

Arbeidskrav 1

Assignment 1

```
rm(list=ls())
```

```
library(tidyverse)
```

```
-- Attaching packages ----- tidyverse 1.3.2 --
v ggplot2 3.4.0      v purrr   0.3.4
v tibble  3.1.8      v dplyr   1.0.9
v tidyr   1.2.0      v stringr 1.4.0
v readr   2.1.2      v forcats 0.5.1
-- Conflicts ----- tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()     masks stats::lag()
```

```
library(lubridate)
```

Attaching package: 'lubridate'

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

date, intersect, setdiff, union

```
df_1 <- read_table2("https://www.nsstc.uah.edu/data/msu/v6.0/tlt/uahncdc_lt_6.0.txt")
```

Warning: `read_table2()` was deprecated in readr 2.0.0.
i Please use `read_table()` instead.

```
Warning: Duplicated column names deduplicated: 'Land' => 'Land_1' [7], 'Ocean'
=> 'Ocean_1' [8], 'Land' => 'Land_2' [10], 'Ocean' => 'Ocean_2' [11], 'Land' =>
'Land_3' [13], 'Ocean' => 'Ocean_3' [14], 'Land' => 'Land_4' [16], 'Ocean' =>
'Ocean_4' [17], 'Land' => 'Land_5' [19], 'Ocean' => 'Ocean_5' [20], 'Land' =>
'Land_6' [22], 'Ocean' => 'Ocean_6' [23], 'Land' => 'Land_7' [25], 'Ocean' =>
'Ocean_7' [26]
```

```
-- Column specification -----
cols(
  .default = col_character()
)
i Use `spec()` for the full column specifications.
```

```
Warning: 11 parsing failures.
```

row	col	expected	actual	file
532	-- 29 columns	1 columns	'https://www.nsstc.uah.edu/data/msu/v6.0/tlt/uahncdc_lt_6.0.txt'	fi
533	-- 29 columns	28 columns	'https://www.nsstc.uah.edu/data/msu/v6.0/tlt/uahncdc_lt_6.0.txt'	
534	-- 29 columns	1 columns	'https://www.nsstc.uah.edu/data/msu/v6.0/tlt/uahncdc_lt_6.0.txt'	
535	-- 29 columns	7 columns	'https://www.nsstc.uah.edu/data/msu/v6.0/tlt/uahncdc_lt_6.0.txt'	
536	-- 29 columns	7 columns	'https://www.nsstc.uah.edu/data/msu/v6.0/tlt/uahncdc_lt_6.0.txt'	
...

See problems(...) for more details.

```
df_2 <- read_table2("https://www.nsstc.uah.edu/data/msu/v6.0/tmt/uahncdc_mt_6.0.txt")
```

```
Warning: Duplicated column names deduplicated: 'Land' => 'Land_1' [7], 'Ocean'
=> 'Ocean_1' [8], 'Land' => 'Land_2' [10], 'Ocean' => 'Ocean_2' [11], 'Land' =>
'Land_3' [13], 'Ocean' => 'Ocean_3' [14], 'Land' => 'Land_4' [16], 'Ocean' =>
'Ocean_4' [17], 'Land' => 'Land_5' [19], 'Ocean' => 'Ocean_5' [20], 'Land' =>
'Land_6' [22], 'Ocean' => 'Ocean_6' [23], 'Land' => 'Land_7' [25], 'Ocean' =>
'Ocean_7' [26]
```

```
-- Column specification -----
cols(
  .default = col_character()
)
i Use `spec()` for the full column specifications.
```

```
Warning: 11 parsing failures.
row col   expected   actual
532 -- 29 columns 1 columns 'https://www.nsstc.uah.edu/data/msu/v6.0/tmt/uahncdc_mt_6.0.txt'
533 -- 29 columns 28 columns 'https://www.nsstc.uah.edu/data/msu/v6.0/tmt/uahncdc_mt_6.0.txt'
534 -- 29 columns 1 columns 'https://www.nsstc.uah.edu/data/msu/v6.0/tmt/uahncdc_mt_6.0.txt'
535 -- 29 columns 7 columns 'https://www.nsstc.uah.edu/data/msu/v6.0/tmt/uahncdc_mt_6.0.txt'
536 -- 29 columns 7 columns 'https://www.nsstc.uah.edu/data/msu/v6.0/tmt/uahncdc_mt_6.0.txt'
... ..
See problems(...) for more details.
```

```
df_3 <- read_table2("https://www.nsstc.uah.edu/data/msu/v6.0/ttp/uahncdc_tp_6.0.txt")
```

```
Warning: Duplicated column names deduplicated: 'Land' => 'Land_1' [7], 'Ocean'
=> 'Ocean_1' [8], 'Land' => 'Land_2' [10], 'Ocean' => 'Ocean_2' [11], 'Land' =>
'Land_3' [13], 'Ocean' => 'Ocean_3' [14], 'Land' => 'Land_4' [16], 'Ocean' =>
'Ocean_4' [17], 'Land' => 'Land_5' [19], 'Ocean' => 'Ocean_5' [20], 'Land' =>
'Land_6' [22], 'Ocean' => 'Ocean_6' [23], 'Land' => 'Land_7' [25], 'Ocean' =>
'Ocean_7' [26]
```

```
-- Column specification -----
cols(
  .default = col_character()
)
i Use `spec()` for the full column specifications.
```

```
Warning: 11 parsing failures.
row col   expected   actual
532 -- 29 columns 1 columns 'https://www.nsstc.uah.edu/data/msu/v6.0/ttp/uahncdc_tp_6.0.txt'
533 -- 29 columns 28 columns 'https://www.nsstc.uah.edu/data/msu/v6.0/ttp/uahncdc_tp_6.0.txt'
534 -- 29 columns 1 columns 'https://www.nsstc.uah.edu/data/msu/v6.0/ttp/uahncdc_tp_6.0.txt'
535 -- 29 columns 7 columns 'https://www.nsstc.uah.edu/data/msu/v6.0/ttp/uahncdc_tp_6.0.txt'
536 -- 29 columns 7 columns 'https://www.nsstc.uah.edu/data/msu/v6.0/ttp/uahncdc_tp_6.0.txt'
... ..
See problems(...) for more details.
```

```
df_4 <- read_table2("https://www.nsstc.uah.edu/data/msu/v6.0/tls/uahncdc_ls_6.0.txt")
```

```
Warning: Duplicated column names deduplicated: 'Land' => 'Land_1' [7], 'Ocean'
=> 'Ocean_1' [8], 'Land' => 'Land_2' [10], 'Ocean' => 'Ocean_2' [11], 'Land' =>
'Land_3' [13], 'Ocean' => 'Ocean_3' [14], 'Land' => 'Land_4' [16], 'Ocean' =>
'Ocean_4' [17], 'Land' => 'Land_5' [19], 'Ocean' => 'Ocean_5' [20], 'Land' =>
'Land_6' [22], 'Ocean' => 'Ocean_6' [23], 'Land' => 'Land_7' [25], 'Ocean' =>
'Ocean_7' [26]
```

```
-- Column specification -----
cols(
  .default = col_character()
)
i Use `spec()` for the full column specifications.
```

```
Warning: 13 parsing failures.
```

row	col	expected	actual	file
504	-- 29 columns	28 columns	'https://www.nsstc.uah.edu/data/msu/v6.0/tls/uahncdc_ls_6.0.tx'	fi
519	-- 29 columns	28 columns	'https://www.nsstc.uah.edu/data/msu/v6.0/tls/uahncdc_ls_6.0.tx'	
532	-- 29 columns	1 columns	'https://www.nsstc.uah.edu/data/msu/v6.0/tls/uahncdc_ls_6.0.tx'	
533	-- 29 columns	28 columns	'https://www.nsstc.uah.edu/data/msu/v6.0/tls/uahncdc_ls_6.0.tx'	
534	-- 29 columns	1 columns	'https://www.nsstc.uah.edu/data/msu/v6.0/tls/uahncdc_ls_6.0.tx'	
...

See problems(...) for more details.

```
df_1 <- df_1 %>%
  select(c("Mo", "Globe", "Year")) %>%
  filter(Year >= 1980)

df_2 <- df_2 %>%
  select(c("Mo", "Globe", "Year")) %>%
  filter(Year >= 1980)

df_3 <- df_3 %>%
  select(c("Mo", "Globe", "Year")) %>%
  filter(Year >= 1980)

df_4 <- df_4 %>%
  select(c("Mo", "Globe", "Year")) %>%
  filter(Year >= 1980)
```

```

df_2 <- df_2 %>%
  select(Globe) %>%
  rename(Globe2 = Globe)

df_3 <- df_3 %>%
  select(Globe) %>%
  rename(Globe3 = Globe)

df_4 <- df_4 %>%
  select(Globe) %>%
  rename(Globe4 = Globe)

df <- df_1 %>%
  cbind(df_2, df_3, df_4)

df <- df %>% select(Year, Mo, Globe, Globe2, Globe3, Globe4) %>%
  mutate(Date = ymd(paste(df$Year, df$Mo, 1, sep="-"))) %>%
  mutate(Year = year(Date), Month = month(Date)) %>%
  select(Year, Month, Date, Globe, Globe2, Globe3, Globe4) %>% # this makes the order of
  mutate_if(is.character, ~as.numeric(.))

```

Warning: 9 failed to parse.

Warning in ~as.numeric(.): NAs introduced by coercion

Warning in ~as.numeric(.): NAs introduced by coercion

Warning in ~as.numeric(.): NAs introduced by coercion

Warning in ~as.numeric(.): NAs introduced by coercion

```

df %>%
  group_by(Month) %>%
  mutate(Average.Temp=mean(Globe)) %>%
  ggplot(aes(x=Date, y=Globe)) +
  geom_line(aes(x=Date, y=Globe), col="red") +
  geom_line(aes(x=Date, y=Globe2), col="orange")+
  geom_line(aes(x=Date, y=Globe3), col="green")+

```

```
geom_line(aes(x=Date, y=Globe4), col="violet")+
geom_line(aes(y=zoo::rollmean(Globe, 13, fill=NA)), col="black", size=0.8)+
ggtitle("Plot of temperature over time")
```

Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
i Please use `linewidth` instead.

Warning: Removed 9 rows containing missing values (`geom_line()`).
Removed 9 rows containing missing values (`geom_line()`).
Removed 9 rows containing missing values (`geom_line()`).
Removed 9 rows containing missing values (`geom_line()`).

Warning: Removed 21 rows containing missing values (`geom_line()`).

