Day 1: Historian Hysteria

Celine Wuyts

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Attribution

This is an R solution for Advent of Code 2024, Day 1.

Part 1

The puzzle input has two columns with location ID numbers.

```
Rows: 1,000
Columns: 2
$ V1 <int> 69214, 83241, 37930, 50722, 93164, 80918, 17490, 64372, 89659, 9155~
$ V2 <int> 60950, 49638, 31308, 94914, 82798, 72850, 79421, 87820, 98375, 9581~
```

Let's sort each column and add a difference variable.

```
Rows: 1,000
Columns: 3
$ V1   <int> 10103, 10133, 10172, 10223, 10244, 10465, 10499, 10554, 10581, 10~
$ V2   <int> 10246, 10320, 10397, 10464, 10769, 10870, 10870, 10870, 10870, 10~
$ diff <int> 143, 187, 225, 241, 525, 405, 371, 316, 289, 276, 194, 173, 156, ~
```

Let's compute the total distance between the left list and the right list.

The total distance is 1879048.

R code

```r
dat <- read.table("data/day-1_input.txt", header = FALSE, sep = "")

dat_sorted <- map_df(dat, ~ sort(.))
dat_sorted <- dat_sorted %>% mutate(diff = abs(V1 - V2))

total_diff <- dat_sorted %>% pull(diff) %>% sum()
```

Part 2

Instead, let's count how often each number from the left list appears in the right list, and add a "similarity" variable by multiplying each number in the left list by the number of times that number appears in the right list.

```
Rows: 1,000
Columns: 4
$ V1         <int> 10103, 10133, 10172, 10223, 10244, 10465, 10499, 10554, 105~
$ n_V1       <int> 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,~
$ n_V2       <int> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 17, 0, 0, 0, 0, 0~
$ similarity <int> 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 184790, 0, 0, 0, ~
```

Let's compute the total similarity score between the left list and the right list.

The total similarity score is 21024792.

R code

```
dat <- read.table("data/day-1_input.txt", header = FALSE, sep = "")

dat_counts <- dat %>% count(V1, name = "n_V1")

dat_counts <- dat_counts %>%
  mutate(n_V2 = map_int(V1, ~ sum(.x == dat$V2)),
         similarity = V1 * n_V2)

total_similarity <- dat_counts %>% pull(similarity) %>% sum()
```

Session information

```
R version 4.2.2 (2022-10-31 ucrt)
Platform: x86_64-w64-mingw32/x64 (64-bit)
Running under: Windows 10 x64 (build 22631)

Matrix products: default

locale:
[1] LC_COLLATE=English_Belgium.utf8  LC_CTYPE=English_Belgium.utf8
[3] LC_MONETARY=English_Belgium.utf8 LC_NUMERIC=C
[5] LC_TIME=English_Belgium.utf8

attached base packages:
[1] stats     graphics  grDevices utils     datasets  methods   base

other attached packages:
 [1] lubridate_1.9.2 forcats_1.0.0   stringr_1.5.0   dplyr_1.1.4
 [5] purrr_1.0.1     readr_2.1.4     tidyr_1.3.0     tibble_3.2.1
 [9] ggplot2_3.4.1   tidyverse_2.0.0

loaded via a namespace (and not attached):
 [1] pillar_1.9.0      compiler_4.2.2    tools_4.2.2       digest_0.6.31
 [5] timechange_0.1.1  jsonlite_1.8.8    evaluate_1.0.1    lifecycle_1.0.4
 [9] gtable_0.3.3      pkgconfig_2.0.3   rlang_1.1.0       cli_3.5.0
[13] rstudioapi_0.17.1 yaml_2.3.7        xfun_0.41         fastmap_1.1.0
[17] withr_3.0.2       knitr_1.42        generics_0.1.3    vctrs_0.6.5
[21] hms_1.1.2         grid_4.2.2        tidyselect_1.2.1  glue_1.6.2
[25] R6_2.5.1          fansi_1.0.3       rmarkdown_2.25    tzdb_0.3.0
[29] magrittr_2.0.3    scales_1.2.1      htmltools_0.5.4   ellipsis_0.3.2
[33] colorspace_2.0-3  utf8_1.2.2        stringi_1.7.8     munsell_0.5.0
```