

$Q$  operasi

1  $x_1 y_1$   
2  $x_2 y_2$   
3  $x_3 y_3$   
4  $\dots$   
 $\vdots$   
 $Q x_Q y_Q$



$$x_i \neq y_i \rightarrow$$

angka pada  
Tumpukan  
Maximum  
Operasi  
Minimum

$y_Q$   
 $x_Q$   
 $\dots$   
 $y_2$   
 $x_2$   
 $y_1$   
 $x_1$

$$\begin{aligned} &\text{Total angka} \\ &\text{total } x + \\ &\text{Total } y \\ &= Q + Q \\ &= 2Q_{\min} \end{aligned}$$

Operasi Max  $\rightarrow$  angka minimum

$Q$  operasi

1  $x_2 x_1$

2  $x_2 x_2$

3  $- - -$

:

$Q$   $x_Q x_Q$

angka pada tumpukan min

angka pada tumpukan minimum  $\rightarrow$  operasi max

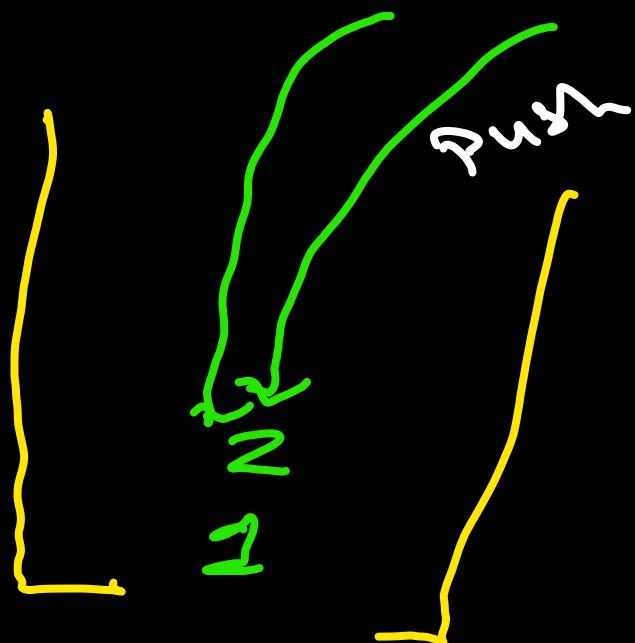
$x_Q$   
:  
 $x_2$   
 $x_1$

Sebanyak  $Q$

max

$x = y$

`arr = [1 2 3 4]`



Stack = last in first out

Vector = Queue + array

→ dequeue

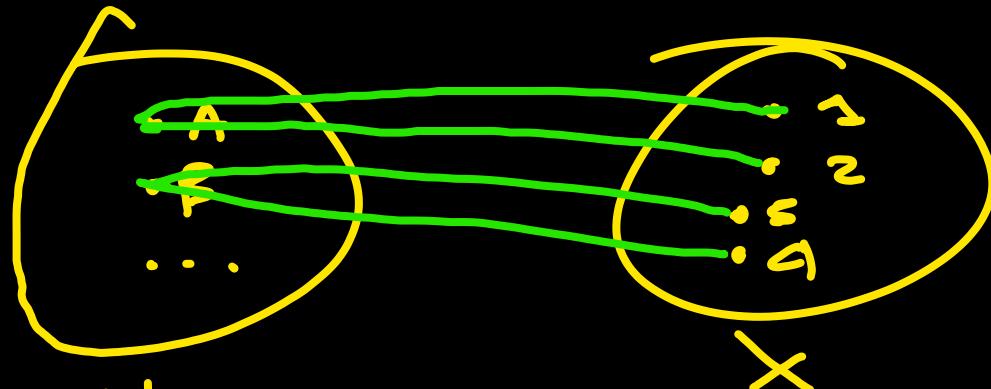
1 2 3 9 } FIFO  
1 2 3 9 } first in first out

Graph

BFS → queue  
DFS → stack / recursive

$N$  orang Pemandu,  $X$  orang Peserta

Pemandu



Peserta tidak identik

A B tidak persis siapapun

stars and bars

bars

Rumus banyaknya pemetaan

$$\frac{N^X}{\underline{\underline{N}}}$$

banyak cari saat Pemandu  
tak Pemandu siapapun

## Binary Exponentiation

$$\begin{aligned} a^b &= a^{b/2} \cdot a^{b/2} \\ &= a^{b/4} \cdot a^{b/4} \cdot a^{b/4} \cdot a^{b/4} \end{aligned}$$

$$a^b = ((a^{b/2} \bmod 10^9) \cdot (a^{b/2} \bmod 10^9)) \bmod 10^9$$

= - - -

= - - - .

$\mathcal{O}(\log N)$

Yaoyorozu & Todori = 2 han' saku

Uraraka Midonya = 7 han' saku

sehingga uraraka midonya di sampaikan

Pada akhirnya Yaoyorozu & Todori

$Y \in T \rightarrow 2, \textcircled{9}, 6, 8, 10, \textcircled{12}, 14, \textcircled{16}, \dots$

$U \in M \rightarrow \textcircled{9}, 8, \textcircled{12}, \textcircled{16}, 20, \dots$

Inklusiv — Exklusiv

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$$|A \cup B \cup C| = |A| + |B| + |C| - |A \cap B| - |B \cap C| - |A \cap C| + |A \cap B \cap C|$$

KPK → Euclid Algorithm

$$F_{PB}(A, B) = \frac{A * B}{KPK(A, B)}$$

$$KPK(A, B) = \frac{A \wedge B}{F_{PB}(A, B)}$$

$DP(i,j)$  = banyaknya item maksimum yang bisa dikumpulkan jika bergerak dari baris ke- $i$  kolom ke- $j$  ( $i,j$ ) ke petak (1,1)

ada 2 cara gerak

Kanan → Top down  
vari  
  
bawals → clas

Merode Top down

start

finish

Bottom up

down

start

Tans

Finish

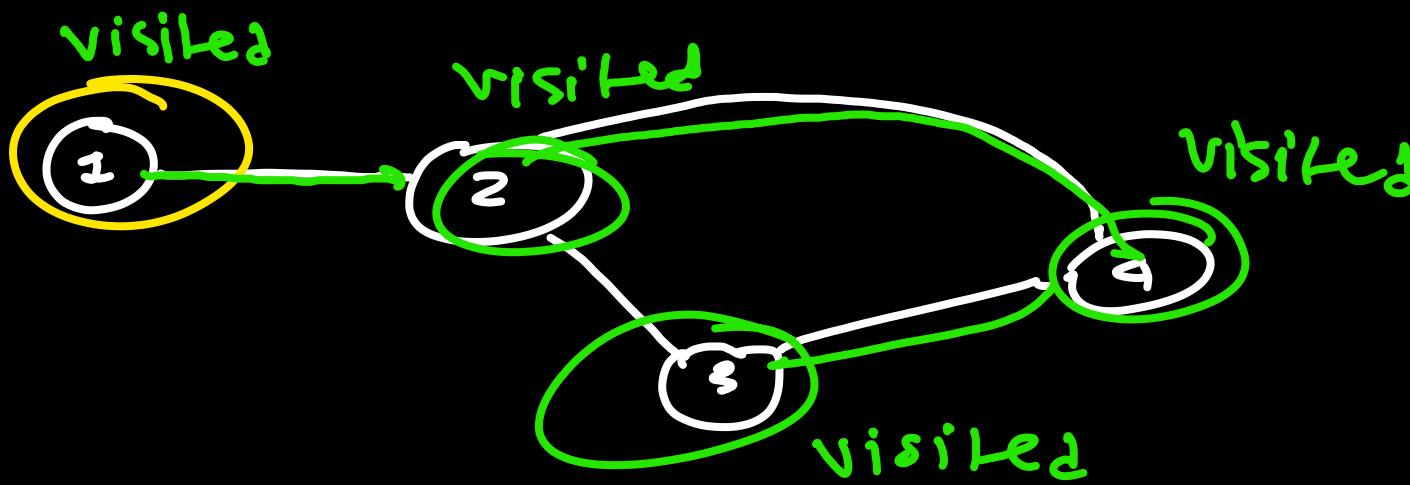
$$dp(i,j) = \max_{\substack{\text{item } [i:j] \\ \text{kin}}} (dp(i-1, j), dp(i, j-1)) + \underbrace{\text{ans}}$$

F. Rekursiv → Base case

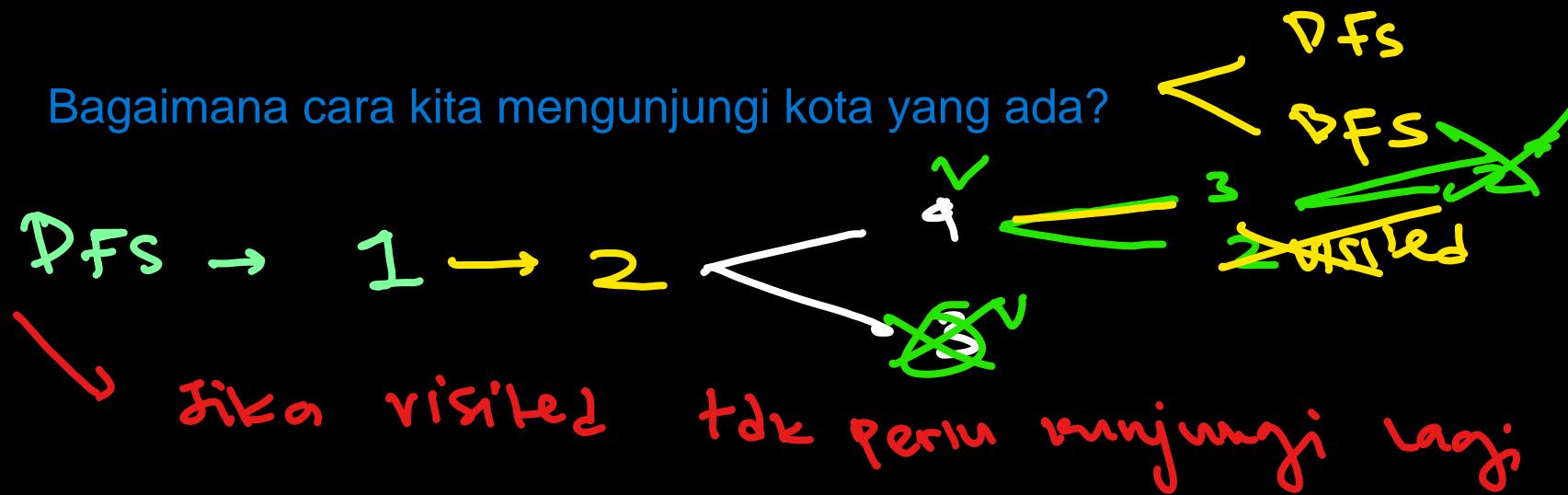
$$dp(0,0) = \text{item}[0:0]$$

$$dp(0,1) = \text{item}[0:0] + \text{item}[0:1]$$

$$dp(1,0) = \text{item}[0:0] + \text{item}[1:0]$$



Bagaimana cara kita mengunjungi kota yang ada?



```
dfs(v) :  
    visited[v] = 1  
    for(u in connection(v))  
        if(visited[u])  
            continue  
        else  
            dfs(u)
```

1

2

3

q

... N

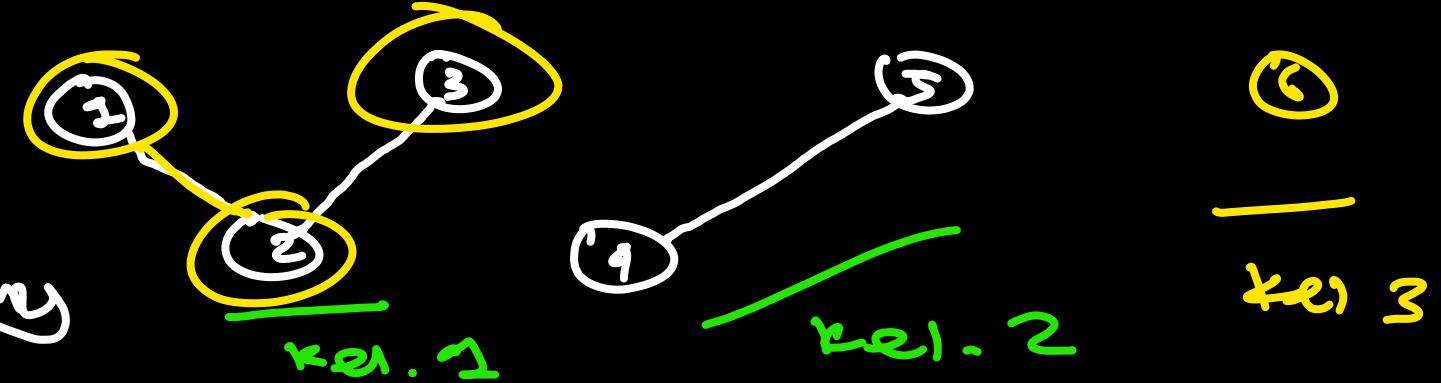
u dan v

Terkoneksi

53  
12  
23  
45

5 orang  
u dan v terhubung.

1 dan 2 terhubung



rel. 1

rel. 2

rel. 3

1, 2, 3 visited

1 →  $\text{dfs}(1) \rightarrow \text{dfs}(2) \rightarrow \text{dfs}(3)$   
 $\text{rel. } 1 = 1$

2 →  $\text{dfs}(2) \rightarrow \text{dfs}(3)$  visited  
 $\text{rel. } 1 = 1$

3 →  $\text{dfs}(3) \rightarrow \text{dfs}(4)$  visited  
 $\text{rel. } 1 = 1$

4 →  $\text{dfs}(4) \rightarrow \text{dfs}(5)$   
 $\text{rel. } 1 = 2$





























































































