

Karol Strojny Analiza i Bazy Danych

Lab 14 Sprawozdanie

Praca w zespole z Adamem Stasiakiem

1. Kod w języku R

```
library(magrittr)
install.packages("ggplot2")
library("ggplot2")

install.packages("GGally")
library("GGally")

library(cluster)

# Zadanie 1
lst <- 1:10

print(lst)
lst%<>% log2()%>%sin()%>%sum()%>%sqrt()

print(lst)

data(iris)

print(head(iris,6))

spc <- iris%>%
  aggregate(.~Species,.,mean)

print(spc)

# Zadanie 2

plots <- ggplot(iris,aes(x=Sepal.Width))+
  geom_histogram(aes(fill=Species,color=Species),bins=20) +
  geom_vline(data=spc,aes(xintercept=Sepal.Width,color=Species),linetype="dashed")+
  labs(x='x_axis',y='y_axis',title='title')
ggsave("/home/rplot.jpg",plot = plots)

plots <- ggpairs(data = iris,aes(color = Species))
ggsave("/home/rplot2.jpg",plot = plots)

# 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)
}

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

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

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

```

2. Output kodu do zadania pierwszego

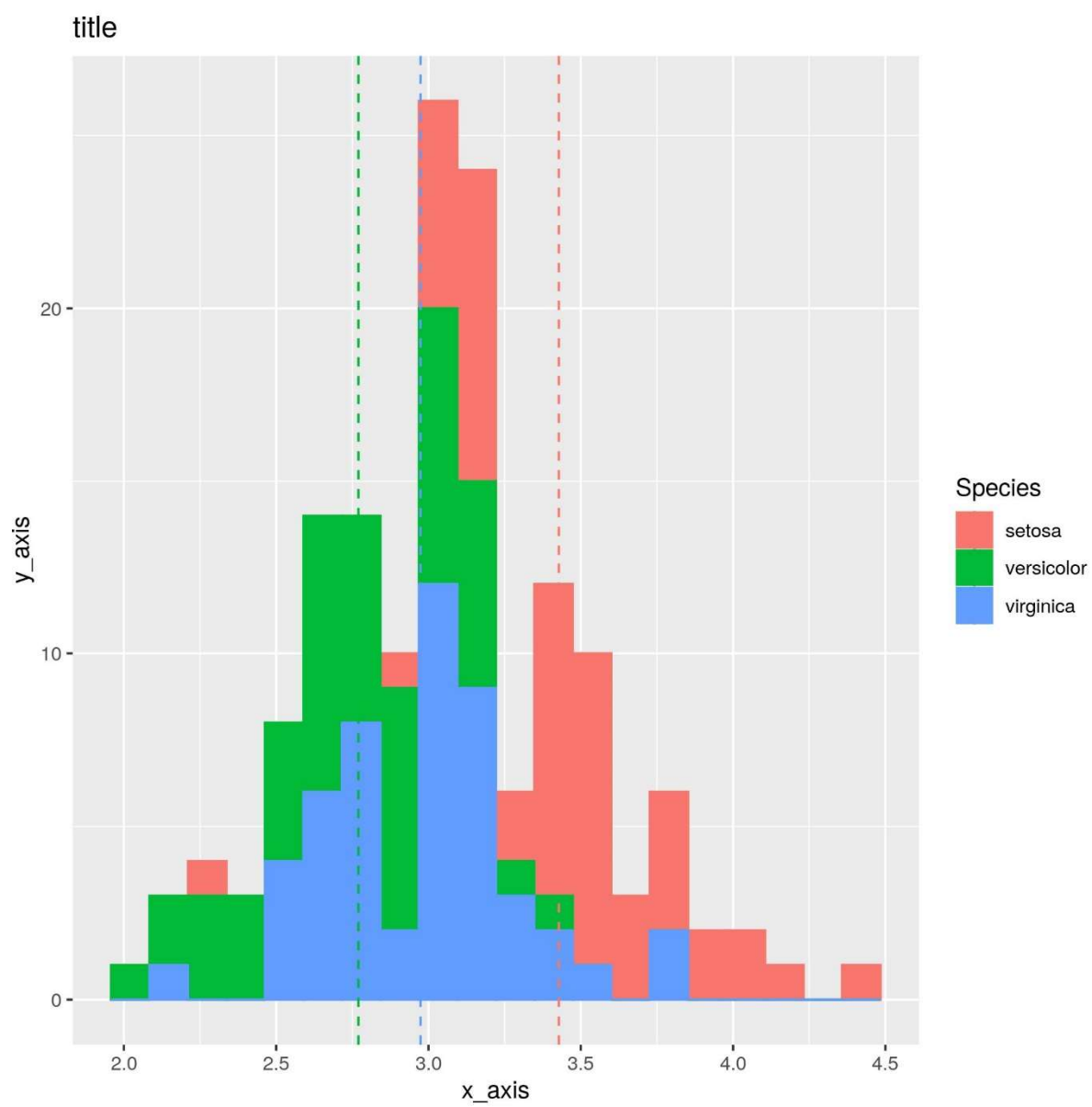
```

[1] 1 2 3 4 5 6 7 8 9 10
[1] 2.066735
  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

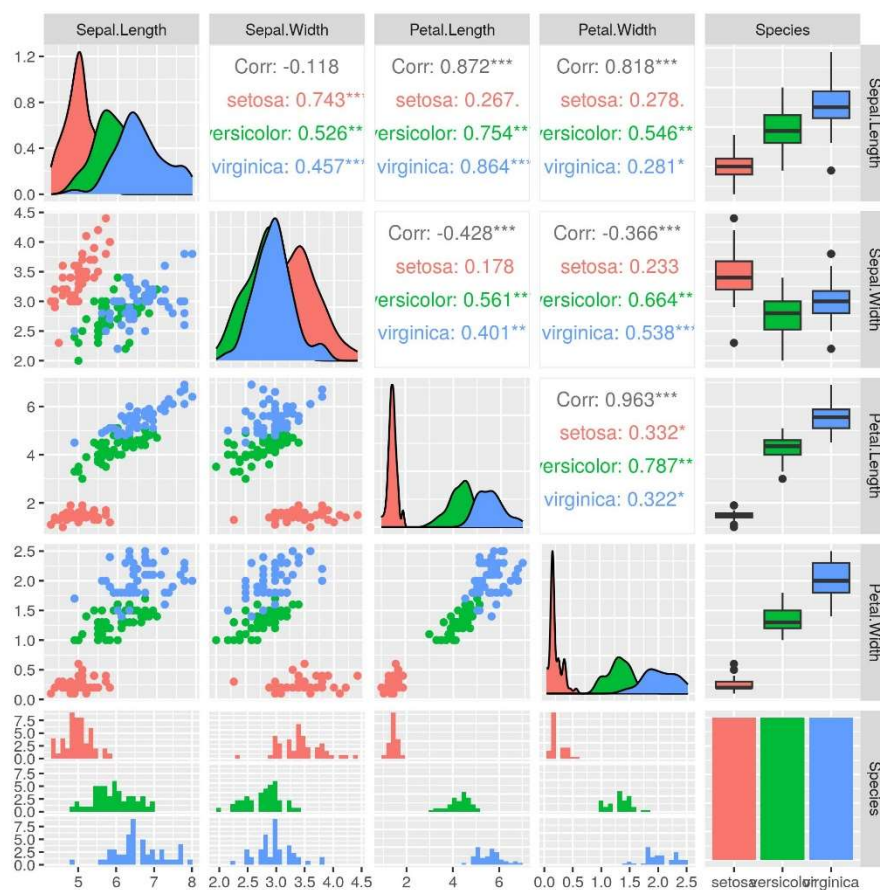
```

3. Wykresy

- Zadanie 2

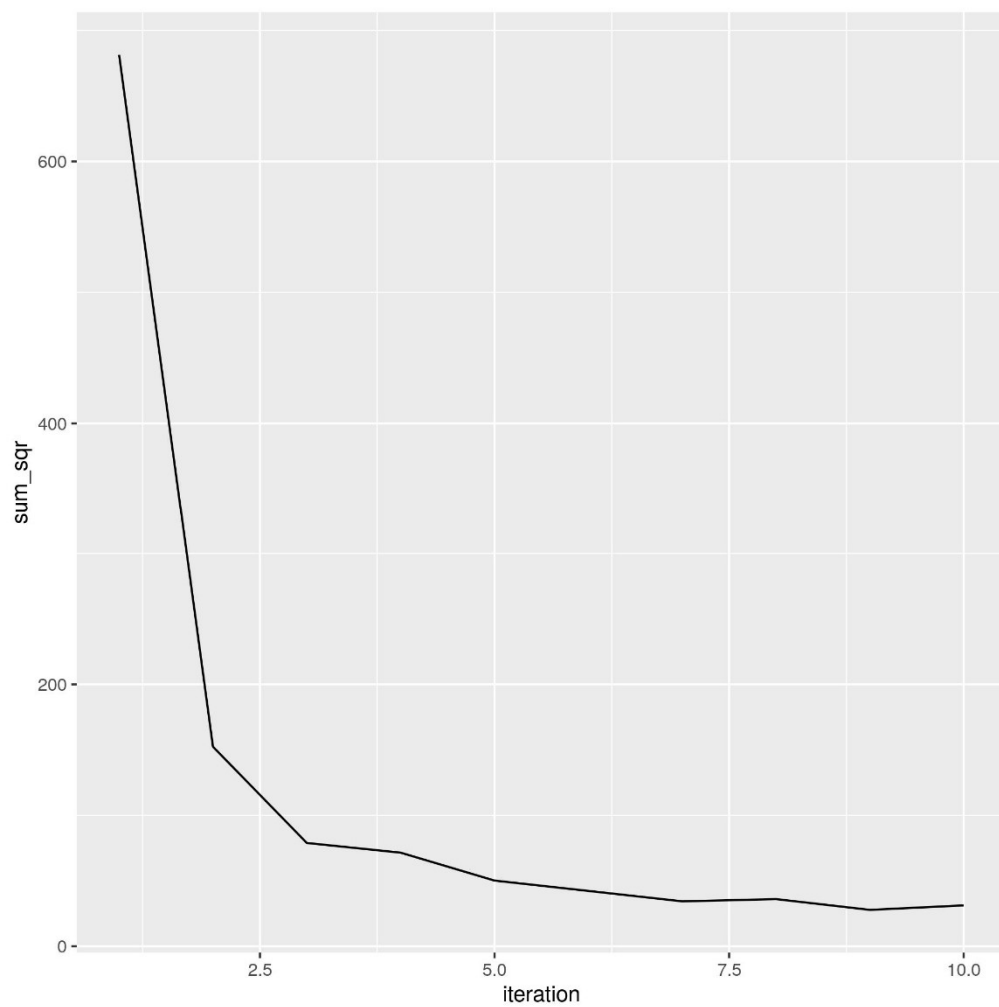


Wykres 1 Histogram

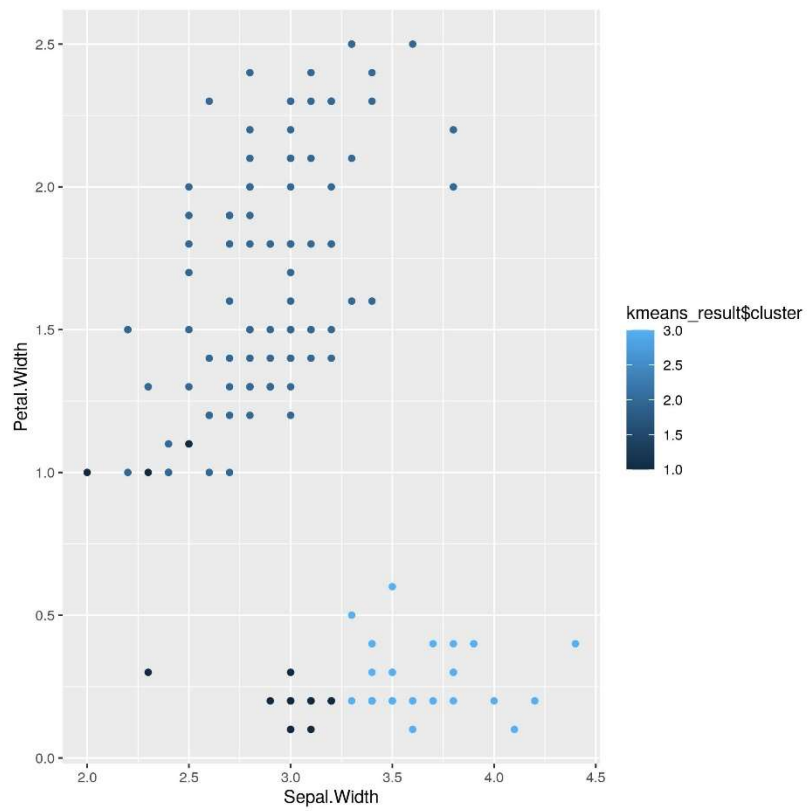


Wykres 2 Wykres funkcji pairs

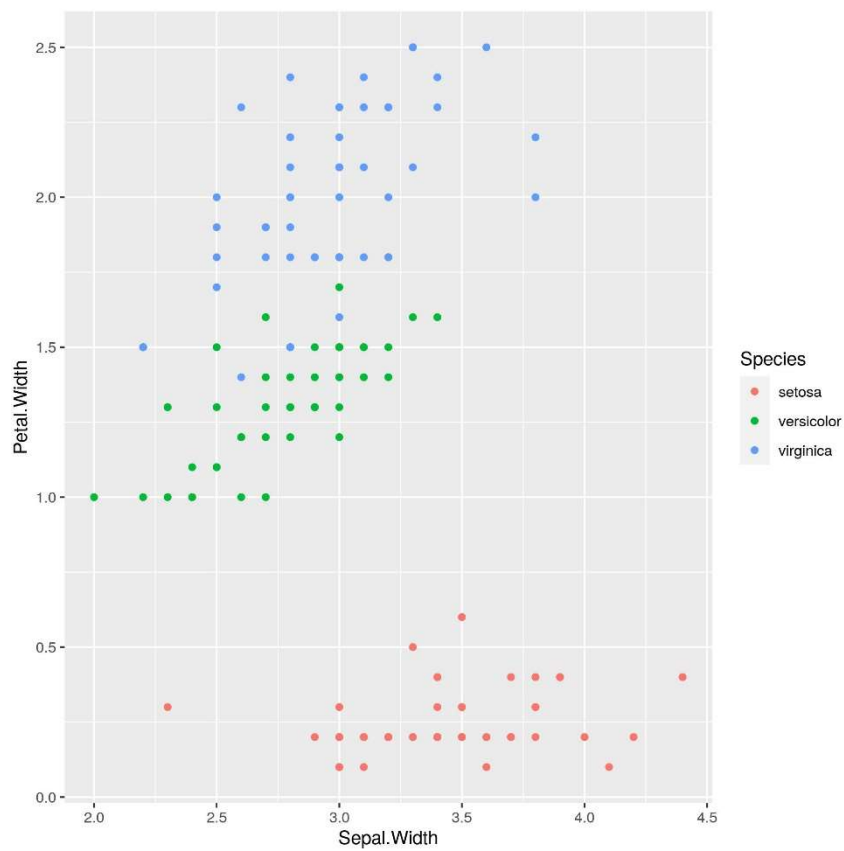
- Zadanie 3



Wykres 3 Wykres zmiany wartości sumy z pierwiastka od iteracji



Wykres 4 Klesteryzacja dla 3 klastrów



Wykres 5 Wykres dla oryginalnego podziału

