

HW3 (3장 과제)

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1. 교재 71페이지 자료(시도명과 초미세먼지농도) R에 저장

The screenshot shows the RStudio interface. The script editor contains the following code:

```
1 #1. 교재 71페이지 자료(시도명과 초미세먼지농도) R에 저장
2 |
3 city <- c("서울", "부산", "대구", "인천", "광주", "대전", "울산")
4 pm25 <- c(18, 21, 21, 17, 8, 11, 25)
5 df_pm <- data.frame(시도명=city, 초미세먼지농도=pm25)
6
7
```

The console shows the execution of the code:

```
C:/R/
> rm(list=ls())
> ls()
character(0)
> city <- c("서울", "부산", "대구", "인천", "광주", "대전", "울산")
> pm25 <- c(18, 21, 21, 17, 8, 11, 25)
> df_pm <- data.frame(시도명=city, 초미세먼지농도=pm25)
> View(df_pm)
> View(df_pm)
>
```

The Environment pane shows the data frame `df_pm` with 7 observations and 2 variables. The Files pane shows the project files.

The screenshot shows the RStudio interface with the data frame `df_pm` displayed in a table view. The table has two columns: `시도명` (Region Name) and `초미세먼지농도` (Ultrafine Particulate Matter Concentration). The data is as follows:

	시도명	초미세먼지농도
1	서울	18
2	부산	21
3	대구	21
4	인천	17
5	광주	8
6	대전	11
7	울산	25

The console shows the execution of the code:

```
C:/R/
> View(df_pm)
> View(df_pm)
>
```

The Environment pane shows the data frame `df_pm` with 7 observations and 2 variables. The Files pane shows the project files.

2. 1의 자료를 확장자 Rdata로 내보내기

The screenshot shows the RStudio interface. The script editor contains the following code:

```
8 #2. 1의 자료를 확장자 Rdata로 내보내기
9 save(df_pm, file = "c:/R/df_pm.rdata")
10
11
12
13
14
15
16
17
```

The console shows the execution of the code:

```
> getCircleArea(5)
[1] 78.5
> city <- c("서울", "부산", "대구", "인천", "광주", "대전", "울산")
> pm25 <- c(18, 21, 21, 17, 8, 11, 25)
> df_pm <- data.frame(시도명=city, 초미세먼지농도=pm25)
> #2. 1의 자료를 확장자 Rdata로 내보내기
> save(df_pm, file = "c:/R/df_pm.rdata")
>
```

The Environment pane on the right shows the data frame `df_pm` with 7 observations and 2 variables:

city	pm25
"서울"	18
"부산"	21
"대구"	21
"인천"	17
"광주"	8
"대전"	11
"울산"	25

The Files pane on the right shows the file `df_pm.rdata` in the `c:/R` directory, highlighted with a red box.

3. 1의 자료를 확장자 csv로 내보내기

The screenshot shows the RStudio interface. The script editor contains the following code:

```
11
12 #3. 1의 자료를 확장자 csv로 내보내기
13 write.table(df_pm, "c:/R/df_pm.csv", sep=",")
14
15
16
17
18
19
20
21
```

The console shows the execution of the code:

```
> pm25 <- c(18, 21, 21, 17, 8, 11, 25)
> df_pm <- data.frame(시도명=city, 초미세먼지농도=pm25)
> View(df_pm)
> #2. 1의 자료를 확장자 Rdata로 내보내기
> save(df_pm, file = "c:/R/df_pm.rdata")
> #3. 1의 자료를 확장자 csv로 내보내기
> write.table(df_pm, "c:/R/df_pm.csv", sep=",")
>
```

The Environment pane on the right shows the data frame `df_pm` with 7 observations and 2 variables:

city	pm25
"서울"	18
"부산"	21
"대구"	21
"인천"	17
"광주"	8
"대전"	11
"울산"	25

The Files pane on the right shows the file `df_pm.csv` in the `c:/R` directory, highlighted with a red box.

4. 원의 넓이 함수 만들기

The screenshot shows the RStudio interface with the following components:

- Source Editor:** Contains R code for creating a function `getCircleArea` and calling it with the argument 5.
- Console:** Shows the execution of the code, including saving the data frame to a CSV file and the output of the function call.
- Environment:** Displays the current data frame `df_pm` with 7 observations and 2 variables.
- Files:** Lists files in the current directory, including `quakes.csv`, `df.rdata`, `03_understanding_data_structure.ip...`, `df_pm`, and `df_pm.csv`.

```
17 #4. 원의 넓이 함수 만들기
18 getCircleArea <- function(r){
19   area <- (r^2) * 3.14
20   return(area)
21 }
22
23 getCircleArea(5)
```

```
> write.table(df_pm, "c:/R/df_pm.csv", sep=",")
> getCircleArea <- function(r){
+   area <- (r^2) * 3.14
+   return(area)
+ }
>
> getCircleArea(5)
[1] 78.5
```

Environment:

Global Environment	
df_pm	7 obs. of 2 variables

Values:

	city	pm25
chr [1:7]	"서울" "부산" "..."	
num [1:7]	18 21 21 17 8 ...	

Files:

Name	Size
quakes.csv	30.2 KB
df.rdata	218 B
03_understanding_data_structure.ip...	88.2 KB
df_pm	223 B
df_pm.csv	131 B