

# Practice 2

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## 1

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**Matrix-chain product** . The following are some instances.

**矩阵链乘积** 。以下是一些例子。

1.  $\langle 3, 5, 2, 1, 10 \rangle$
2.  $\langle 2, 7, 3, 6, 10 \rangle$
3.  $\langle 10, 3, 15, 12, 7, 2 \rangle$
4.  $\langle 7, 2, 4, 15, 20, 5 \rangle$

## 2

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**Longest Common Subsequence (LCS)** . The following are some instance.

**最长公共子序列 (LCS)** 。以下是一些例子。

1. X: xzyzzyx Y: zxyyzxz
2. X: MAEEEVAKLEKHLMLLRQEYVKLQKKLAETEKRCALLAAQANKESSSESFISRLLAIVAD Y:  
MAEEEVAKLEKHLMLLRQEYVKLQKKLAETEKRCTLLAAQANKENSNESFISRLLAIVAG

## 3

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**Longest Common Substring** . The following are some instances.

**最长公共子串** 。以下是一些例子。

1. X: xzyzzyx Y: zxyyzxz
2. X: MAEEEVAKLEKHLMLLRQEYVKLQKKLAETEKRCALLAAQANKESSSESFISRLLAIVAD Y:  
MAEEEVAKLEKHLMLLRQEYVKLQKKLAETEKRCTLLAAQANKENSNESFISRLLAIVAG

## 4

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**Max Sum** . The following is an instance.

**最大和** 。以下是一个例子。

1.  $(-2, 11, -4, 13, -5, -2)$

## 5

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**Shortest path in multistage graphs** . Find the shortest path from 0 to 15 for the following graph.

A multistage graph is graph $(1)G=(V,E)$  with  $V$  partitioned into  $K \geq 2$  disjoint subsets such that if  $(a,b)$  is in  $E$ , then  $a$  is in  $V_i$ , and  $b$  is in  $V_{i+1}$  for some subsets in the partition; and (2)  $|V_1| = |V_k| = 1$ .

多级图中的最短路径。找出下图中从节点0到节点15的最短路径。

多级图是满足以下条件的图

1.  $G = (V, E)$  的  $V$  可以被分为  $K \geq 2$  个不相交的部分，并且对于  $E$  中的任意一个边  $(a, b)$ ，如果  $a$  在  $V_i$  中，则  $b$  在  $V_{i+1}$  中
2.  $|V_1| = |V_k| = 1$

