## 1G Compute the Hamming Distance Between Two Strings

**Hamming Distance Problem**
*Compute the Hamming distance between two strings.*

**Input:** Two strings of equal length.
**Output:** The Hamming distance between these strings.


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### Formatting

**Input:** Two DNA strings $Text_1$ and $Text_2$.
**Output:** An integer representing the Hamming distance between $Text_1$ and $Text_2$.

### Constraints

- The length of $Text_1$ and $Text_2$ will be between 1 and $10^4$.
- $Text_1$ and $Text_2$ will have equal lengths.
- $Text_1$ and $Text_2$ will be DNA strings.

## Test Cases

### Case 1

**Description:** The sample dataset is not actually run on your code.

**Input:**
```
GGGCCGTTGGT
GGACCGTTGAC
```

**Output:**
```
3
```

### Case 2

**Description:** This dataset checks if your code isn't keeping count (i.e. returns 0 when the answer is clearly nonzero) or if your code returns a negative value, which is impossible.

**Input:**
```
AAAA
TTTT
```

**Output:**
```
4
```

### Case 3

**Description:** This dataset checks if your code is finding Edit Distance (which would be 2) instead of Hamming Distance.

**Input:**
```
ACGTACGT
TACGTACG
```

**Output:**
```
8
```

**Case 4**

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**Description:** This dataset checks if your code is returning the number of matches (2) instead of the number of mismatches (6).

**Input:**

```
ACGTACGT
CCCCCCCC
```

**Output:**

```
6
```

**Case 5**

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**Description:** This dataset checks if your code works on a dataset where the two input strings have no matches.

**Input:**

```
ACGTACGT
TGCATGCA
```

**Output:**

```
8
```

**Case 6**

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**Description:** This dataset checks if you have an off-by-one error at the beginning (i.e. you are starting at the second character of the strings instead of the first character).

**Input:**

```
GATAGCAGCTTCTGAACTGGTTACCTGCCGTGAGTAAATTAAAATTTTATTGACTTAGGTCACTAAATACT
AATAGCAGCTTCTCAACTGGTTACCTCGTATGAGTAAATTAGGTCATTATTGACTCAGGTCACTAACGTCT
```

**Output:**

```
15
```

**Case 7**

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**Description:** This dataset checks if you have an off-by-one error at the end (i.e. you are ending at the second-to-last character of the strings instead of the last character).

**Input:**

```
GATAGCAGCTTCTGAACTGGTTACCTGCCGTGAGTAAATTAAAATTTTATTGACTTAGGTCACTAAATACT
AATAGCAGCTTCTCAACTGGTTACCTCGTATGAGTAAATTAGGTCATTATTGACTCAGGTCACTAACGTCT
```

**Output:**

```
28
```

**Case 8**

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**Description:** A larger dataset of the same size as that provided by the randomized autograder. Check input/output folders for this dataset.