

Group Assignment 1

Simon Yu

2025-10-01

Table of contents

Question 1	3
Question 2	3
Question 3	3
Question 4	3
Question 5	4
Question 6	4
Question 7	5
Question 8	5
Question 9	5
Question 10	6

List of Figures

List of Tables

```
library(dplyr)
```

```
data <- read.csv("compustat_food_bev.csv")
```

```
# filter data for Wendy's (WEN)  
wen_data <- filter(data, tic == "WEN")
```

```
# convert datadate to Date type  
wen_data$datadate <- as.Date(wen_data$datadate, format = "%d/%m/%Y")
```

Question 1

```
#1. Add a new column named daily_return  
wen_data <- mutate(wen_data, daily_return = (prccd - lag(prccd)) / lag(prccd))  
wen_data <- filter(wen_data, !is.na(daily_return))
```

Question 2

```
#2. Add a new column named 10-day momentum indicator  
wen_data <- mutate(wen_data, momentum_10 = prccd - lag(prccd, 10))  
wen_data <- filter(wen_data, !is.na(momentum_10))
```

Question 3

```
#3. Add a new column named daily_range  
wen_data <- mutate(wen_data, daily_range = prchd - prcld)
```

Question 4

```
#4. Add a new column named MFV  
wen_data <- mutate(wen_data,  
  mfv = ((prccd - prcld) - (prchd - prccd)) * cshtrd / (prchd - prcld))
```

```
# show the table containing only the new 4 metrics columns
wen_data_metrics <- filter(wen_data[ ,
                           c("datadate", "daily_return", "momentum_10", "daily_range", "mfv"))])

head(wen_data_metrics, 10)
```

A data.frame: 10 × 5

	datadate <date>	daily_return <dbl>	momen- tum_10 <dbl>	daily_range <dbl>	mfv <dbl>
1	2020-09-17	0.006631928	-0.720	0.625	1034602.5
2	2020-09-18	-0.013882353	-0.995	0.660	-3132449.7
3	2020-09-21	-0.014077786	-0.920	0.530	1294344.7
4	2020-09-22	0.019845111	-0.780	0.580	3259250.1
5	2020-09-23	-0.002847651	-1.485	0.640	-824321.2
6	2020-09-24	0.009043313	-0.650	0.790	320093.6
7	2020-09-25	0.006603774	-0.130	0.430	913796.6
8	2020-09-28	0.037956888	0.120	0.695	2315489.9
9	2020-09-29	0.009029345	0.490	0.700	2363936.3
10	2020-09-30	-0.002460850	1.185	0.350	-1546140.5

Question 5

```
library(lubridate)
```

```
#5. Add a new column named month
wen_data <- mutate(wen_data, month = month(datadate))
```

Question 6

```
#6. Add a new column named year
wen_data <- mutate(wen_data, year = year(datadate))
```

```
# show the table containing only the new 2 date columns
wen_data_dates <- filter(wen_data[ , c("datadate", "month", "year")])
head(wen_data_dates, 10)
```

A data.frame: 10 × 3

	date <date>	month <dbl>	year <dbl>
1	2020-09-17	9	2020
2	2020-09-18	9	2020
3	2020-09-21	9	2020
4	2020-09-22	9	2020
5	2020-09-23	9	2020
6	2020-09-24	9	2020
7	2020-09-25	9	2020
8	2020-09-28	9	2020
9	2020-09-29	9	2020
10	2020-09-30	9	2020

Question 7

```
#7. Calculate the total trade volume (cshtd) for June 2023
trade_volume_2023_06 <- filter(wen_data, year == 2023 & month == 6)

sum(trade_volume_2023_06$cshtd)
```

54557454

Question 8

```
#8. Calculate the mean of daily return over the period
mean_daily_return <- mean(wen_data$daily_return)
print(mean_daily_return)
```

[1] 0.0001034355

Question 9

```
#9. Find the date for maximum high price over the period
max_high_price <- max(wen_data$prchd)

date_max_high_price <- filter(wen_data, prchd == max_high_price)

print(date_max_high_price$datadate)
```

```
[1] "2021-06-08"
```

Question 10

```
#10. Find the date for largest daily return over the period
max_daily_return <- max(wen_data$daily_return)
date_max_daily_return <- filter(wen_data, daily_return == max_daily_return)
print(date_max_daily_return$datadate)
```

```
[1] "2021-06-08"
```