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Hint: Many test values are taken from project Algorithms
for Bioninformatics of Alexander Mattheis or the lectures.

Test 1 (used Needleman-Waterman-Implementation for calculation)

Input

Sequence A: AATCG
Sequence B: AACG

Deletion: 2
Insertion: 2
Match: -1
Mismatch: 1

Output

1. $Trace(A_1, A_2, T_3, C_4, G_5 | A_1, A_2, C_3, G_4)$ and i = ceil(5/2) = 3

		A	A	C	G
	0	2	4	6	8
A	2	-1	1	3	5
A	4	1	-2	0	2
T	6	3	0	-1	1
C	8	5	2	-1	0
G	10	7	4	1	-2

		A	A	C	G
	-2	1	4	7	10
A	0	-1	2	5	8
A	1	-1	0	3	6
T	2	0	-2	1	4
C	5	3	1	-1	2
G	8	6	4	2	0

Optimum: -2

	0	1	j=2	3	4
i=3	6	3	0	-1	1
	2	0	-2	1	4
∑	8	3	-2	0	5

or: i = 5-3 = 2 in the matrix below and then reverse the line horizontally

		G	C	A	A
	0	2	4	6	8
G	2	-1	1	3	5
C	4	1	-2	0	2
T	6	3	0	-1	1
A	8	5	2	-1	-2
A	10	7	4	1	-2

		A	A	C	G
A					
A					
T					
C					
G					

1.1. $Trace(A_1, A_2|A_1, A_2)$: and i = ceil(2/2) = 1

		A	A
	0	2	4
A	2	-1	1
A	4	1	-2

		A	A
	-2	1	4
A	1	-1	2
A	4	2	0

Optimum: -2

	0	j=1	2
i=1	2	-1	1
	1	-1	2
∑	3	-2	3

		A	A
A			
A			

1.1.1. $Trace(|A_1)$: and i = ceil(0/2) = 0

		A
	0	2

		A
	2	0

Not shown!

1.1.2. $Trace(A_2|A_1, A_2)$: and i = ceil(1/2) = 1 (local for that matrix)

		A	A
	0	2	4
A	2	-1	1

		A	A
	1	-1	2
A	4	2	0

Optimum: 1

	0	j=1	2
i=1	2	-1	1
	4	2	0
∑	6	1	1

(search minimum from right side, because right node?)

1.2. $Trace(C_4, G_5|A_2, C_3, G_4)$: and i = ceil(2/2) = 1 (local for that matrix)

		A	C	G
	0	2	4	6
C	2	1	1	3
G	4	3	2	0

		A	C	G
	0	-2	1	4
C	3	1	-1	2
G	6	4	2	0

Optimum: 0

	0	2	j=3	4
i=4	2	1	1	3
	3	1	-1	2
∑	5	2	0	5

	A	C	G
C			
G			

1.2.1. $Trace(|A_2, C_3)$: and i = ceil(0/2) = 0 (local for that matrix)

		A	C
	0	2	4

Not shown!

1.2.2. $Trace(C_4|C_3, G_4)$: and i = ceil(1/2) = 1 (local for that matrix)

		C	G
	0	2	4
G	2	1	1

		C	G
	1	-1	2
G	4	2	0

Optimum: 1

	0	3	j=4
i=5	2	1	1
	4	2	0
∑	6	3	1

so:

		A	A	C	G
A					
A					
T					
C					
G					