Chunked

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Short answer:

 for data in text files

Process Data in GB-sized Text Files:

(pre)Process text files to:

- select columns
- filter rows
- derive new variables

Save result into:

- Another text file
- A database

Option 1: Read data with R

Use:
- ~~read.csv~~ uh, readr::read_csv
- datatable::fread
- Fast reading of data into memory!

However...
- You will need a lot of RAM!
- Text files tend to be 1 to 100 Gb.
- **Even though these procedures use memory mapping the resulting `data.frame` does not!**
- development cycle of processing script is long...

Option 2: Use unix tools

Good choice!

- sed
- awk
- grep
- fast processing!

However. . .

It is nice to stay in R-universe (one data-processing tool)

- Instead of learning at least 3 extra tools sed, awk and grep voodoo.
- Does it work on my OS/shell?
- I want to use dplyr verbs! (dplyr-deprivation. . .)

Import data into DB

- Use DB tool to import data.
- Process database with dplyr.

However

- It is not really a R, but a DB solution
- May be not efficient.

Option 4: Use chunked!

Idea:

- Process data chunk by chunk using `dplyr` verbs
- Memory efficient, only one chunk at a time in memory
- Lazy processing
- Development cycle is short: test on first chunk.

- Read (and write) on chunk at a time using R package `LaF`.
- All `dplyr` verbs on `chunk_wise` objects are recorded and replayed when writing.

Scenario 1: TXT -> TXT

Preprocess a text file with data

```r
read_chunkwise("my_data.csv", chunk_size = 5000) %>%
 select(col1, col2) %>%
 filter(col1 > 1) %>%
 mutate(col3 = col1 + 1) %>%
write_chunkwise("output.csv")
```

This code:

- evals chunk by chunk
- allows for column name completion in Rstudio!

Scenario 2: TXT -> DB

Insert processed text data in DB

```
db <- src_sqlite('test.db', create=TRUE)

tbl <-
  read_chunkwise("./large_file_in.csv") %>%
  select(col1, col2, col5) %>%
  filter(col1 > 10) %>%
  mutate(col6 = col1 + col2) %>%
  write_chunkwise(db, 'my_large_table')
```

Scenario 3: DB -> TXT

Extract a large table from a DB to a text file

```
tbl<-
  ( src_sqlite("test.db") %>%
    tbl("my_table")
  ) %>%
  read_chunkwise(chunk_size=5000) %>%
  select(col1, col2, col5) %>%
  filter(col1 > 10) %>%
  mutate(col6 = col1 + col2) %>%
  write_chunkwise('my_large_table.csv')
```

Caveat

Working:

- Working on chunks is memory efficient
- `filter, select, rename,mutate,mutate_each,transmute,do, tbl_vars, inner_join, left_join, semi_join,anti_join` all work , also with name completion!

However:

- **`summarize` and `group_by` work chunkwise (and not for all data!)**
- No `arrange, right_join, full_join`

Interested?

```
install.packages("chunked")
```

Or visit `http://github.com/edwindj/chunked`