Homework-Group Assignment Week 9

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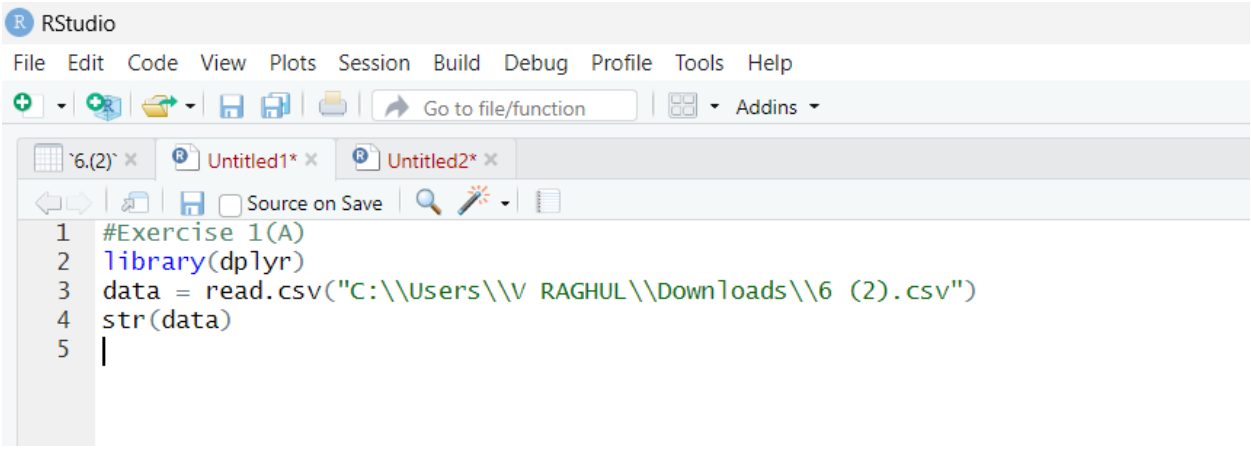
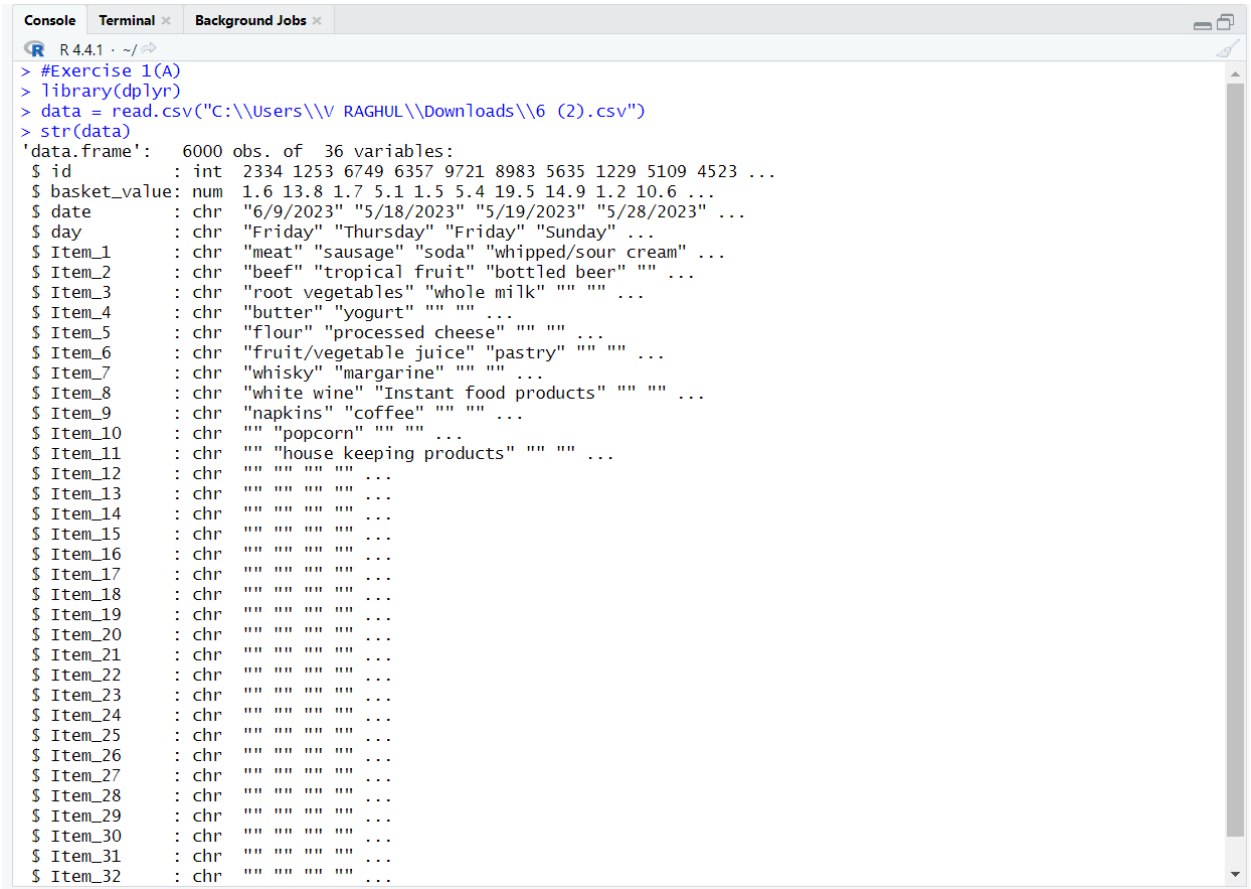
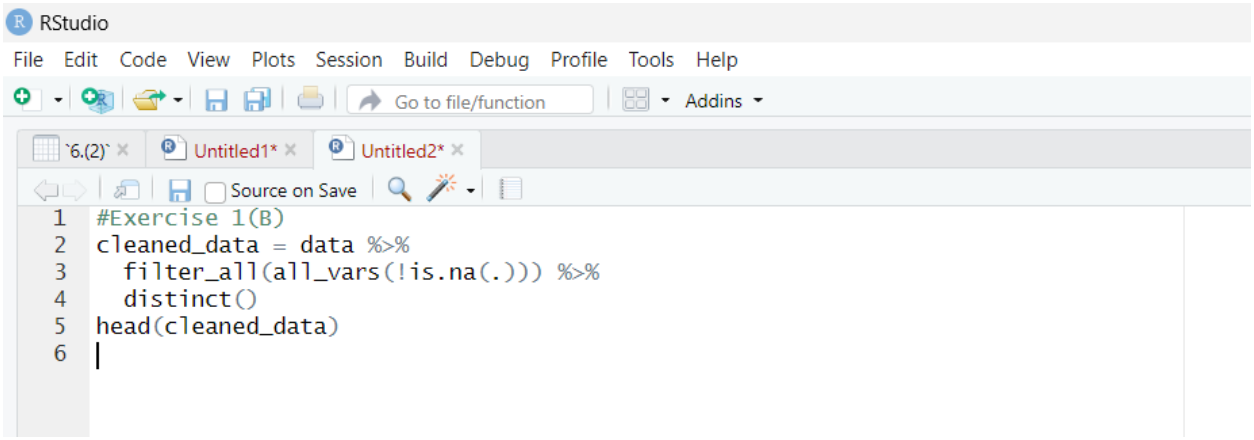
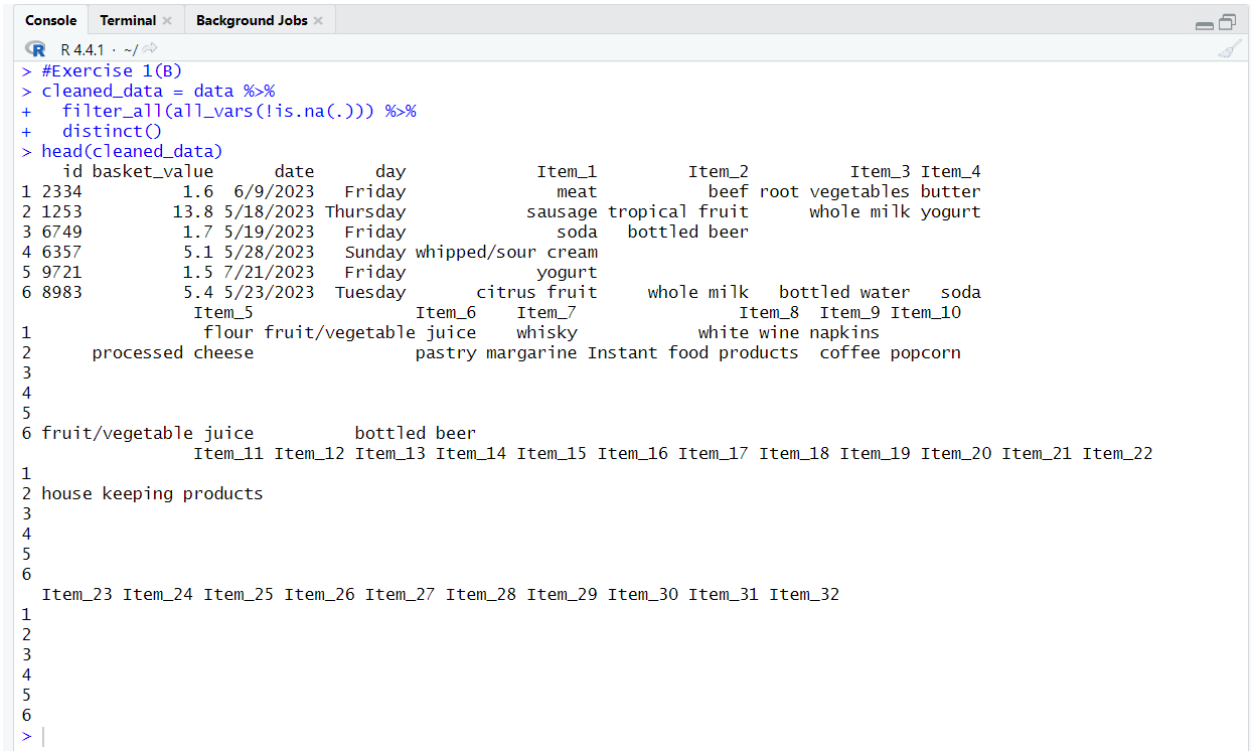
Exercise 1(A)





Exercise 1(B)


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
`6.(2)`
Untitled1*
Untitled2*
Source on Save
1 #Exercise 1(B)
2 cleaned_data = data %>%
3 filter_all(all_vars(!is.na(.))) %>%
4 distinct()
5 head(cleaned_data)
6


Console
Terminal
Background Jobs
R 4.4.1 · ~/
> #Exercise 1(B)
> cleaned_data = data %>%
+ filter_all(all_vars(!is.na(.))) %>%
+ distinct()
> head(cleaned_data)
id basket_value date day Item_1 Item_2 Item_3 Item_4
1 2334 1.6 6/9/2023 Friday meat beef root vegetables butter
2 1253 13.8 5/18/2023 Thursday sausage tropical fruit whole milk yogurt
3 6749 1.7 5/19/2023 Friday soda bottled beer
4 6357 5.1 5/28/2023 Sunday whipped/sour cream
5 9721 1.5 7/21/2023 Friday yogurt
6 8983 5.4 5/23/2023 Tuesday citrus fruit whole milk bottled water soda
Item_5 Item_6 Item_7 Item_8 Item_9 Item_10
1 flour fruit/vegetable juice whisky white wine napkins
2 processed cheese pastry margarine Instant food products coffee popcorn
3
4
5
6 fruit/vegetable juice bottled beer
Item_11 Item_12 Item_13 Item_14 Item_15 Item_16 Item_17 Item_18 Item_19 Item_20 Item_21 Item_22
1
2 house keeping products
3
4
5
6
Item_23 Item_24 Item_25 Item_26 Item_27 Item_28 Item_29 Item_30 Item_31 Item_32
1
2
3
4
5
6
>

Exercise 1(C)

RStudio

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Go to file/function | Addins

`6.(2)` | Untitled1* | Untitled2* | Untitled3*

Source on Save | Run

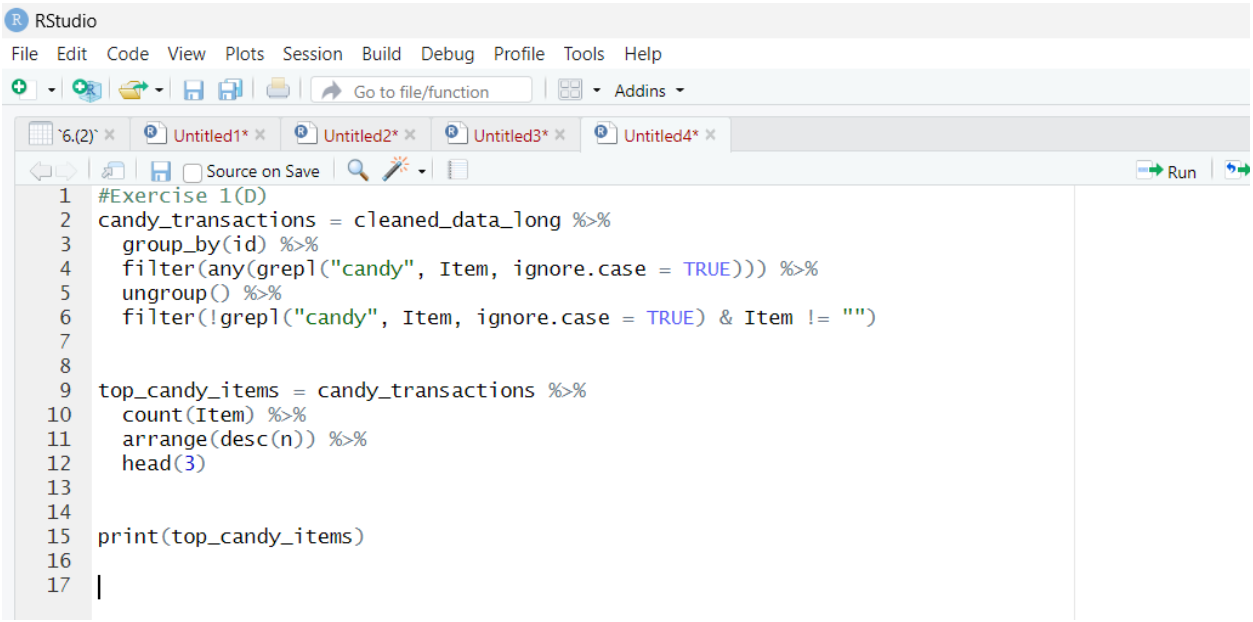
```r
#Exercise 1(C)
library(dplyr)
library(tidyr)

cleaned_data_long = cleaned_data %>%
  pivot_longer(cols = starts_with("Item_"), names_to = "Item_column", values_to = "Item") %>%
  filter(!is.na(Item))

milk_items = cleaned_data_long %>%
  filter(grepl("milk", Item, ignore.case = TRUE)) %>%
  count(Item) %>%
  arrange(desc(n)) %>%
  head(3)

print(milk_items)
```

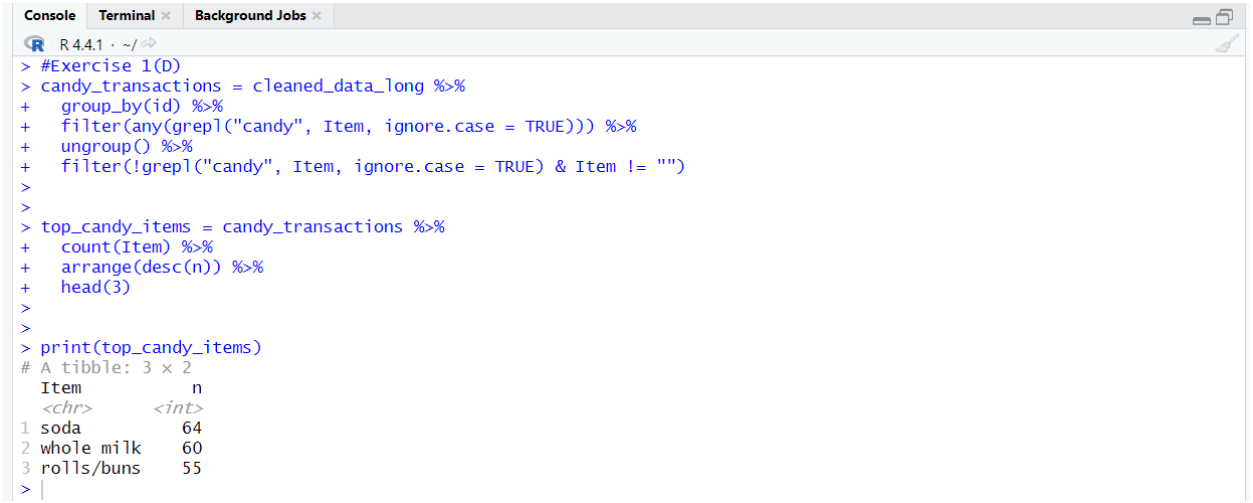
Console | Terminal | Background Jobs

R 4.4.1 · ~/

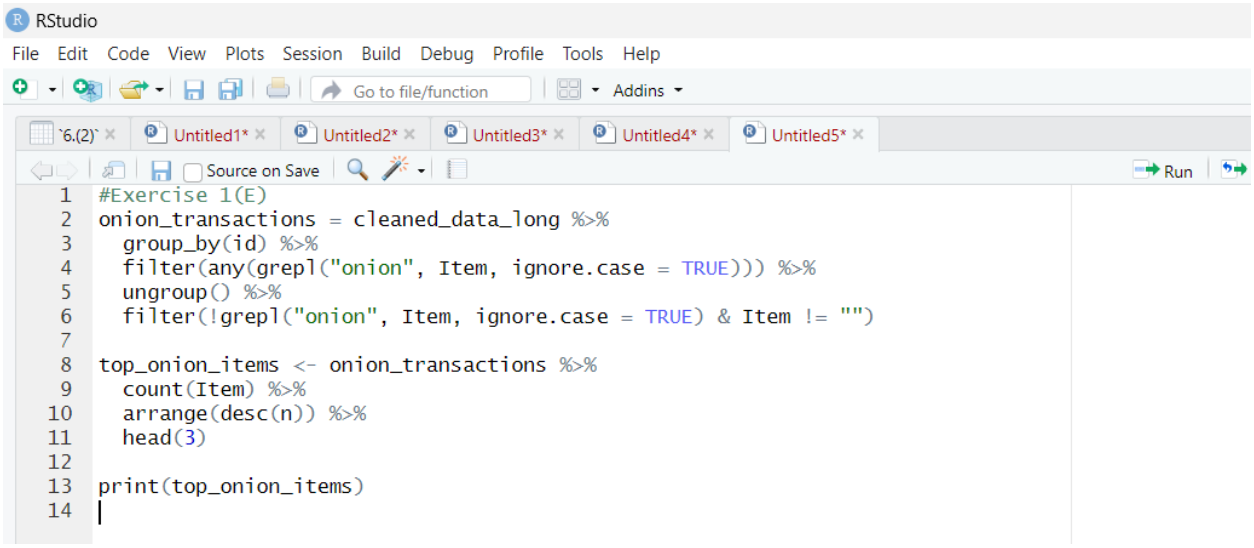
```
> #Exercise 1(C)
> library(dplyr)
> library(tidyr)
>
> cleaned_data_long = cleaned_data %>%
+   pivot_longer(cols = starts_with("Item_"), names_to = "Item_column", values_to = "Item") %>%
+   filter(!is.na(Item))
>
> milk_items = cleaned_data_long %>%
+   filter(grepl("milk", Item, ignore.case = TRUE)) %>%
+   count(Item) %>%
+   arrange(desc(n)) %>%
+   head(3)
>
> print(milk_items)
# A tibble: 3 × 2
  Item            n
  <chr>       <int>
1 whole milk   1951
2 UHT-milk      203
3 butter milk   189
>
```

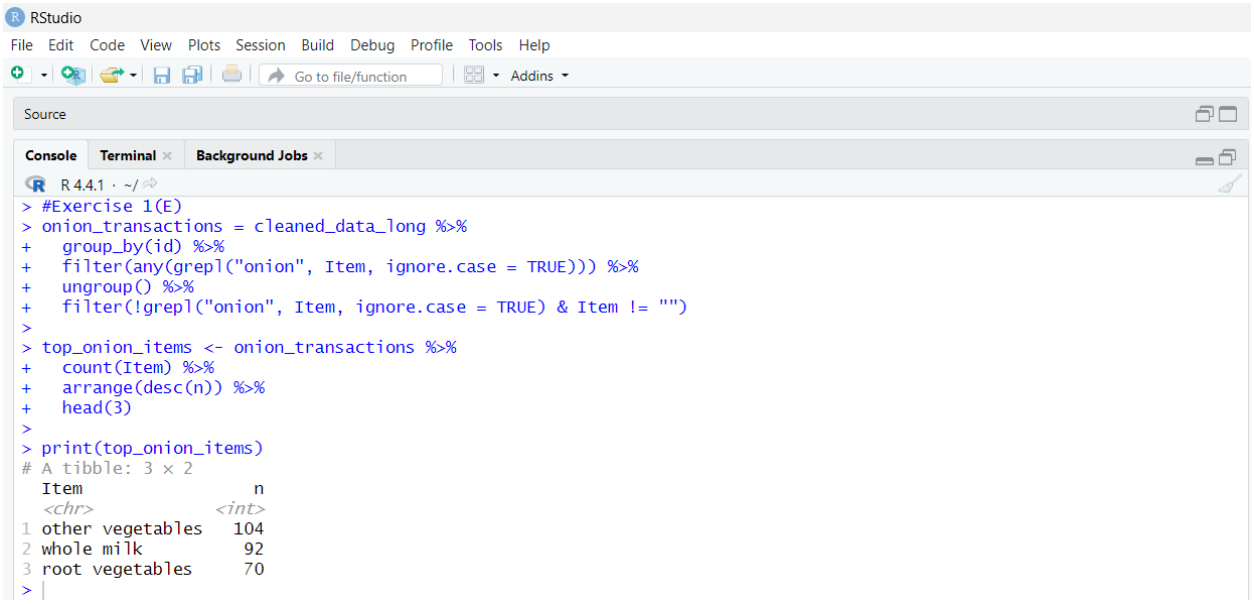
Exercise 1(D)


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
`6.(2)` Untitled1* Untitled2* Untitled3* Untitled4*
Source on Save
Run
#Exercise 1(D)
candy_transactions = cleaned_data_long %>%
group_by(id) %>%
filter(any(grepl("candy", Item, ignore.case = TRUE))) %>%
ungroup() %>%
filter(!grepl("candy", Item, ignore.case = TRUE) & Item != "")
top_candy_items = candy_transactions %>%
count(Item) %>%
arrange(desc(n)) %>%
head(3)
print(top_candy_items)

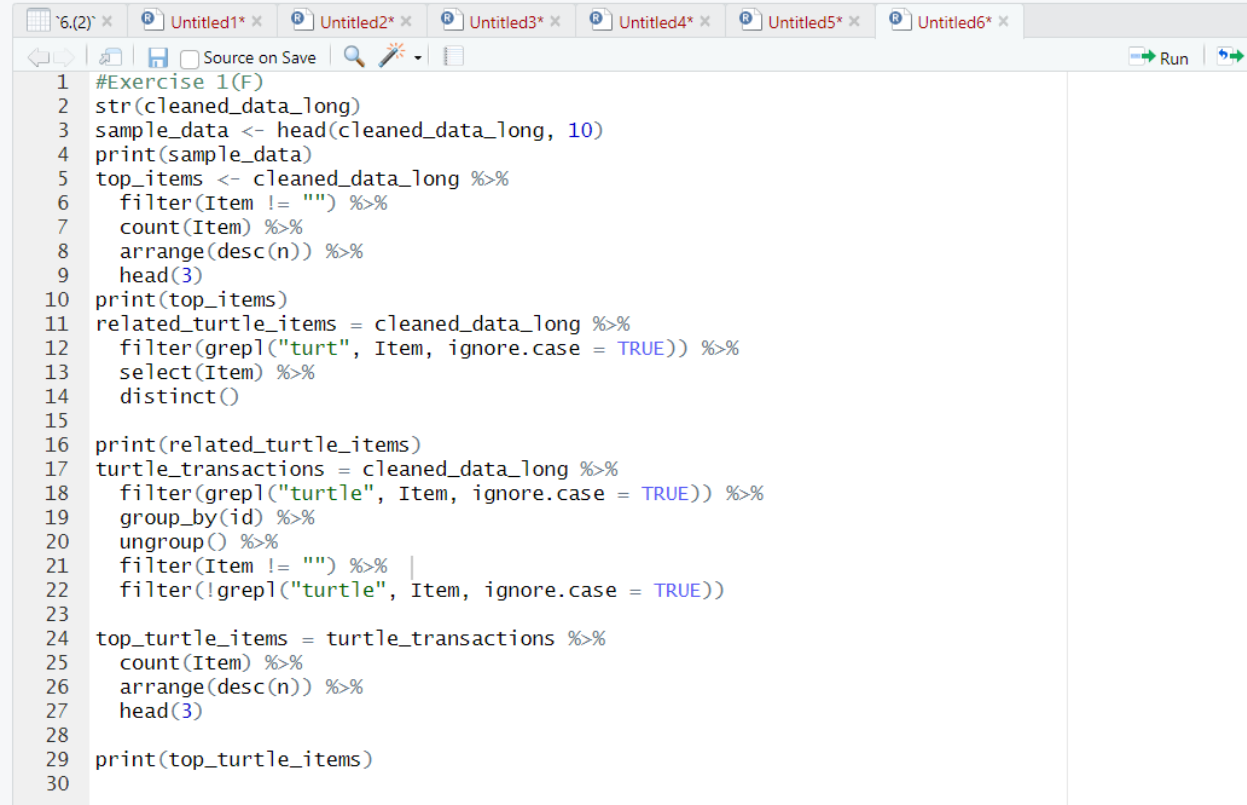

Console Terminal Background Jobs
R 4.4.1 · ~/
> #Exercise 1(D)
> candy_transactions = cleaned_data_long %>%
+ group_by(id) %>%
+ filter(any(grepl("candy", Item, ignore.case = TRUE))) %>%
+ ungroup() %>%
+ filter(!grepl("candy", Item, ignore.case = TRUE) & Item != "")
> top_candy_items = candy_transactions %>%
+ count(Item) %>%
+ arrange(desc(n)) %>%
+ head(3)
> print(top_candy_items)
A tibble: 3 × 2
Item n
<chr> <int>
1 soda 64
2 whole milk 60
3 rolls/buns 55

Exercise 1(E)

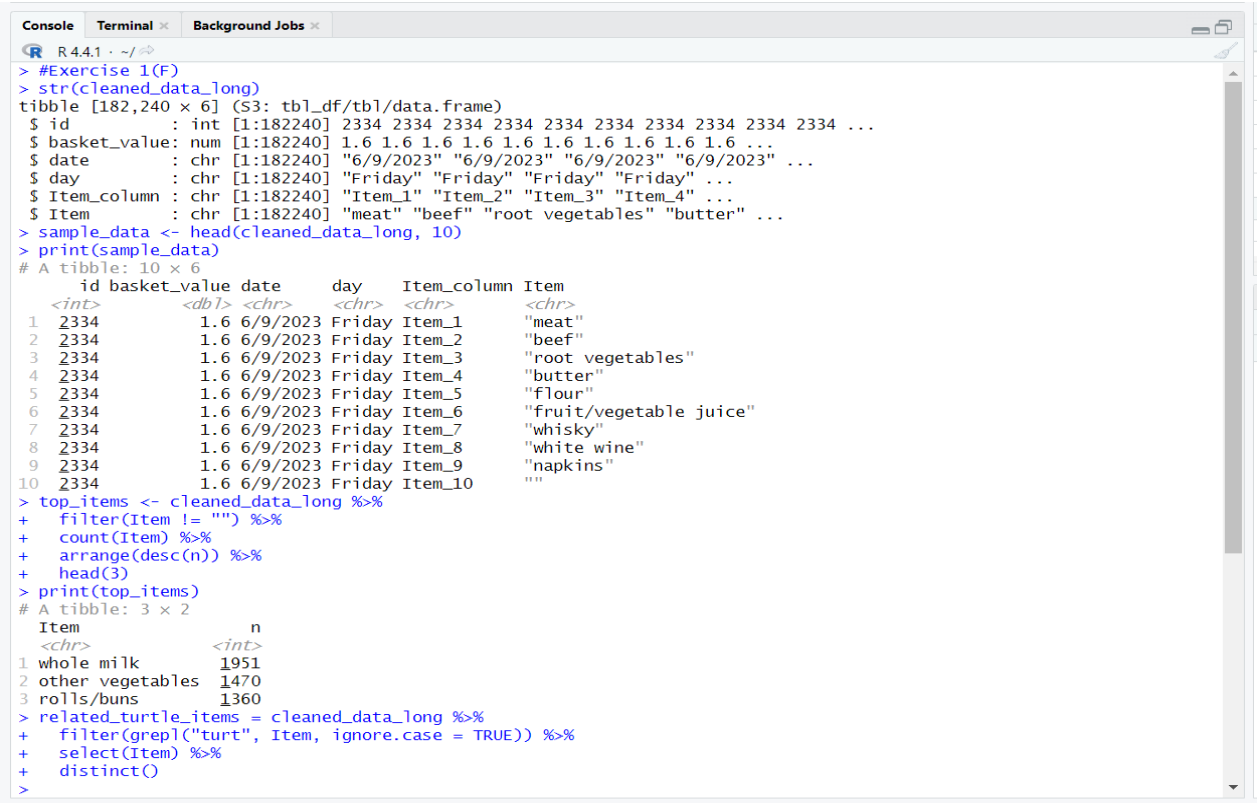

RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
`6.(2)` Untitled1* Untitled2* Untitled3* Untitled4* Untitled5*
Source on Save
Run
#Exercise 1(E)
onion_transactions = cleaned_data_long %>%
group_by(id) %>%
filter(any(grepl("onion", Item, ignore.case = TRUE))) %>%
ungroup() %>%
filter(!grepl("onion", Item, ignore.case = TRUE) & Item != "")
top_onion_items <- onion_transactions %>%
count(Item) %>%
arrange(desc(n)) %>%
head(3)
print(top_onion_items)


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Source
Console Terminal Background Jobs
R 4.4.1 · ~/
> #Exercise 1(E)
> onion_transactions = cleaned_data_long %>%
+ group_by(id) %>%
+ filter(any(grepl("onion", Item, ignore.case = TRUE))) %>%
+ ungroup() %>%
+ filter(!grepl("onion", Item, ignore.case = TRUE) & Item != "")
>
> top_onion_items <- onion_transactions %>%
+ count(Item) %>%
+ arrange(desc(n)) %>%
+ head(3)
>
> print(top_onion_items)
A tibble: 3 × 2
Item n
<chr> <int>
1 other vegetables 104
2 whole milk 92
3 root vegetables 70
>

Exercise 1(F)

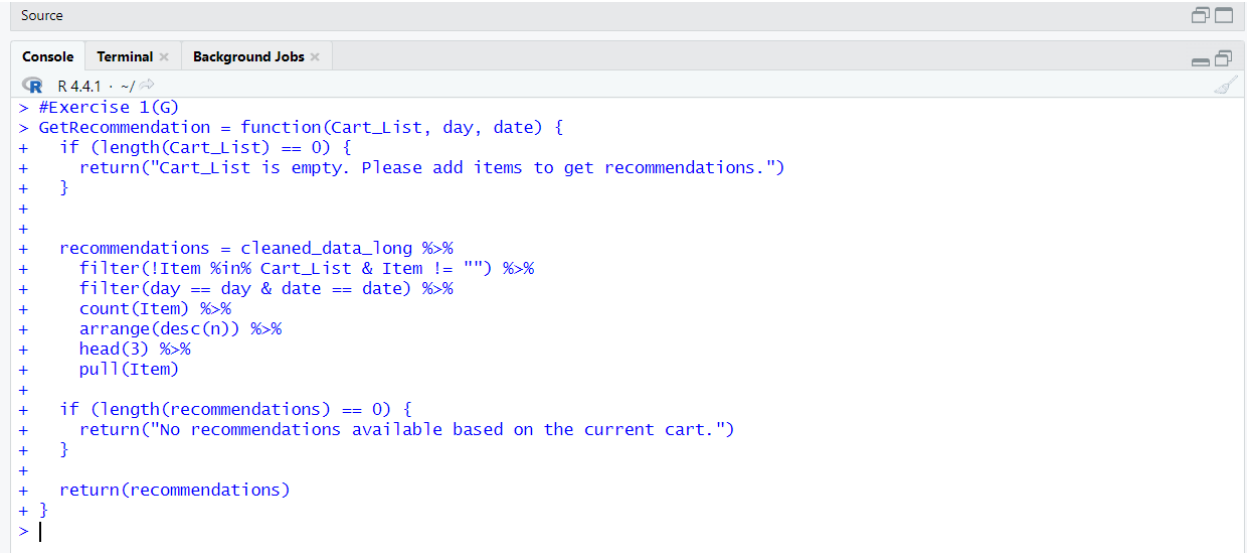


```r
#Exercise 1(F)
str(cleaned_data_long)
sample_data <- head(cleaned_data_long, 10)
print(sample_data)
top_items <- cleaned_data_long %>%
  filter(Item != "") %>%
  count(Item) %>%
  arrange(desc(n)) %>%
  head(3)
print(top_items)
related_turtle_items = cleaned_data_long %>%
  filter(grepl("turt", Item, ignore.case = TRUE)) %>%
  select(Item) %>%
  distinct()

print(related_turtle_items)
turtle_transactions = cleaned_data_long %>%
  filter(grepl("turtle", Item, ignore.case = TRUE)) %>%
  group_by(id) %>%
  ungroup() %>%
  filter(Item != "") %>%
  filter(!grepl("turtle", Item, ignore.case = TRUE))

top_turtle_items = turtle_transactions %>%
  count(Item) %>%
  arrange(desc(n)) %>%
  head(3)

print(top_turtle_items)

```



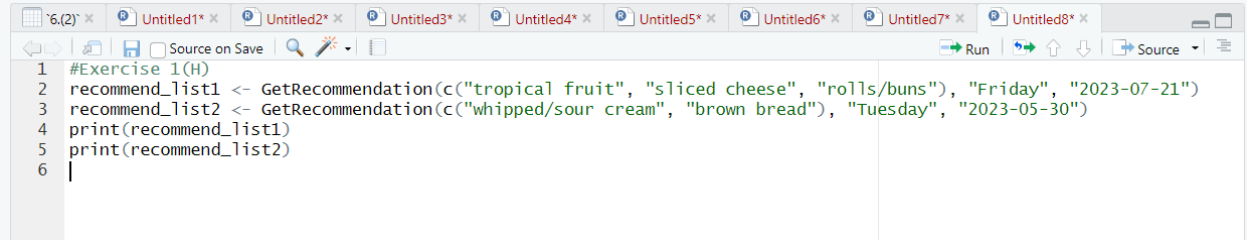
```
> #Exercise 1(F)
> str(cleaned_data_long)
tibble [182,240 × 6] (S3: tbl_df/tbl/data.frame)
 $ id          : int [1:182240] 2334 2334 2334 2334 2334 2334 2334 2334 2334 2334 ...
 $ basket_value: num [1:182240] 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 ...
 $ date        : chr [1:182240] "6/9/2023" "6/9/2023" "6/9/2023" "6/9/2023" ...
 $ day         : chr [1:182240] "Friday" "Friday" "Friday" "Friday" ...
 $ Item_column : chr [1:182240] "Item_1" "Item_2" "Item_3" "Item_4" ...
 $ Item        : chr [1:182240] "meat" "beef" "root vegetables" "butter" ...
> sample_data <- head(cleaned_data_long, 10)
> print(sample_data)
# A tibble: 10 × 6
      id basket_value date     day    Item_column Item
   <int>        <dbl> <chr>    <chr>  <chr>       <chr>
 1  2334          1.6 6/9/2023 Friday Item_1      "meat"
 2  2334          1.6 6/9/2023 Friday Item_2      "beef"
 3  2334          1.6 6/9/2023 Friday Item_3      "root vegetables"
 4  2334          1.6 6/9/2023 Friday Item_4      "butter"
 5  2334          1.6 6/9/2023 Friday Item_5      "flour"
 6  2334          1.6 6/9/2023 Friday Item_6      "fruit/vegetable juice"
 7  2334          1.6 6/9/2023 Friday Item_7      "whisky"
 8  2334          1.6 6/9/2023 Friday Item_8      "white wine"
 9  2334          1.6 6/9/2023 Friday Item_9      "napkins"
10  2334          1.6 6/9/2023 Friday Item_10     ""
> top_items <- cleaned_data_long %>%
+   filter(Item != "") %>%
+   count(Item) %>%
+   arrange(desc(n)) %>%
+   head(3)
> print(top_items)
# A tibble: 3 × 2
  Item                n
  <chr>           <int>
1 whole milk       1951
2 other vegetables 1470
3 rolls/buns       1360
> related_turtle_items = cleaned_data_long %>%
+   filter(grepl("turt", Item, ignore.case = TRUE)) %>%
+   select(Item) %>%
+   distinct()
>
```

Exercise 1(G)

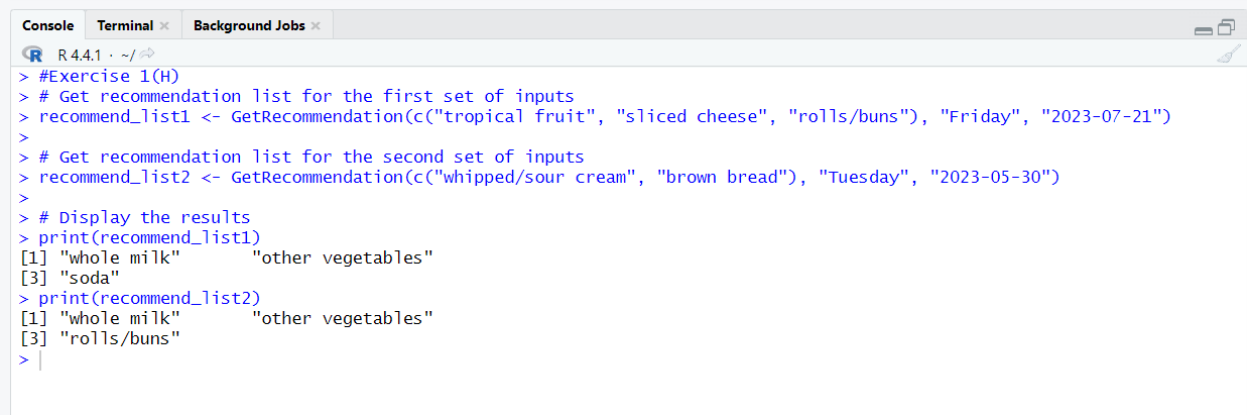


```
> #Exercise 1(G)
> GetRecommendation = function(Cart_List, day, date) {
+   if (length(Cart_List) == 0) {
+     return("Cart_List is empty. Please add items to get recommendations.")
+   }
+
+
+   recommendations = cleaned_data_long %>%
+     filter(!Item %in% Cart_List & Item != "") %>%
+     filter(day == day & date == date) %>%
+     count(Item) %>%
+     arrange(desc(n)) %>%
+     head(3) %>%
+     pull(Item)
+
+   if (length(recommendations) == 0) {
+     return("No recommendations available based on the current cart.")
+   }
+
+   return(recommendations)
+ }
>
```

Exercise 1(H)



```
1  #Exercise 1(H)
2  recommend_list1 <- GetRecommendation(c("tropical fruit", "sliced cheese", "rolls/buns"), "Friday", "2023-07-21")
3  recommend_list2 <- GetRecommendation(c("whipped/sour cream", "brown bread"), "Tuesday", "2023-05-30")
4  print(recommend_list1)
5  print(recommend_list2)
6
```



```
> #Exercise 1(H)
> # Get recommendation list for the first set of inputs
> recommend_list1 <- GetRecommendation(c("tropical fruit", "sliced cheese", "rolls/buns"), "Friday", "2023-07-21")
>
> # Get recommendation list for the second set of inputs
> recommend_list2 <- GetRecommendation(c("whipped/sour cream", "brown bread"), "Tuesday", "2023-05-30")
>
> # Display the results
> print(recommend_list1)
[1] "whole milk"       "other vegetables"
[3] "soda"
> print(recommend_list2)
[1] "whole milk"       "other vegetables"
[3] "rolls/buns"
>
```