

## Kod do zadań

```
lab14.r x rplot.jpg
home > docker > lab14.r
1 library(magrittr)
2 library(ggplot2)
3 library(datasets)
4 library(GGally)
5
6 ### Zadanie 1 ###
7 list_data <- c(1,2,3,4,5,6,7,8,9,10)
8
9 list_data <- sqrt(sum(sin(log2(list_data))))
10 print(paste('Lista po wykonaniu odpowiednich obliczeń',list_data))
11 data(iris)
12 print(head(iris))
13
14 agg <- iris %>%
15 |   aggregate(. ~Species, .,mean)
16 print(agg)
17
18
19 ### Zadanie 2 ###
20 a <- ggplot(iris, aes(x = Sepal.Width)) +
21 |   geom_histogram(aes(fill=Species, color=Species), bins=20) +
22 |   geom_vline(data=agg, aes(xintercept=Sepal.Width, color=Species), linetype="dashed") +
23 |   labs(x='x_axis', y='y_axis', title='title')
24 ggsave("/home/rplot.jpg", plot = a)
25 a <- ggpairs(data = iris, aes(color = Species))
26 ggsave("/home/rplot2.jpg", plot = a)
27
```

```
### Zadanie 3 ###
x <- iris[, 1:4]
y <- iris[,5]

sum_sqr <-c()

for (i in 1:10){
  kmeans_result <- kmeans(x, i)
  sum_sqr <- append(sum_sqr, kmeans_result$tot.withinss)
}

a <- ggplot(data.frame(iteration = 1:length(sum_sqr), value = sum_sqr), aes(x = iteration, y = sum_sqr)) +
  geom_line()
ggsave("/home/rplot3.jpg", plot = a)

kmeans_result <- kmeans(x, 3)
a <- ggplot(iris, aes(x = Sepal.Width, y = Petal.Width, color= kmeans_result$cluster)) + geom_point()
ggsave("/home/rplot4.jpg", plot = a)

a <- ggplot(iris, aes(x = Sepal.Width, y = Petal.Width, color = Species)) + geom_point()
ggsave("/home/rplot5.jpg", plot = a)
```

## Wynik działania funkcji

```
> source("/home/docker/lab14.r", encoding = "UTF-8")
[1] "Lista po wykonaniu odpowiednich obliczeń 2.06673513765335"
Sepal.Length Sepal.Width Petal.Length Petal.Width Species
1      5.1      3.5      1.4      0.2 setosa
2      4.9      3.0      1.4      0.2 setosa
3      4.7      3.2      1.3      0.2 setosa
4      4.6      3.1      1.5      0.2 setosa
5      5.0      3.6      1.4      0.2 setosa
6      5.4      3.9      1.7      0.4 setosa
Species Sepal.Length Sepal.Width Petal.Length Petal.Width
1 setosa      5.006      3.428      1.462      0.246
2 versicolor  5.936      2.770      4.260      1.326
3 virginica   6.588      2.974      5.552      2.026
Saving 7 x 7 in image
Saving 7 x 7 in image
plot: [5,1] [=====>-----] 84% est: 0s `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
plot: [5,2] [=====>-----] 88% est: 0s `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
plot: [5,3] [=====>-----] 92% est: 0s `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
plot: [5,4] [=====>-----] 96% est: 0s `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
Saving 7 x 7 in image
Saving 7 x 7 in image
Saving 7 x 7 in image
```







