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--- Day 1: Historian Hysteria ---  
--- 第 1 天: 历史学家歇斯底里 ---

The Chief Historian is always present for the big Christmas sleigh launch, but nobody has seen him in months! Last anyone heard, he was visiting locations that are historically significant to the North Pole; a group of Senior Historians has asked you to accompany them as they check the places they think he was most likely to visit.

首席历史学家总是在场参加大型圣诞雪橇发布会，但几个月来没有人见过他！最后有人听说，他正在访问对北极具有历史意义的地点；一群高级历史学家请你陪他们检查他们认为他最有可能去的地方。

As each location is checked, they will mark it on their list with a star. They figure the Chief Historian must be in one of the first fifty places they'll look, so in order to save Christmas, you need to help them get fifty stars on their list before Santa takes off on December 25th.

检查每个位置时，他们会在列表中用星号标记它。他们认为首席历史学家必须在他们要寻找的前 50 个地方之一，所以为了挽救圣诞节，您需要帮助他们在 12 月 25 日圣诞老人起飞之前在他们的名单上获得 50 颗星。

Collect stars by solving puzzles. Two puzzles will be made available on each day in the Advent calendar; the second puzzle is unlocked when you complete the first. Each puzzle grants one star. Good luck!

通过解决谜题来收集星星。降临节日历中每天将提供两个谜题；当您完成第一个谜题时，第二个谜题将被解锁。每个拼图都会获得一颗星星。祝你好运！

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You haven't even left yet and the group of Elvish Senior Historians has already hit a problem: their list of locations to check is currently empty. Eventually, someone decides that the best place to check first would be the Chief Historian's office.

你甚至还没有离开，这群精灵高级历史学家已经遇到了一个问题：他们要检查的地点列表目前是空的。最终，有人决定首先检查的最佳地点是首席历史学家办公室。

Upon pouring into the office, everyone confirms that the Chief Historian is indeed nowhere to be found. Instead, the Elves discover an assortment of notes and lists of historically significant locations! This seems to be the planning the Chief Historian was doing before he left. Perhaps these notes can be used to determine which locations to search?

一涌进办公室，大家都确认首席历史学家确实不知所踪。相反，精灵们发现了各种各样的笔记和具有历史意义的地点列表！这似乎是首席历史学家在离开之前所做的计划。也许这些注释可以用来确定要搜索的位置？

Throughout the Chief's office, the historically significant locations are listed not by name but by a unique number called the location ID. To make sure they don't miss anything, The Historians split into two groups, each searching the office and trying to create their own complete list of location IDs.

在整个 Chief 办公室中，具有历史意义的地点不是按名称列出，而是按称为位置 ID 的唯一编号列出。为了确保他们不会错过任何东西，历史学家们分成两组，每组搜索办公室并尝试创建自己的完整位置 ID 列表。

There's just one problem: by holding the two lists up side by side (your puzzle input), it quickly becomes clear that the lists aren't very similar. Maybe you can help The Historians reconcile their lists?

只有一个问题：通过将两个列表并排放置（您的拼图输入），很快就会发现这两个列表不是很相似。也许你可以帮助 The Historians 核对他们的名单？

Singapore.

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For example: 例如:

3	4
4	3
2	5
1	3
3	9
3	3

Maybe the lists are only off by a small amount! To find out, pair up the numbers and measure how far apart they are. Pair up the smallest number in the left list with the smallest number in the right list, then the second-smallest left number with the second-smallest right number, and so on.

也许列表只差了一小部分! 要找出答案, 请将数字配对并测量它们之间的距离。将左侧列表中的最小数字与右侧列表中的最小数字配对, 然后将左侧第二小的数字与右侧第二小的数字配对, 依此类推。

Within each pair, figure out how far apart the two numbers are; you'll need to add up all of those distances. For example, if you pair up a **3** from the left list with a **7** from the right list, the distance apart is **4**; if you pair up a **9** with a **3**, the distance apart is **6**.

在每对中, 计算出两个数字相距多远; 您需要将所有这些距离相加。例如, 如果你将左侧列表中的 **3** 与右侧列表中的 **7** 配对, 则相距 **4**; 如果你将 **9** 与一张 **3** 配对, 则相差 **6** 点。

In the example list above, the pairs and distances would be as follows:

在上面的示例列表中, 对和距离如下所示:

- The smallest number in the left list is **1**, and the smallest number in the right list is **3**. The distance between them is **2**.

左侧列表中的最小数字是 **1**, 右侧列表中的最小数字是 **3**。它们之间的距离为 **2**。

- The second-smallest number in the left list is **2**, and the second-smallest number in the right list is another **3**. The distance between

them is `1`.

左侧列表中第二小的数字是 `2`, 右侧列表中第二小的数字是另一个 `3`。它们之间的距离为 `1`。

- The third-smallest number in both lists is `3`, so the distance between them is `0`.

两个列表中第三小的数字都是 `3`, 因此它们之间的距离为 `0`。

- The next numbers to pair up are `3` and `4`, a distance of `1`.

接下来要配对的数字是 `3` 和 `4`, 距离为 `1`。

- The fifth-smallest numbers in each list are `3` and `5`, a distance of `2`.

每个列表中第五小的数字是 `3` 和 `5`, 距离为 `2`。

- Finally, the largest number in the left list is `4`, while the largest number in the right list is `9`; these are a distance `5` apart.

最后, 左侧列表中的最大数字是 `4`, 而右侧列表中的最大数字是 `9`; 这些距离相距 `5` 秒。

To find the total distance between the left list and the right list, add up the distances between all of the pairs you found. In the example above, this is `2 + 1 + 0 + 1 + 2 + 5`, a total distance of `11`!

要查找左侧列表和右侧列表之间的总距离, 请将您找到的所有对之间的距离相加。在上面的示例中, 这是 `2 + 1 + 0 + 1 + 2 + 5`, 总距离为 `11`!

Your actual left and right lists contain many location IDs. What is the total distance between your lists?

您的实际左侧和右侧列表包含许多位置 ID。您的列表之间的总距离是多少?

Your puzzle answer was `1666427`.

你的谜题答案是 `1666427`。

## --- Part Two --- 第二部分 ---

Your analysis only confirmed what everyone feared: the two lists of location IDs are indeed very different.

您的分析只证实了大家所担心的：两个位置 ID 列表确实非常不同。

Or are they? 或者是这样吗?

The Historians can't agree on which group made the mistakes or how to read most of the Chief's handwriting, but in the commotion you notice an interesting detail: a lot of location IDs appear in both lists! Maybe the other numbers aren't location IDs at all but rather misinterpreted handwriting.

历史学家无法就哪个小组犯了错误或如何阅读酋长的大部分笔迹达成一致，但在骚动中，您注意到一个有趣的细节：两个列表中都出现了很多位置 ID！也许其他数字根本不是位置 ID，而是误解了笔迹。

This time, you'll need to figure out exactly how often each number from the left list appears in the right list. Calculate a total similarity score by adding up each number in the left list after multiplying it by the number of times that number appears in the right list.

这一次，您需要准确计算出左侧列表中的每个数字在右侧列表中出现的频率。通过将左侧列表中的每个数字相加，再乘以该数字在右侧列表中出现的次数，来计算总相似度分数。

Here are the same example lists again:

以下是相同的示例列表：

3	4
4	3
2	5
1	3
3	9
3	3

For these example lists, here is the process of finding the similarity score:

对于这些示例列表，以下是查找相似度分数的过程：

- The first number in the left list is **3**. It appears in the right list three times, so the similarity score increases by  $3 * 3 = 9$ .

左侧列表中的第一个数字是 **3**。它在右侧列表中出现 3 次，因此相似性分数增加  $3 * 3 = 9$ 。

- The second number in the left list is **4**. It appears in the right list once, so the similarity score increases by  $4 * 1 = 4$ .

左侧列表中的第二个数字是 **4**。它在右侧列表中出现一次，因此相似性分数增加  $4 * 1 = 4$ 。

- The third number in the left list is **2**. It does not appear in the right list, so the similarity score does not increase ( $2 * 0 = 0$ ).

左侧列表中的第三个数字是 **2**。它不会显示在正确的列表中，因此相似性分数不会增加 ( $2 * 0 = 0$ )。

- The fourth number, **1**, also does not appear in the right list.

第四个数字 **1** 也没有出现在右侧列表中。

- The fifth number, **3**, appears in the right list three times; the similarity score increases by **9**.

第五个数字 **3** 在右侧列表中出现 3 次；相似性分数增加 **9**。

- The last number, **3**, appears in the right list three times; the similarity score again increases by **9**.

最后一个数字 `3` 在右侧列表中出现 3 次;相似性分数再次增加 `9`。

So, for these example lists, the similarity score at the end of this process is `31` (`9 + 4 + 0 + 0 + 9 + 9`) .

因此, 对于这些示例列表, 此过程结束时的相似性分数为 `31` (`9 + 4 + 0 + 0 + 9 + 9`) 。

Once again consider your left and right lists. What is their similarity score?

再次考虑您的左侧和右侧列表。他们的相似度分数是多少?

Your puzzle answer was `24316233`.

你的谜题答案是 `24316233`。

Both parts of this puzzle are complete! They provide two gold stars: \*\*

这个拼图的两个部分都是完整的! 他们提供两颗金星: \*\*

At this point, you should `return to your Advent calendar` and try another puzzle.

此时, 您应该返回您的降临节日历并尝试另一个拼图。

If you still want to see it, you can `get your puzzle input`.

如果您仍然想看到它, 您可以获取您的拼图输入。

You can also `[Share]` this puzzle.

你也可以 `[分享]` 这个拼图。