adventofcode

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```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.0 --
```

```
## v ggplot2 3.3.2     v purrr   0.3.4
## v tibble  3.0.4     v dplyr   1.0.2
## v tidyr   1.1.2     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.0
```

```
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

Türchen Nummer 1

Stern 1

```
zahlen <- read_csv("input_tag1.csv", col_names = c("expenses"))
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   expenses = col_double()
## )
```

```
expand_grid(zahlen, zahlen, .name_repair = "minimal") %>%
  janitor::clean_names() %>%
  mutate(summe = expenses + expenses_2) %>%
  filter(summe == 2020) %>%
  mutate(product = expenses * expenses_2)
```

```
## # A tibble: 2 x 4
##   expenses expenses_2 summe product
##      <dbl>      <dbl> <dbl>   <dbl>
## 1     1106        914  2020 1010884
## 2      914       1106  2020 1010884
```

Stern 2

```
expand_grid(zahlen, zahlen, zahlen, .name_repair = "minimal") %>%
  janitor::clean_names() %>%
  mutate(summe = expenses + expenses_2 + expenses_3) %>%
  filter(summe == 2020) %>%
  mutate(product = expenses * expenses_2 * expenses_3)
```

```
## # A tibble: 6 x 5
##   expenses expenses_2 expenses_3 summe   product
```

```
##      <dbl>      <dbl>      <dbl> <dbl>     <dbl>
## 1      401        958        661  2020 253928438
## 2      401        661        958  2020 253928438
## 3      958        401        661  2020 253928438
## 4      958        661        401  2020 253928438
## 5      661        401        958  2020 253928438
## 6      661        958        401  2020 253928438
```

```
zahlen2 = pull(zahlen)

expand_grid(x = zahlen2, y = zahlen2, z = zahlen2) %>%
  mutate(summe = x + y + z) %>%
  filter(summe == 2020) %>%
  mutate(produkt = x * y * z)
```

```
## # A tibble: 6 x 5
##       x     y     z summe   produkt
##   <dbl> <dbl> <dbl> <dbl>     <dbl>
## 1   401   958   661  2020 253928438
## 2   401   661   958  2020 253928438
## 3   958   401   661  2020 253928438
## 4   958   661   401  2020 253928438
## 5   661   401   958  2020 253928438
## 6   661   958   401  2020 253928438
```

Türchen Nummer 2

```
input <- read_csv("input_tag2.csv", col_names = c("passw"))
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   passw = col_character()
## )
```

```
input %>%
  separate(passw, into = c("a", "b", "c"), sep = "\\s") %>%
  separate(a, into = c("l", "u")) %>%
  mutate(l = as.integer(l), u = as.integer(u), b = str_remove(b, ":")) %>%
  mutate(count = str_count(c, b)) %>%
  filter(!count < l & !count > u)
```

```
## # A tibble: 469 x 5
##        l     u b     c                  count
##    <int> <int> <chr> <chr>              <int>
##  1    12    15 p     zfpmpphpgghpppppppp    12
##  2     5    10 z     bqlbzfzzzbzwsz          6
##  3     8    10 l     lllfllllll             9
##  4     2     9 m     mjmmmmmmmm             9
##  5     3     4 m     kmmm                   3
##  6     2    11 f     fjdfffmffffrff        10
##  7    14    16 m     mmmmtmmmmmlmmmdmmm    15
##  8     5     7 g     mghggkgg               5
##  9     5    19 t     tdltgttttqmtjtjgxmp    8
## 10    15    16 q     qqqqqqqqqqqqqqqn      16
## # ... with 459 more rows
```

Stern 2

```
input %>%
  separate(passw, into = c("a", "b", "c"), sep = "\\s") %>%
  separate(a, into = c("l", "u")) %>%
  mutate(l = as.integer(l), u = as.integer(u), b = str_remove(b, ":")) %>%
  mutate(pos1 = str_sub(c, l, l), pos2 = str_sub(c, u, u)) %>%
  mutate(valid = (pos1 != pos2 & (b == pos1 | b == pos2))) %>%
  filter(valid == TRUE)
```

```
## # A tibble: 267 x 7
##        l     u b     c                    pos1  pos2  valid
##    <int> <int> <chr> <chr>                <chr> <chr> <lgl>
##  1     9    10 m     mmmmnxmmmwm          m     w     TRUE
##  2     4     6 n     trwpnnnvq            p     n     TRUE
##  3     5    10 z     bqlbzfzzzbzwsz       z     b     TRUE
##  4     7    15 m     mmkvmwmklnqpmggbgn   m     g     TRUE
##  5     2     9 m     mjmmmmmmmm           j     m     TRUE
##  6     2    11 f     fjdfffmffffrff       j     f     TRUE
##  7     5     7 r     rrrrrrsrrrrrrrrrr    r     s     TRUE
##  8    13    17 f     fffffffffffffffff    r     f     TRUE
##  9    16    19 c     cmccccccckkccvcckzccc k     c     TRUE
## 10     4     5 x     xxxxr                x     r     TRUE
## # ... with 257 more rows
```

Türchen 3

```
input_tag3 <- read_table2("input_tag3.txt",
    col_names = c("a"))
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   a = col_character()
## )
```

```
## Warning: 1 parsing failure.
## row col expected        actual             file
## 323   a          embedded null 'input_tag3.txt'
```

Stern 1

```
input_tag3 %>%
  mutate(b = str_dup(a, 32)) %>%
  unite(a, b) %>%
  mutate(b = str_length(string = a)) %>%
  mutate(c = seq(1, 969, 3), c = as.integer(c)) %>%
  mutate(d = substring(a, c,c)) %>%
  mutate(e = str_count(d, "#")) %>%
  summarise(summe = sum(e))
```

```
## # A tibble: 1 x 1
##   summe
##   <int>
## 1   289
```

Stern 2

```r
slope <- function(x, y, z) {
  input_tag3 %>%
    mutate(b = str_dup(a, ceiling(nrow(input_tag3)*x/31))) %>%
    unite(a, b) %>%
    slice(which(row_number() %% y == z)) %>%
    mutate(b = str_length(string = a)) %>%
    mutate(c = seq(1, ceiling(nrow(input_tag3) / y) * x, x), c = as.integer(c)) %>%
    mutate(d = substring(a, c,c)) %>%
    mutate(e = str_count(d, "#")) %>%
    summarise(summe = sum(e)) %>%
    pull(summe)
}
```

```r
rows <- tibble(x = c(1, 3, 5, 7, 1), y = c(1, 1, 1, 1, 2), z = c(0, 0, 0, 0, 1))

rows %>%
  rowwise() %>%
  mutate(Ergebnis = slope(x, y, z)) %>%
  tibble() %>%
  summarise(Ergebnis = prod(Ergebnis))
```

```
## # A tibble: 1 x 1
##     Ergebnis
##        <dbl>
## 1 5522401584
```