

MVLU COLLEGE

AIM: Applying conditional filters subset() or filter() in R.

INPUT:

The screenshot shows the RStudio interface. The left pane contains an R script with code for data analysis, including filtering for high-income students, senior entertainers, low tuition, and non-binary technology spenders. The right pane shows the 'Environment' tab with a list of objects and their details. The bottom pane shows the 'Console' and 'Status Bar' with system information.

```
student_spending.R | prac4.R
Package dplyr required but not installed. Install? Don't Show Again
1 install.packages("dplyr")
2
3 library(dplyr)
4 library(readr)
5
6 my_data <- read_csv("C:/Users/miluc/OneDrive/Desktop/ANSHRAH/DATA ANALYSIS WITH SASS SPSS R/datasets/student_spending.csv")
7 my_data <- my_data[, -1]
8 head(my_data)
9
10 high_income <- subset(my_data, monthly_income > 1000)
11 cat("Number of high-income students:", nrow(high_income), "\n")
12 summary(high_income$monthly_income)
13
14 aid_Food_subset <- subset(my_data, financial_aid > 500 & food > 300)
15 cat("Students with high aid AND high Food expenses:", nrow(aid_Food_subset), "\n")
16 head(aid_Food_subset)
17
18 senior_or_entertainment <- subset(my_data, year_in_school == "Senior" | entertainment > 200)
19 cat("Number of Seniors or high-entertainment spenders:", nrow(senior_or_entertainment), "\n")
20 head(senior_or_entertainment)
21
22 low_tuition <- my_data[ ]
23 filter(tuition < 4000)
24 cat("Students with tuition < 4000:", nrow(low_tuition), "\n")
25 summary(low_tuition$tuition)
26
27 tech_nb <- my_data[ ]
28 filter(gender == "Non-binary", technology > 100)
29 cat("Non-binary students with high tech spending:", nrow(tech_nb), "\n")
30 head(tech_nb)
31
32 card_or_cash <- my_data[ ]
33 filter(preferred_payment_method %in% c("credit/debit card", "cash"))
34 cat("Students using Card or Cash:", nrow(card_or_cash), "\n")
35 table(card_or_cash$preferred_payment_method)
36
```

OUTPUT:

ANSHRAH SHAIKH
S111
SYCS
DATA ANALYSIS WITH SAS / SPSS / R PRAC 4

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RStudio

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Console Terminal Background Jobs

```
> high_income <- subset(my_data, monthly_income > 1000)
> cat("Number of high-income students:", nrow(high_income), "\n")
Number of high-income students: 521
> summary(high_income$monthly_income)
Min. 1st Qu. Median Mean 3rd Qu. Max.
1004 1136 1279 1265 1392 1500
>
> aid_food_subset <- subset(my_data, financial_aid > 500 & food > 300)
> cat("Students with high aid AND high food expenses:", nrow(aid_food_subset), "\n")
Students with high aid AND high food expenses: 170
> head(aid_food_subset)
# A tibble: 6 × 17
  age gender year_in_school major monthly_income financial_aid tuition housing food transportation books_supplies
  <dbl> <chr> <chr> <dbl> <dbl>
1 24 Female Junior Economics 1006 875 4908 557 365 85 252
2 20 Female senior Computer Sc- 810 522 3887 825 372 168 194
3 25 Non-binary Sophomore Computer Sc- 523 790 3151 413 386 122 131
4 21 Female Freshman Computer Sc- 1454 851 3538 754 357 110 188
5 25 Female Junior Biology 1054 528 5486 789 400 81 211
6 22 Male sophomore Engineering 1350 675 3931 462 372 147 282
# i 6 more variables: entertainment <dbl>, personal_care <dbl>, technology <dbl>, health_wellness <dbl>, miscellaneous <dbl>,
# preferred_payment_method <chr>
>
> senior_or_entertainment <- subset(my_data, year_in_school == "Senior" | entertainment > 200)
> cat("Number of Seniors OR high-entertainment spenders:", nrow(senior_or_entertainment), "\n")
Number of seniors OR high-entertainment spenders: 254
> head(senior_or_entertainment)
# A tibble: 6 × 17
  age gender year_in_school major monthly_income financial_aid tuition housing food transportation books_supplies
  <dbl> <chr> <chr> <dbl> <dbl>
1 20 Female senior Computer Sc- 617 265 3235 159 289 114 155
2 20 Male senior Computer Sc- 610 322 3887 825 372 168 194
3 22 Non-binary senior Computer Sc- 1402 248 5638 599 354 92 155
4 20 Female senior Engineering 1157 401 3131 886 196 131 216
5 24 Non-binary Senior Economics 582 285 4210 421 348 138 143
6 19 Female senior Economics 1062 56 4500 731 238 103 76
# i 6 more variables: entertainment <dbl>, personal_care <dbl>, technology <dbl>, health_wellness <dbl>, miscellaneous <dbl>,
# preferred_payment_method <chr>
>
> low_tuition <- my_data[>
+ filter(tuition < 4000)
+ cat("Students with tuition < 4000:", nrow(low_tuition), "\n")
Students with tuition < 4000: 326
> summary(low_tuition$tuition)
Min. 1st Qu. Median Mean 3rd Qu. Max.
3003 3266 3530 3515 3756 3997
>
> tech_nb <- my_data[>
+ filter(gender == "Non-binary", technology > 100)
+ cat("Non-binary students with high tech spending:", nrow(tech_nb), "\n")
Non-binary students with high tech spending: 265
> head(tech_nb)
# A tibble: 6 × 17
  age gender year_in_school major monthly_income financial_aid tuition housing food transportation books_supplies
  <dbl> <chr> <chr> <dbl> <dbl>
1 19 Non-binary Freshman Psychology 958 270 5939 709 296 123 188
2 24 Non-binary Junior Economics 734 928 3031 220 137 99
3 25 Non-binary Sophomore Computer Sc- 623 790 3131 413 386 122 131
4 22 Non-binary senior Computer Sc- 1402 248 5638 599 354 92 155
5 24 Non-binary Freshman Economics 1496 75 5301 657 151 63 92
6 18 Non-binary Sophomore Biology 1225 610 4998 473 159 134 294
# i 6 more variables: entertainment <dbl>, personal_care <dbl>, technology <dbl>, health_wellness <dbl>, miscellaneous <dbl>,
# preferred_payment_method <chr>
>
> card_or_cash <- my_data[>
+ filter(preferred_payment_method %in% c("credit/debit card", "cash"))
+ cat("Students using card or cash:", nrow(card_or_cash), "\n")
Students using card or cash: 650
> table(card_or_cash$preferred_payment_method)
```

Cash Credit/Debit Card
310 340

Environment History Connections Tutorial

R Global Environment

aid_food_sub... 170 obs. of 17 variables
card_or_cash 650 obs. of 17 variables
CHARACTERS_DA_ 33 obs. of 11 variables
high_income 521 obs. of 17 variables
low_tuition 326 obs. of 17 variables
my_data 1000 obs. of 17 variables
senior_or_ent... 254 obs. of 17 variables
student_spend... 1000 obs. of 18 variables
tech_nb 265 obs. of 17 variables

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RStudio

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```

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