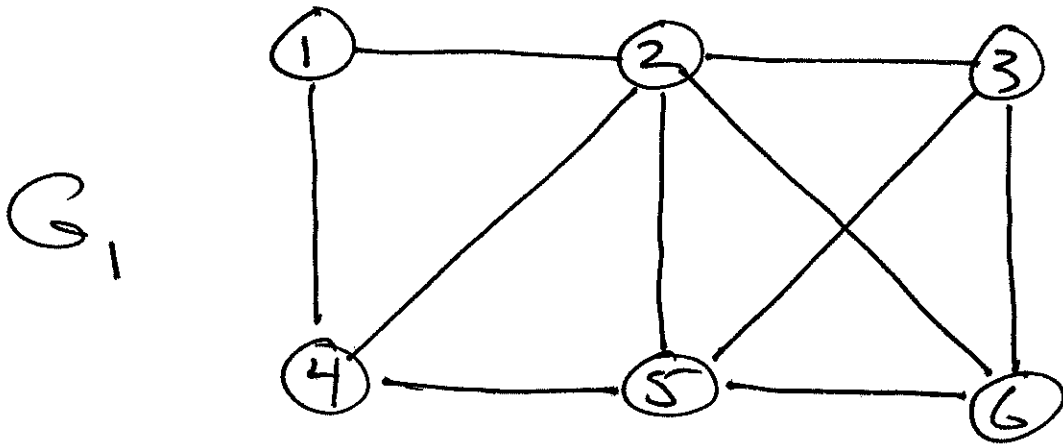
V : vertex set, $V \neq \emptyset$

E : edge set, $E \subseteq \underline{V^{(2)}}$

2-element
subsets of V .

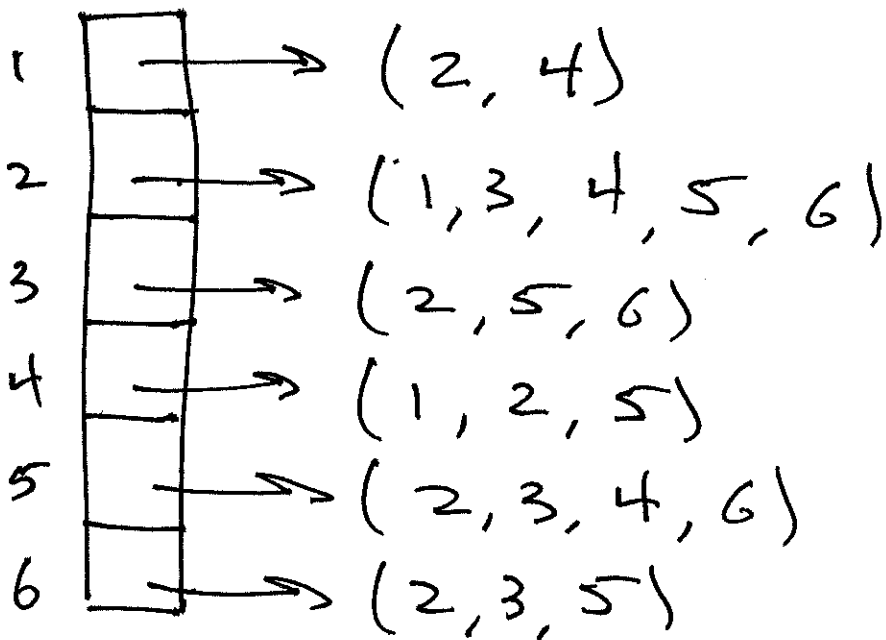
Ex $V = \{1, 2, 3, 4, 5, 6\}$

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



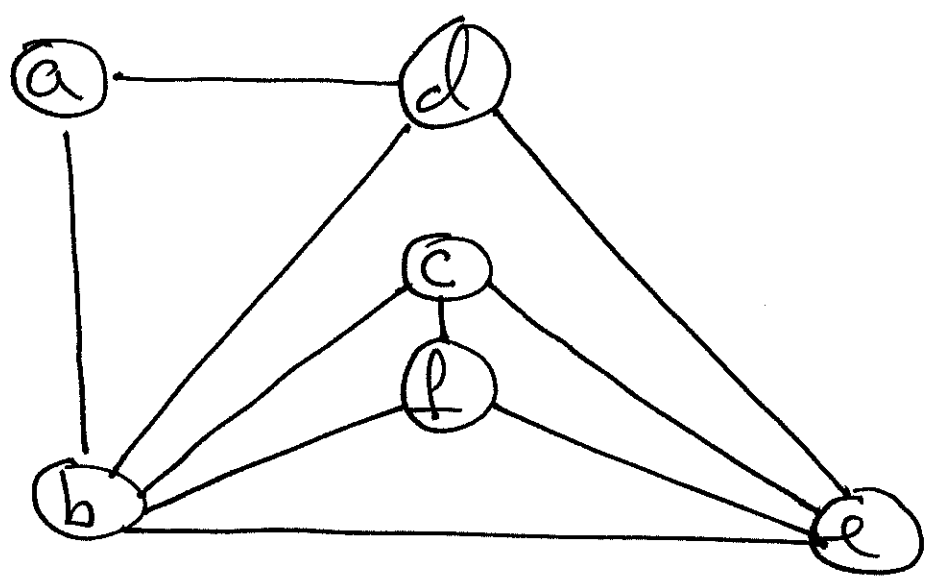
Adjacency list representation :

adj



Ex.

G_2



$$V(G_1) \xrightarrow{\phi} V(G_2)$$

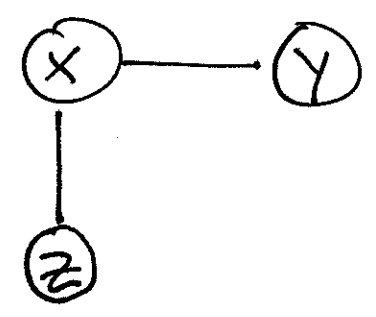
- 1 \longrightarrow a
- 2 \longrightarrow b
- 3 \longrightarrow c
- 4 \longrightarrow d
- 5 \longrightarrow e
- 6 \longrightarrow f

ϕ is a graph isomorphism.

i.e. $\phi: V(G_1) \rightarrow V(G_2)$ bijective,
and for all $x, y \in V(G_1)$

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

note



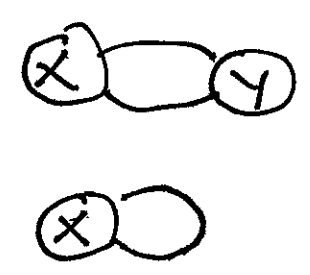
x, y are adjacent

$\{x, y\}$ joins x to y

x is incident with $\{x, y\}$

$\{x, y\}$ is adjacent to $\{x, z\}$

note:



} not allowed

Let $x, y \in V(G)$. an x - y

walk in G is a sequence

$$x = v_0, v_1, v_2, \dots, v_k = y$$

where each $v_i \in V(G)$, and

for all $i = 0, \dots, k-1$

$$\{v_i, v_{i+1}\} \in E(G)$$

if $x = y$, called closed.

length of walk is k .