

shrub_volume

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excerise 8

```
read.csv(file = "../data-raw/shrub-volume-data.csv") -> shrub_data #load the data using read.csv then f  
#was getting an for line 23 "width is not an object in order to fix the error I assigned objects to the  
shrub_data[1] -> site # line 17 -21 assign object to columns  
shrub_data[2] -> experiment  
shrub_data[3] -> length  
shrub_data[4] -> width  
shrub_data[5] -> height  
mutate(shrub_data, volume = length * width * height) %>% # finding volume using l *w *h  
  #filter(site == "1" | experiment == "1" | site == "2" | experiment == "2" | site == "3" | experiment  
group_by(site) %>% # group site  
summarize(mean_volume1 = mean(volume)) # mean value for site
```

```
## # A tibble: 4 x 2  
##   site mean_volume1  
##   <int>         <dbl>  
## 1     1          23.8  
## 2     2          26.6  
## 3     3          23.1  
## 4     4          57.1
```

```
mutate(shrub_data, volume = length * width * height) %>% # mutate again to start looking at experiment  
group_by(experiment) %>% #group experiment  
summarize(mean_volume1 = mean(volume)) # mean for experiment
```

```
## # A tibble: 3 x 2  
##   experiment mean_volume1  
##         <int>         <dbl>  
## 1           1          22.0  
## 2           2          53.8  
## 3           3          22.1
```

```
str(shrub_data)
```

```
## 'data.frame':   12 obs. of  5 variables:  
## $ site      : int  1 1 1 2 2 2 3 3 3 4 ...  
## $ experiment: int  1 2 3 1 2 3 1 2 3 1 ...
```

```
## $ length      : num  2.2 2.1 2.7 3 3.1 2.5 1.9 1.1 3.5 2.9 ...
## $ width       : num  1.3 2.2 1.5 4.5 3.1 2.8 1.8 0.5 2 2.7 ...
## $ height      : num  9.6 7.6 2.2 1.5 4 3 4.5 2.3 7.5 3.2 ...
```