2018-07: The Sum of Its Parts

```
library(tidyverse)
```

```
-- Attaching packages --------------------------------------- tidyverse 1.3.2 --
v ggplot2 3.3.6      v purrr   0.3.4
v tibble  3.1.8      v dplyr   1.0.10
v tidyr   1.2.0      v stringr 1.4.1
v readr   2.1.2      v forcats 0.5.2
-- Conflicts ------------------------------------------ tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
```

```
library(data.table)
```

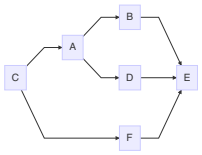
```
Attaching package: 'data.table'

The following objects are masked from 'package:dplyr':

    between, first, last

The following object is masked from 'package:purrr':

    transpose
```

```
dt <- fread("test.txt", header = FALSE) |>
  select(V2, V8) |>
  rename("predecessor" = V2, "task" = V8)
t <- dt$task
p <- dt$predecessor
head(dt)
```

```
   predecessor task
1:           C    A
2:           C    F
3:           A    B
4:           A    D
5:           B    E
6:           D    E
```

Part 1

```
DiagrammeR::mermaid(c("graph LR;",
                      apply(dt[rowSums(is.na(dt)) == 0, ], 1, function(x) {
                        paste0(x["predecessor"], " --> ", x["task"], ";")
                      }))
```




```
start <- unique(p[!(p %in% t)])
end <- unique(t[!(t %in% p)])
```

```
vec <- c()
ls <- list()

getParent <- function(x) {
  x <- dt$predecessor[dt$task %in% x]
  if(length(x) > 0) {
    x <- rev(sort(unique(x)))
    ls <<- append(ls, paste(rev(x), collapse = ""))
    vec <<- c(vec, x)
    return(getParent(x))
  } else { return(x) }
}

getParent(end)
```

```
character(0)
```

```
lapply(ls, function(x) {
  unique(str_split(x, ""))
}) |>
  rev() |>
  unlist() |>
  unique() -> vec
paste(c(vec, end), collapse = "")
```

```
[1] "CABDFE"
```

KVCSHBXDQMJGFZYROUAPLIEWTN CKVSHBXDQMJGFZYROUAPLIEWTN KVCB-
SHXDJMGQFYRZOAULPIEWTN KCVBHSDXFGJMQRYZOAULPIEWTN