A graph is acyclic if it has no cycles

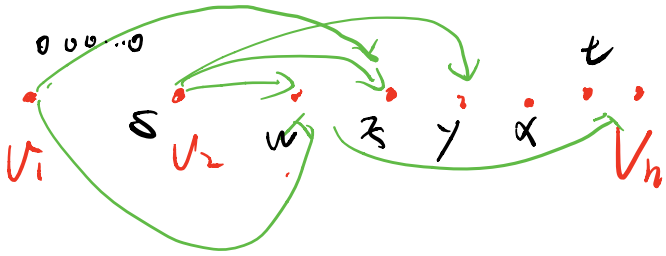
weighted.

Given a directed acyclic graph (DAG) and two vertices s and t in G.

find a longest path from s to t.

1. topologically sort the vertices: $O(m+n)$

$v_1, v_2, \dots, v_n$



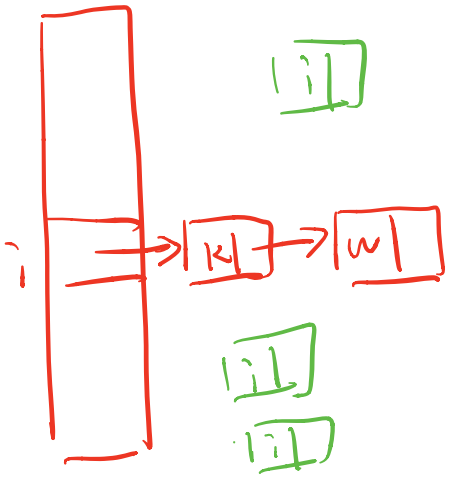
2. for (i=1; i≤n; i++)
   dist[v_i] = $-\infty$

3. Suppose $s = v_k$; dist[s] = 0

4. for (i=k+1; i≤n, i++)
   for(each edge [v_h, v_i])
      if dist[v_i] < dist[v_h] + wt(v_h, v_i)

dist [vi] = dist [vh] + wt (vh, vi);

dad [vi] = vh;



4. for (i=k , i≤n , i++)
    for (each edge [vi, vh])
        if (dist[vh] < dist[vi] + wt(vi , vh))
            dist [vh] = dist [vi] + wt (vt , vh)
            dad [vh] = vi

given 2 sequences

$a_1\ a_2\ a_3\ \cdots\ a_n$

$b_1\ b_2\ b_3\ \cdots\ b_m$

x y x y x y x y x y _

_ y x y x y x y x y x

↙ empty symbol

add "_"s to the sequences to make them of equal length so that the score is maximized.

sequence alignment.

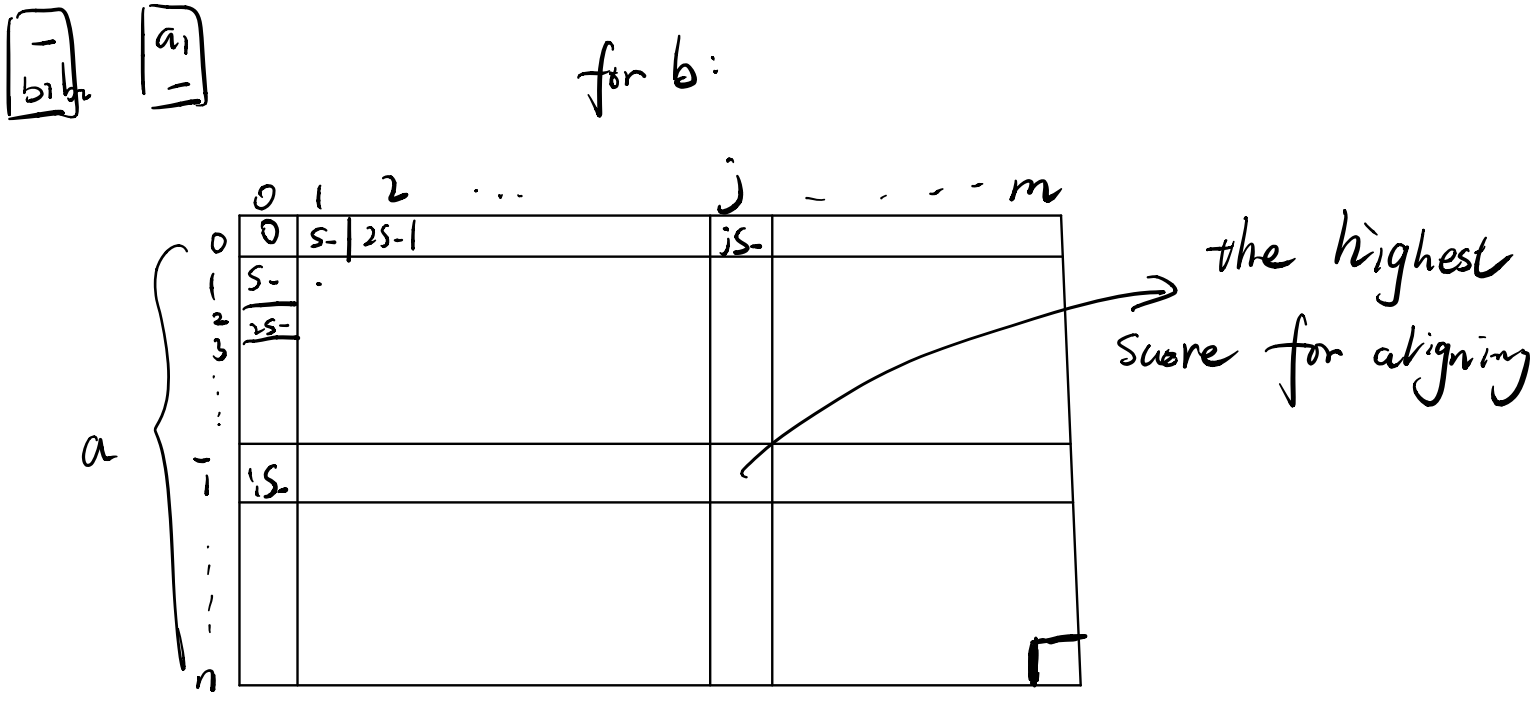
Scores:

		eg
match:	+	$s_m > 0$
mismatch:	−	$s_{miss} < 0$
"_":	−	$s_- < 0$

$a_1\ a_2\ \cdots\ a_{n-1}\ a_n$

$b_1\ b_2\ \cdots\ \cdots\ b_{m-1}\ b_m$

_
b_m


-
b1 b2
a1
-
for b:
0 1 2 ... j ... m
0
1
2
3
i
n
a
0
s-
2s-1
js-
s-
2s-
is-
the highest
score for aligning