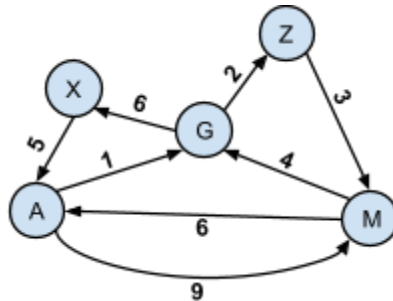


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PROBLEM: Given a weighted directed graph, find the cycle with the largest total weight and report that weight.

EXAMPLE: The following weighted directed graph has 5 vertices and 8 edges. The cycles are AMA, AMGXA, AGZMA, GZMG, and GXAG, with total weights of 15, 24, 12, 9, and 12 respectively. Therefore the largest weight for this graph is 24.



INPUT: There will be 3 Sample Inputs and 10 Test Inputs. Each graph is specified by a set of directed edges and an integer weight for each edge. The first Sample Input below corresponds to the graph above. All items will be separated by a single space. Edges will be a 2-character string of the starting and ending vertex, both capital letters. Weights will be integers.

OUTPUT: Find the cycle with the largest total weight and report that weight. If the graph has no cycles, report a value of 0.

SAMPLE INPUT:

```
XA 5 AG 1 GX 6 AM 9 MA 6 MG 4 ZM 3 GZ 2
CB 2 EA 6 AB 5 EC 2 BC 2 CC 8 CD 3 AD -1 CA 4
AC 5 AB 1 BC 2 CD 3 DA 1
```

SAMPLE OUTPUT:

```
24
11
9
```

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TEST DATA

TEST INPUT:

```
AA 5
AB 1 BC 2 CA 3 DA 2 DB 3 CD 4 BA -2 AC -3
AB 1 BC 2 CD 3 BE 6 BF 4 PQ 5 QR 3
AA 20 BB 26 CC 24
AB 12 ED 13 BC 12 BB 18 FE 12 FD 11 CB 12 DF 11 CA 12 FF 17
AB -2 SP -3 AP 3 BT 6 SB 4 BA 4 TT 0
AT 1 TS -1 PA -1 TP -2 BS -2
AC 4 DA 4 EB 4 CE 4 BD 4
AB 2 AA 6 BC 2 BB 6 CA 2 CC 6
AC 2 CF 2 FE 2 ED 2 DB 2 BA 2 CB 2 EC 2 BE 2
```

TEST OUTPUT:

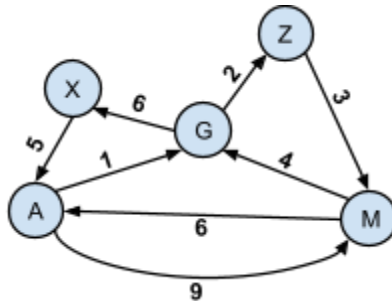
```
5
9
0
26
36
2
-2
20
6
12
```

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题目: 给定一个加权有向图, 找出权重最大的环, 并输出该权重。

示例: 下面的加权有向图有 5 个顶点和 8 条边。其中环包括 AMA,AMGXA,AGZMA, GZMG 和 GXAG, 总权重分别为 15, 24, 12, 9 和 12。因此这一有向图的最大权重为 24。



输入: 将给出 3 个样本输入和 10 个测试输入。每个有向图都有特定的一组有向边, 每条边上有一个整数权重。下面第一行样本输入所对应的有向图即为上图, 样本中的元素用一个空格隔开。边用分别代表起点和终点的两个大写字母组成的字符串表示。权重的值均为整数。

输出: 找出权重最大的环, 并输出该权重。如果有向图中没有环, 则输出数值为 0。

样本输入:

```
XA 5 AG 1 GX 6 AM 9 MA 6 MG 4 ZM 3 GZ 2
CB 2 EA 6 AB 5 EC 2 BC 2 CC 8 CD 3 AD -1 CA 4
AC 5 AB 1 BC 2 CD 3 DA 1
```

样本输出:

```
24
11
9
```

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测试数据

测试输入:

```
AA 5
AB 1 BC 2 CA 3 DA 2 DB 3 CD 4 BA -2 AC -3
AB 1 BC 2 CD 3 BE 6 BF 4 PQ 5 QR 3
AA 20 BB 26 CC 24
AB 12 ED 13 BC 12 BB 18 FE 12 FD 11 CB 12 DF 11 CA 12 FF 17
AB -2 SP -3 AP 3 BT 6 SB 4 BA 4 TT 0
AT 1 TS -1 PA -1 TP -2 BS -2
AC 4 DA 4 EB 4 CE 4 BD 4
AB 2 AA 6 BC 2 BB 6 CA 2 CC 6
AC 2 CF 2 FE 2 ED 2 DB 2 BA 2 CB 2 EC 2 BE 2
```

测试输出:

```
5
9
0
26
36
2
-2
20
6
12
```