Lista 9

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Spis treści

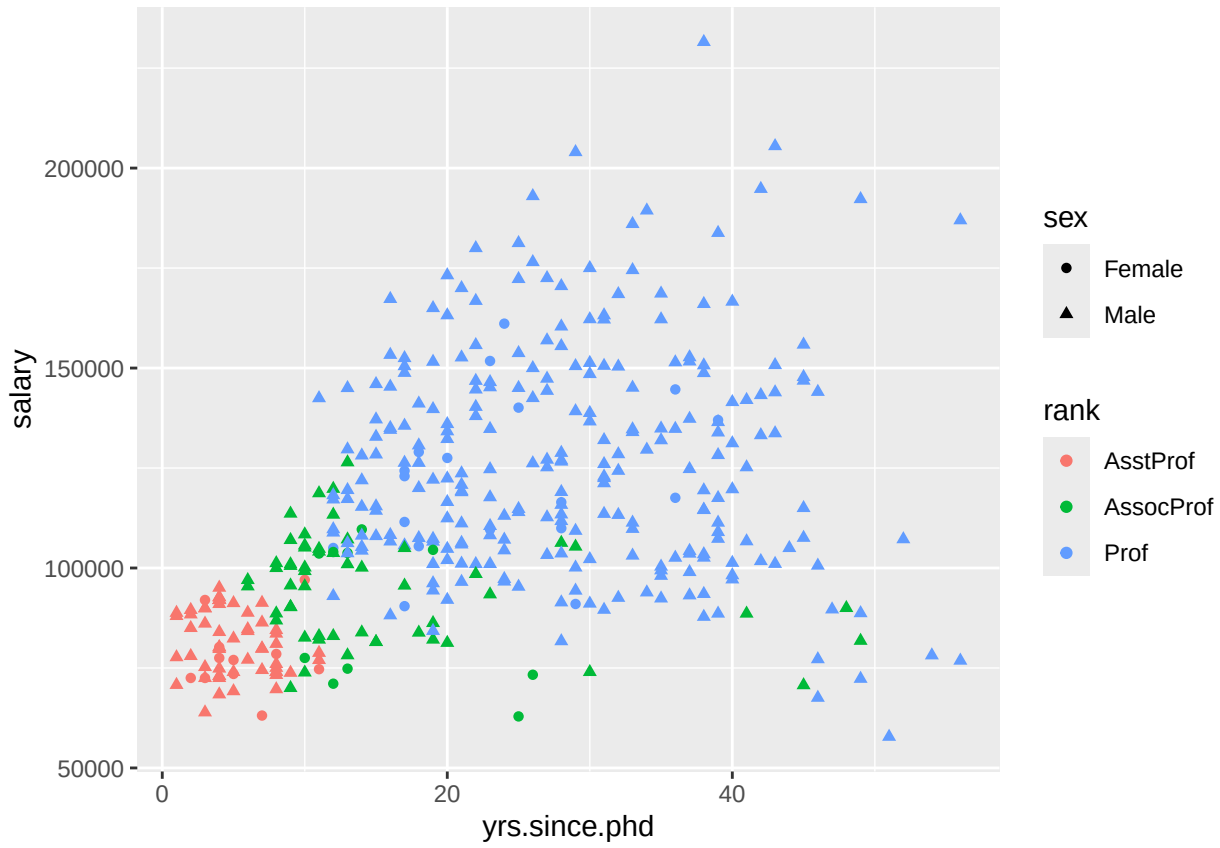
1 Sekcja 2

```
library(carData)
library(ggplot2)
data("Salaries")
```

1.1 zadanie 1

a)

```
ggplot(Salaries, aes(x=yrs.since.phd, y=salary, color=rank, shape=sex)) +
  geom_point()
```

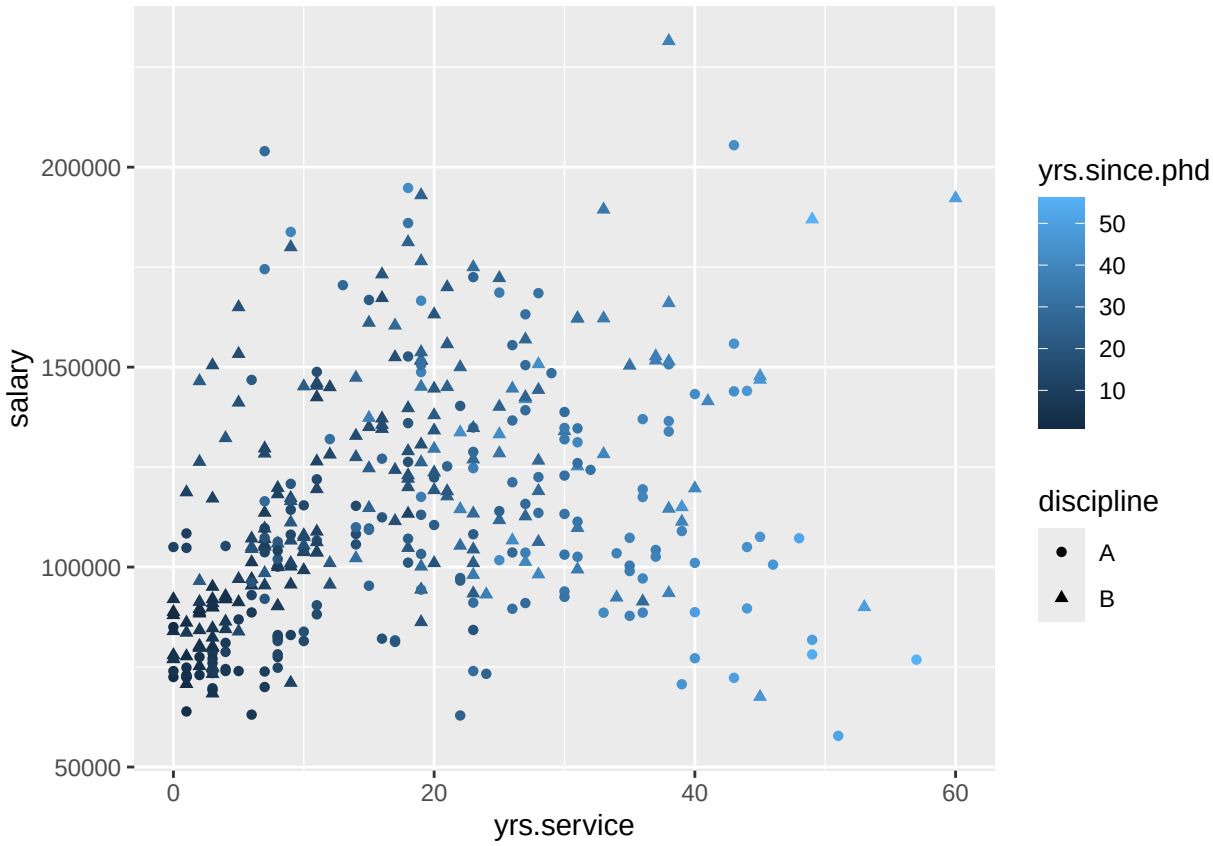


b)

```
ggplot(Salaries, aes(x=yrs.since.phd, y=salary, color=rank, size=yrs.service, shape=sex)) +
  geom_point()
```

c)

```
ggplot(Salaries, aes(x=yrs.service, y=salary, color=yrs.since.phd, shape=discipline)) +
  geom_point()
```



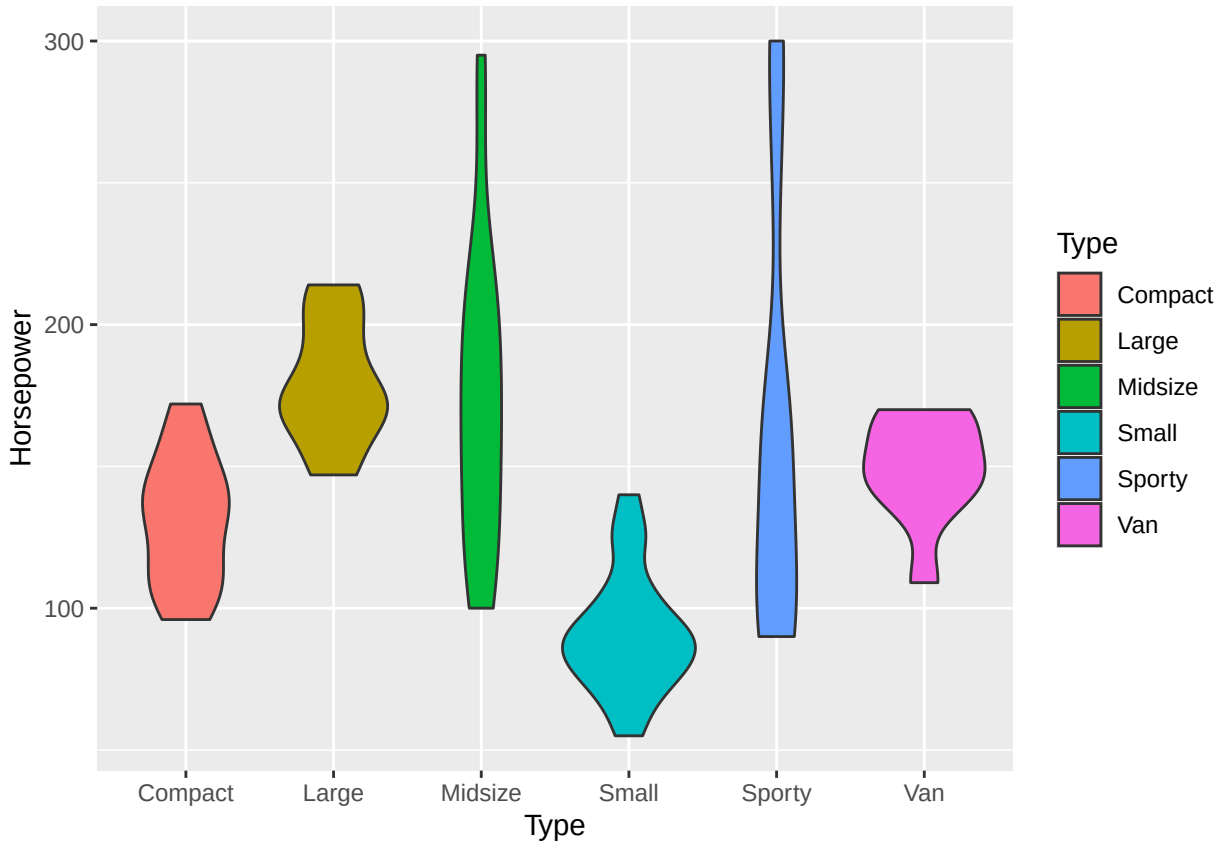
2 Sekcja 3

2.1 zadanie 1

```
library(MASS)
data("Cars93")
```

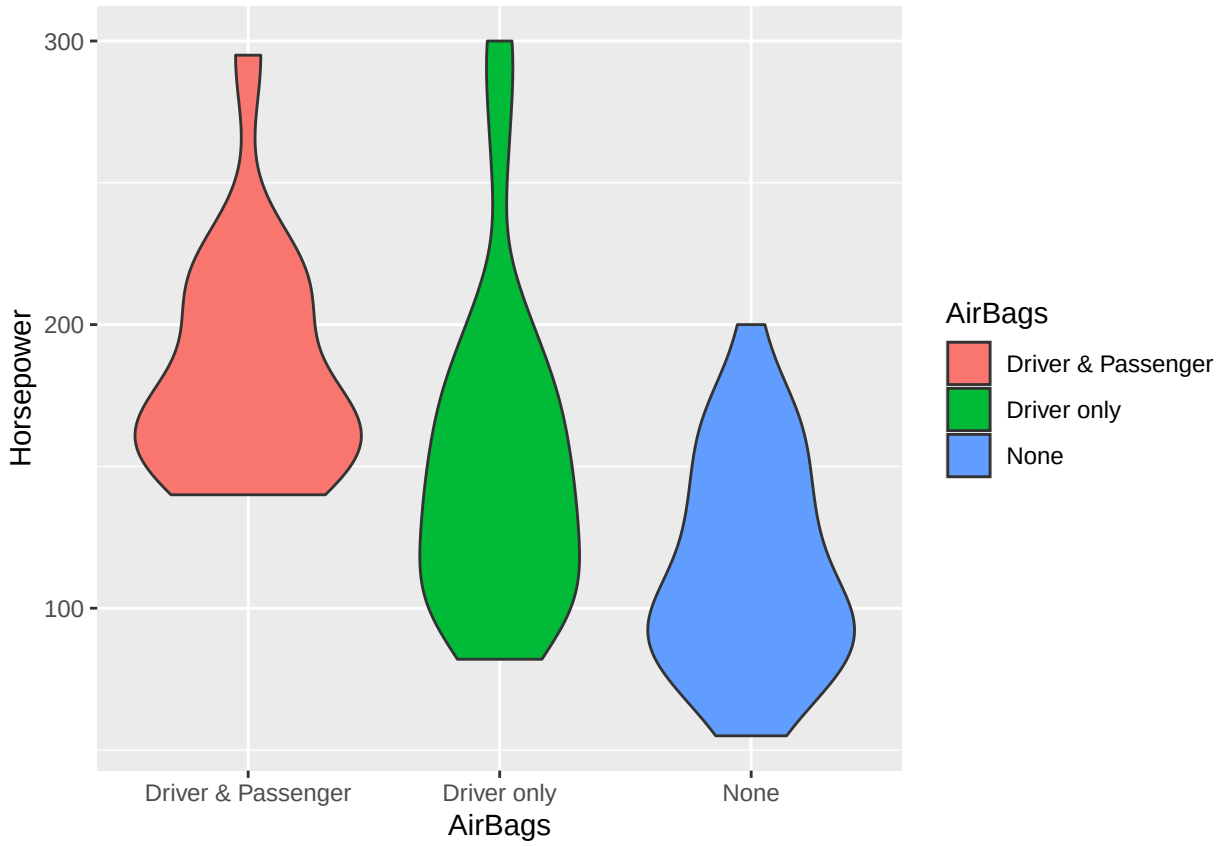
a)

```
ggplot(Cars93, aes(x=Type, y=Horsepower, fill=Type)) + geom_violin()
```



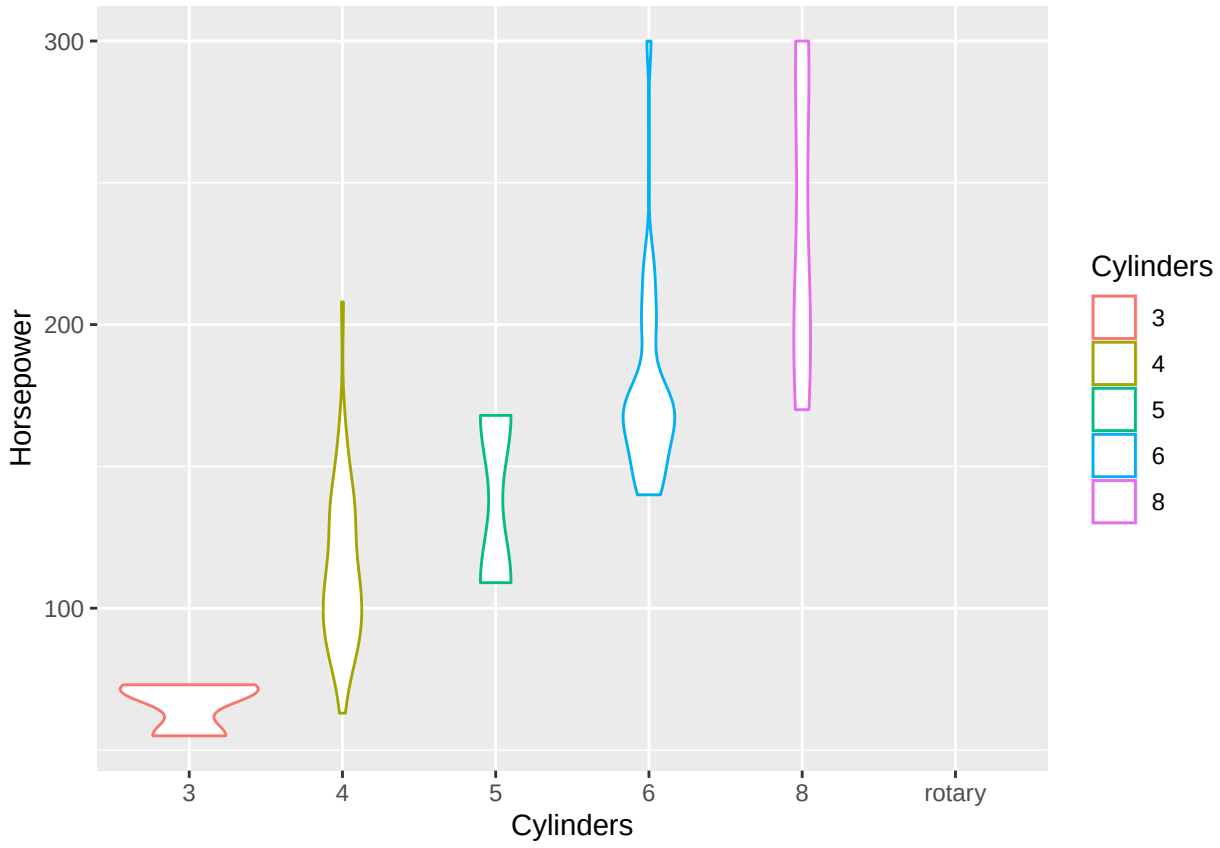
b)

```
ggplot(Cars93, aes(x=AirBags, y=Horsepower,fill=AirBags)) + geom_violin()
```



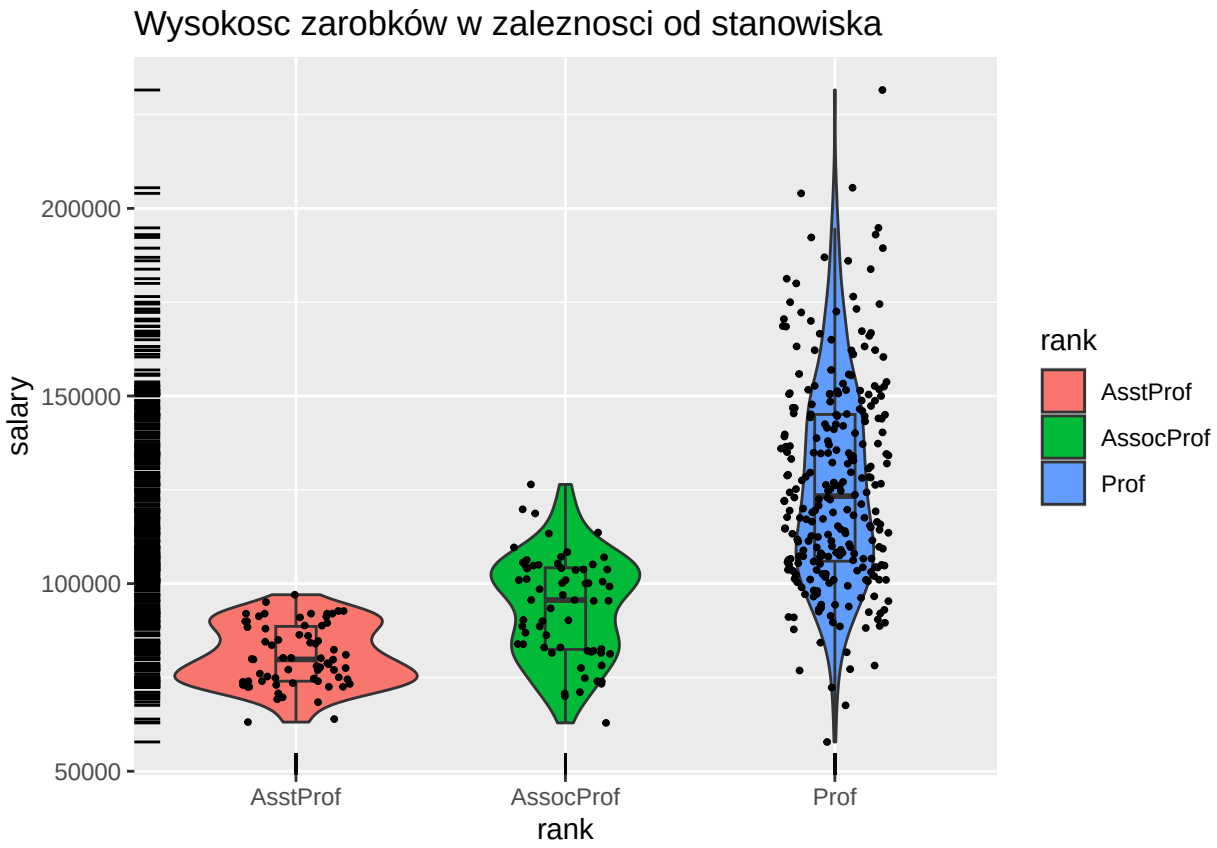
c)

```
ggplot(Cars93, aes(x=Cylinders, y=Horsepower, color=Cylinders)) + geom_violin()
```



2.2 zadanie 2

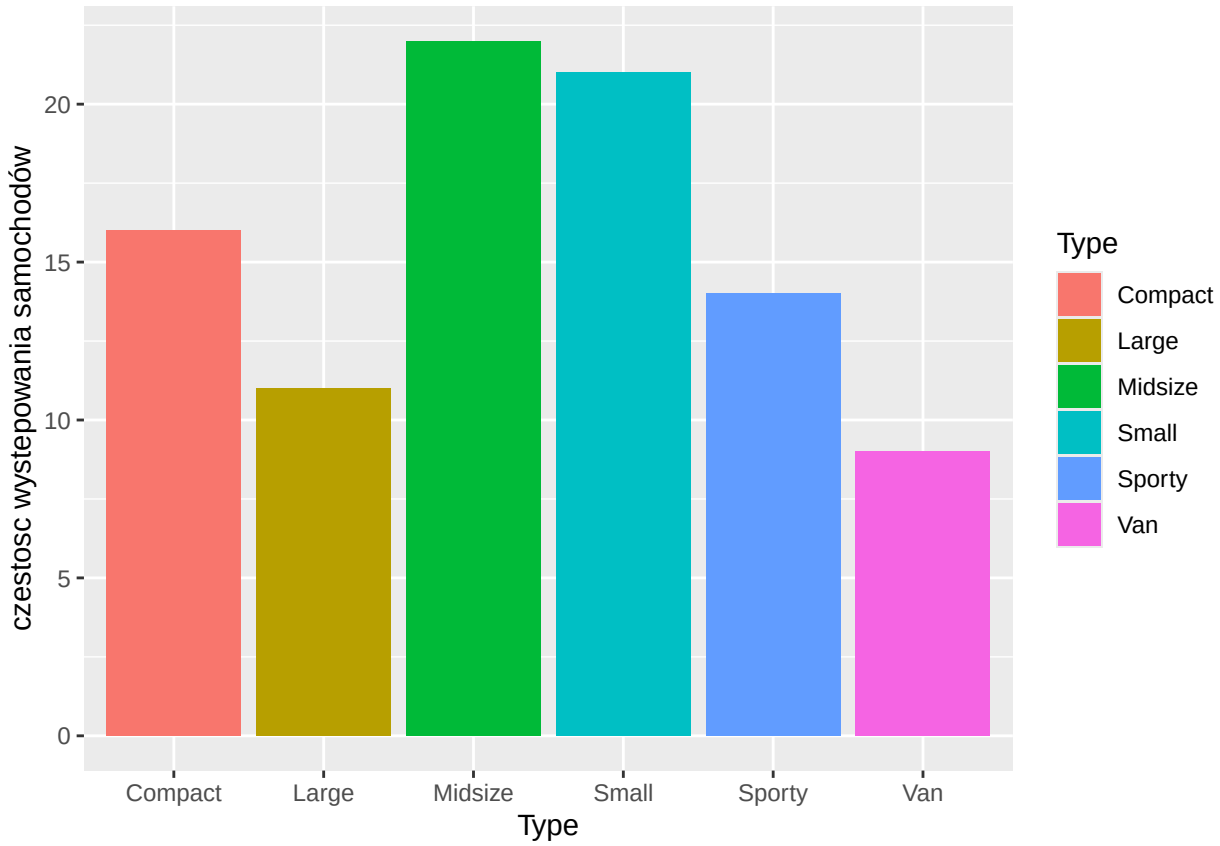
```
library(carData)
data("Salaries")
ggplot(Salaries, aes(x=rank, y=salary, fill=rank)) +
  geom_violin()+ geom_boxplot(outlier.shape = NA, show.legend=FALSE, width=0.15)+
  geom_jitter(show.legend=FALSE, size=0.7, width=0.2)+ geom_rug()+
  labs(title = "Wysokość zarobków w zależności od stanowiska")
```



3 Sekcja 4

3.1 zadanie 1

```
library(MASS)
data("Cars93")
library(dplyr)
Cars93 %>% count(Type, name="częstość występowania samochodów")->dane
ggplot(dane, aes(x=Type, y=`częstość występowania samochodów`, fill=Type))+geom_bar(stat="identity")
```

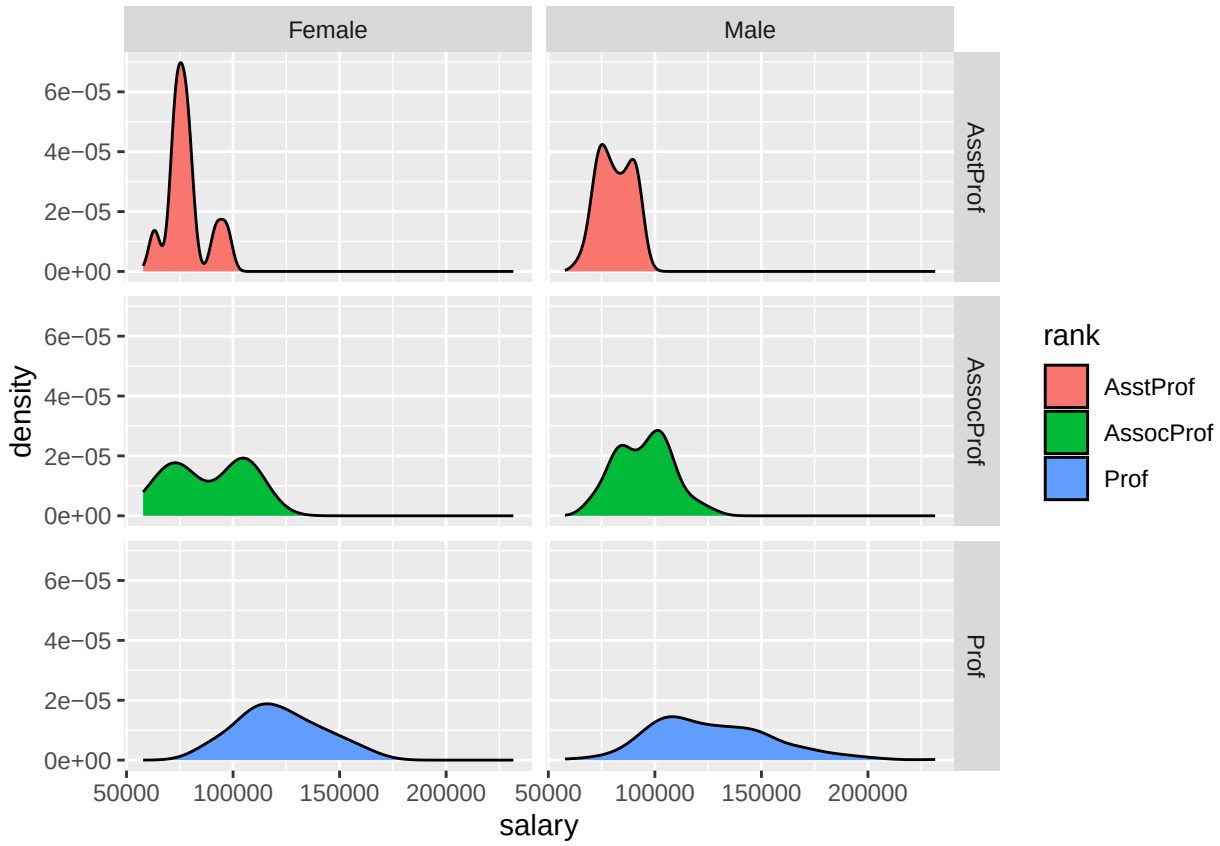


4 Sekcja 5

4.1 zadanie 1

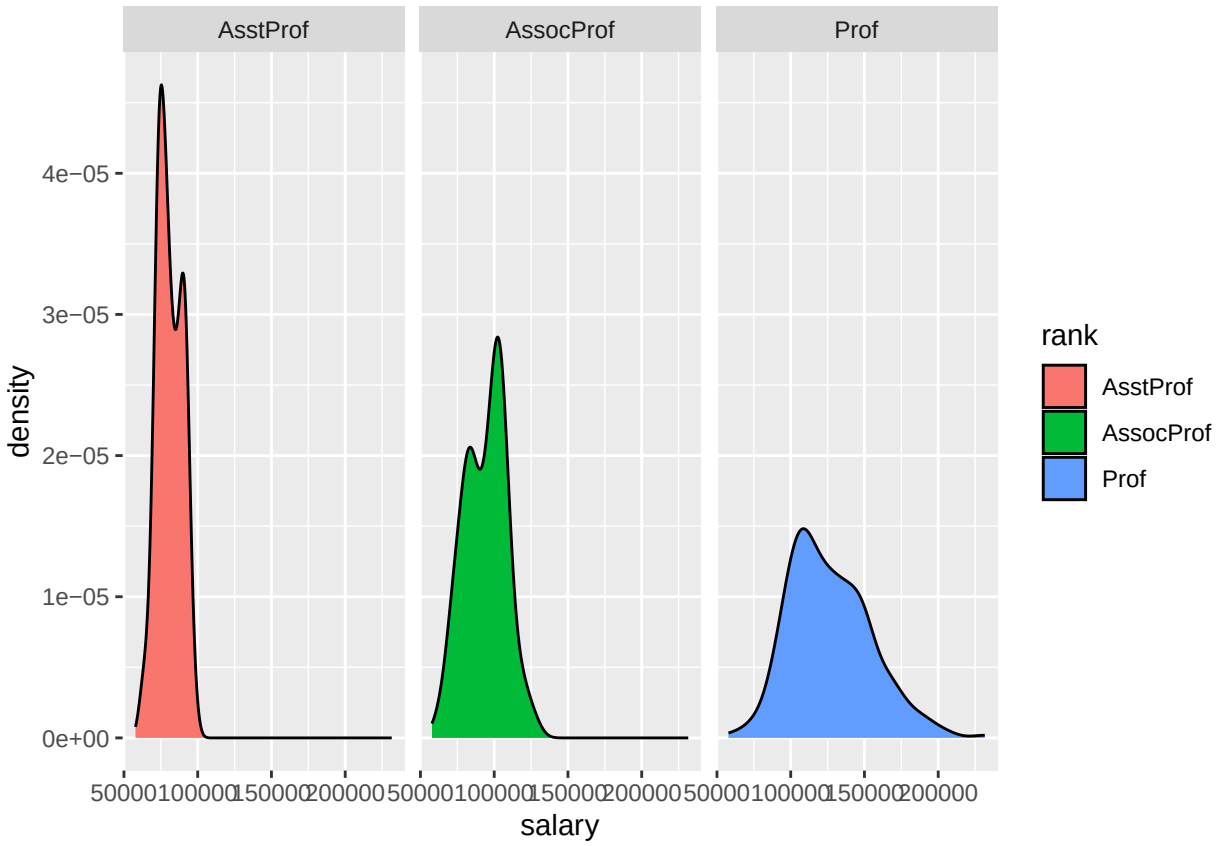
a)

```
ggplot(Salaries, aes(x=salary, fill=rank))+geom_density()+facet_grid(rank~sex)
```



b)

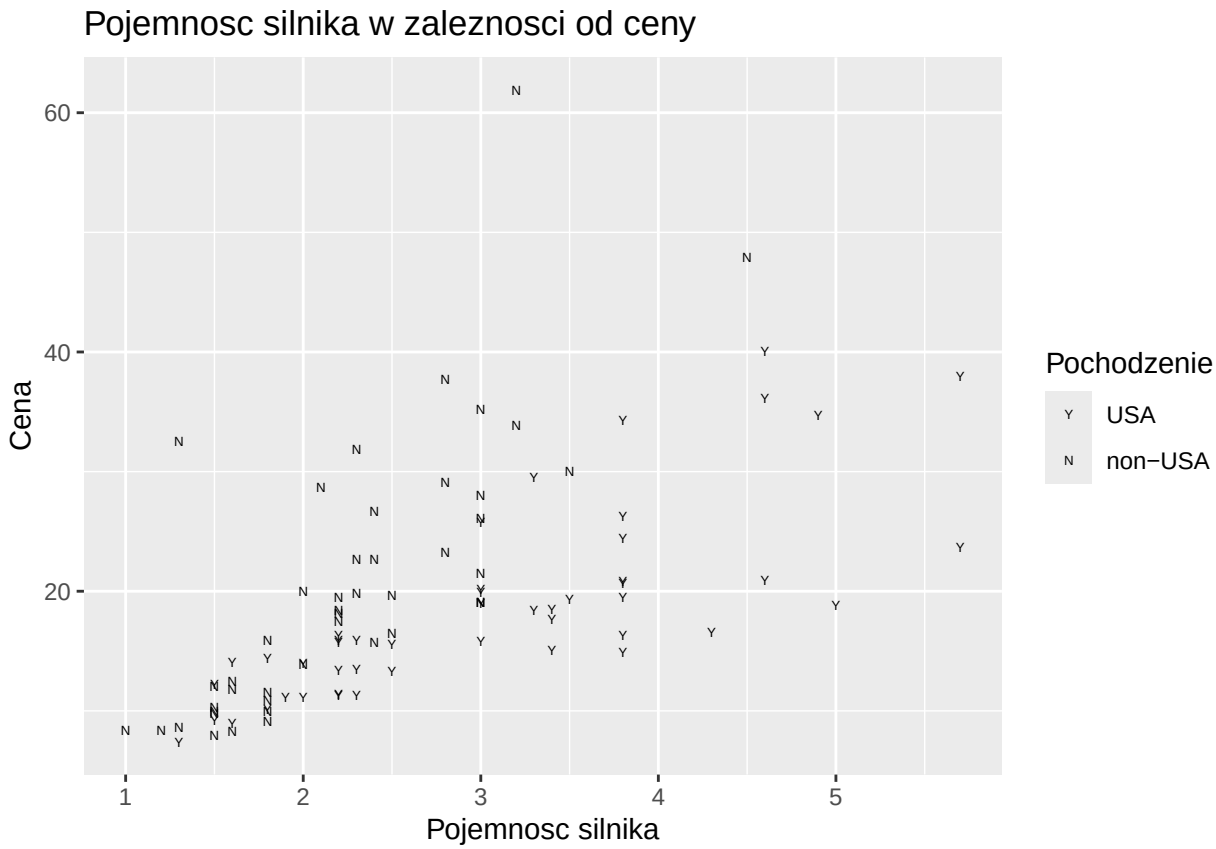
```
ggplot(Salaries, aes(x=salary, fill=rank))+geom_density()+facet_wrap(~rank)
```



5 Sekcja 6

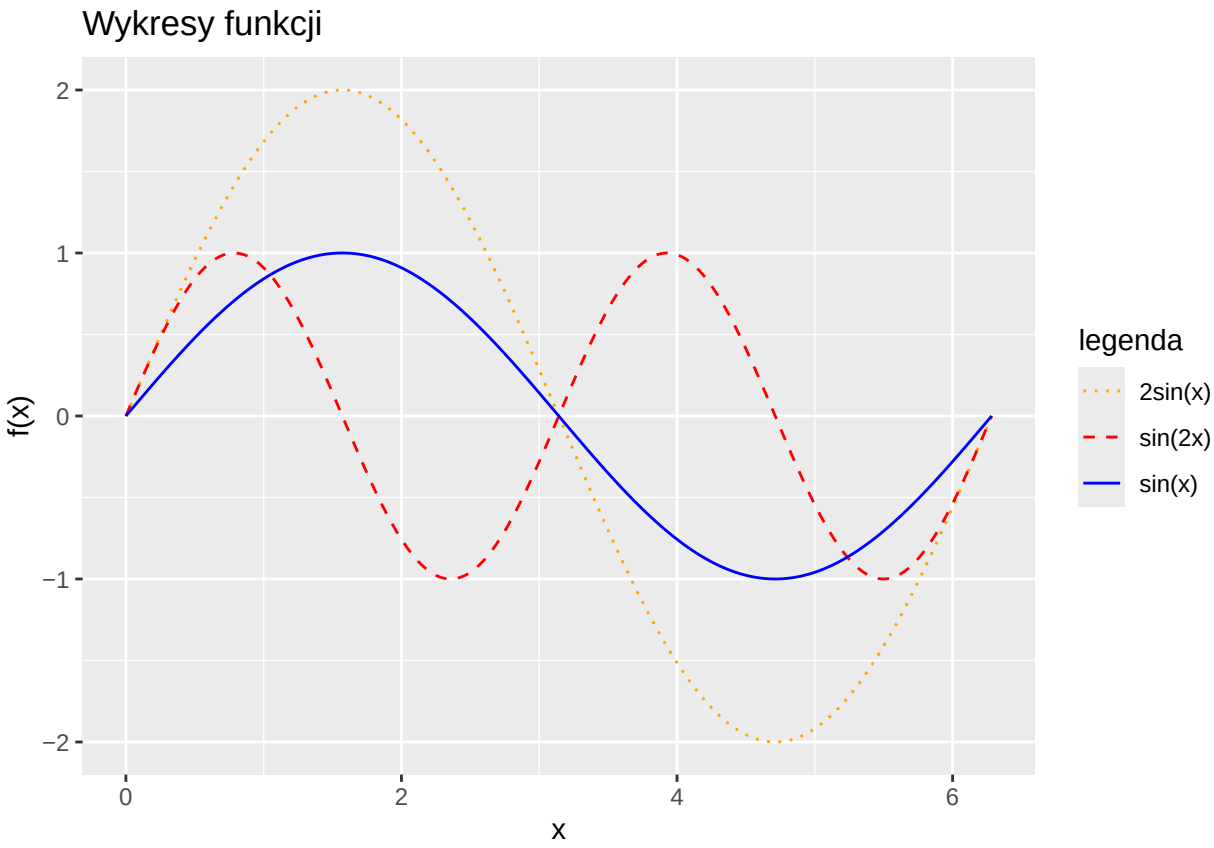
5.1 zadanie 1

```
library(MASS)
data("Cars93")
ggplot(Cars93, aes(x=EngineSize, y=Price, shape=Origin))+geom_point()+
  scale_shape_manual(values=c("Y","N")) +labs(title="Pojemność silnika w zależności od ceny",
                                    x="Pojemność silnika", y="Cena",shape="Pochodzenie")
```



5.2 zadanie 2

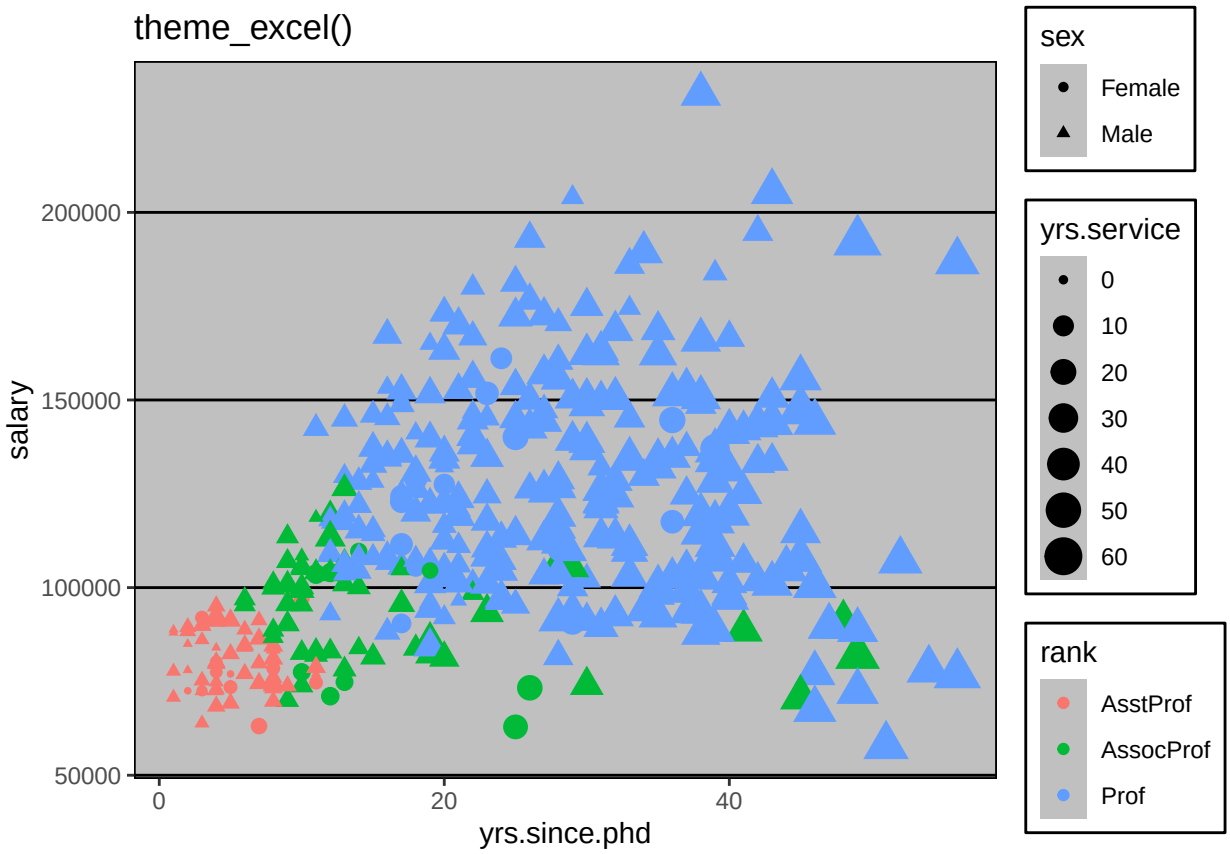
```
x<- seq(0, 2*pi, length.out=300)
f1 <- sin(x)
f2 <- sin(2*x)
f3 <- 2*sin(x)

dane =  data.frame(x,
                   values=c(f1,f2,f3),
                   fun=rep(c("sin(x)", "sin(2x)", "2sin(x)"),each = length(x)))

colors <- c("sin(x)" = "blue", "sin(2x)" = "red", "2sin(x)" = "orange")
linetypes <- c("sin(x)" = 1, "sin(2x)" = 2, "2sin(x)" = 3)

ggplot(dane, aes(x, values, col=fun, linetype=fun)) +geom_line()+
  labs(title = "Wykresy funkcji", x="x", y="f(x)") +
  scale_color_manual(values= colors, name = "legenda") +
  scale_linetype_manual(values = linetypes, name = "legenda")
```



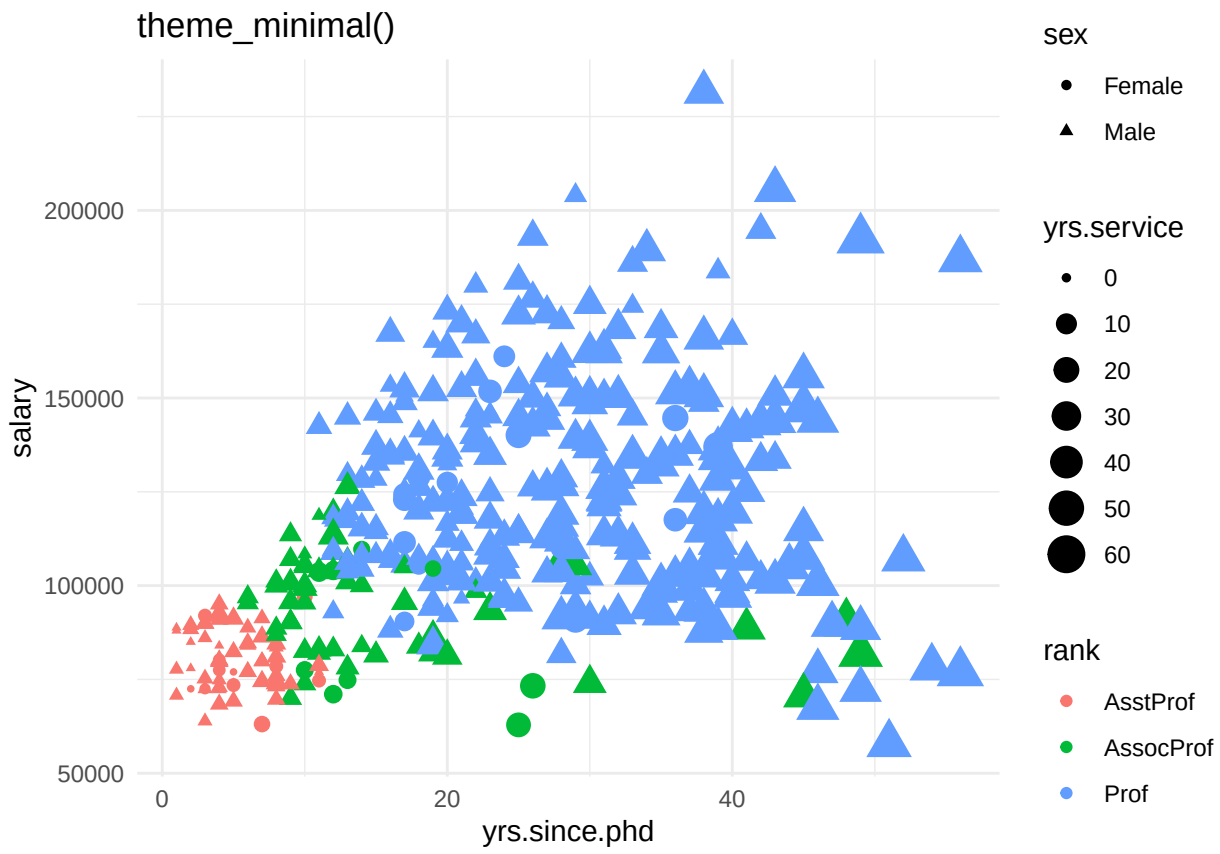
5.3 zadanie 3

```
library(ggthemes)
ggplot(Salaries, aes(x=yrs.since.phd, y=salary, color=rank, size=yrs.service, shape=sex)) +
  geom_point()
```

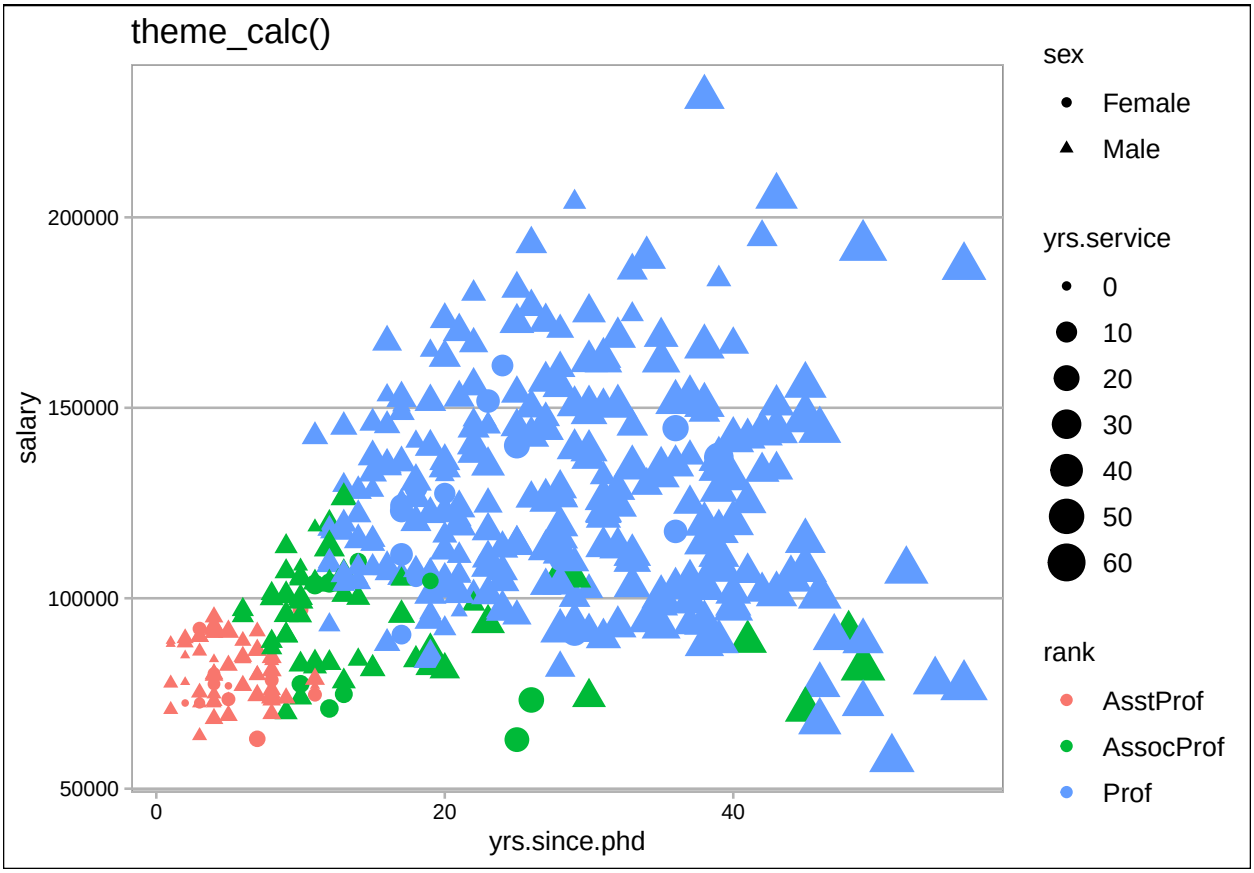

```
ggplot(Salaries, aes(x=yrs.since.phd, y=salary, color=rank, size=yrs.service, shape=sex)) +
  geom_point()+theme_excel()+ggtitle("theme_excel()")
```



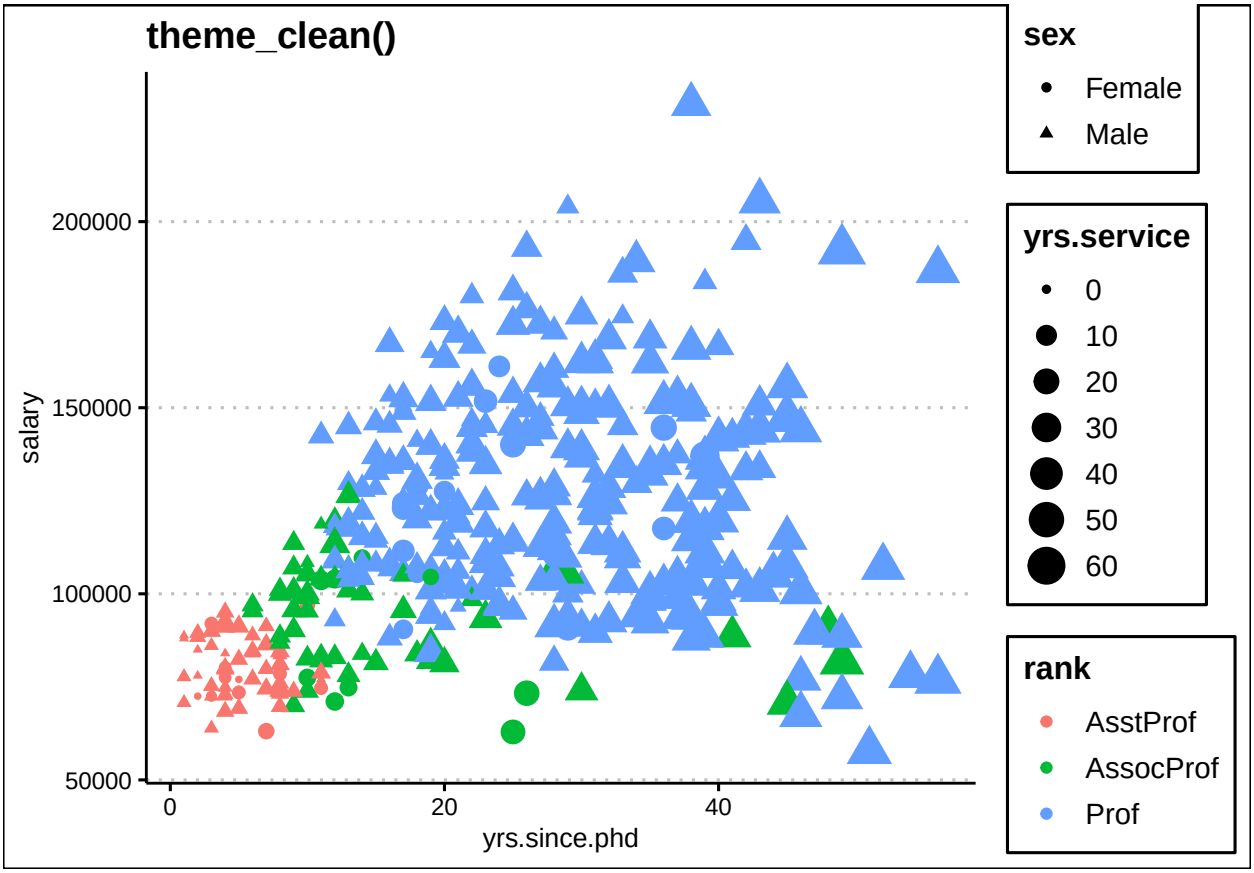

```
ggplot(Salaries, aes(x=yrs.since.phd, y=salary, color=rank, size=yrs.service, shape=sex)) +
  geom_point()+theme_minimal()+ggtitle("theme_minimal()")
```




```
ggplot(Salaries, aes(x=yrs.since.phd, y=salary, color=rank, size=yrs.service, shape=sex)) +
  geom_point()+theme_calc()+ggtitle("theme_calc()")
```




```
ggplot(Salaries, aes(x=yrs.since.phd, y=salary, color=rank, size=yrs.service, shape=sex)) +
  geom_point()+theme_clean()+ggtitle("theme_clean()")
```



Na 1 wykresie mamy wersję domyślną.

Na 2 tło się przyciemnia, brakuje liń pionowych, a pozimowe są koloru czarnego, legenda jest oprawiona w czarne ramki.

Na 3 tło staje się białe, linie szarawe pionowe i poziomwe - siatka jest słabo widoczna.

Na 4 tło jest białe i z siatki pozostają tylko linie poziome szare. Wykres jest oprawiony.

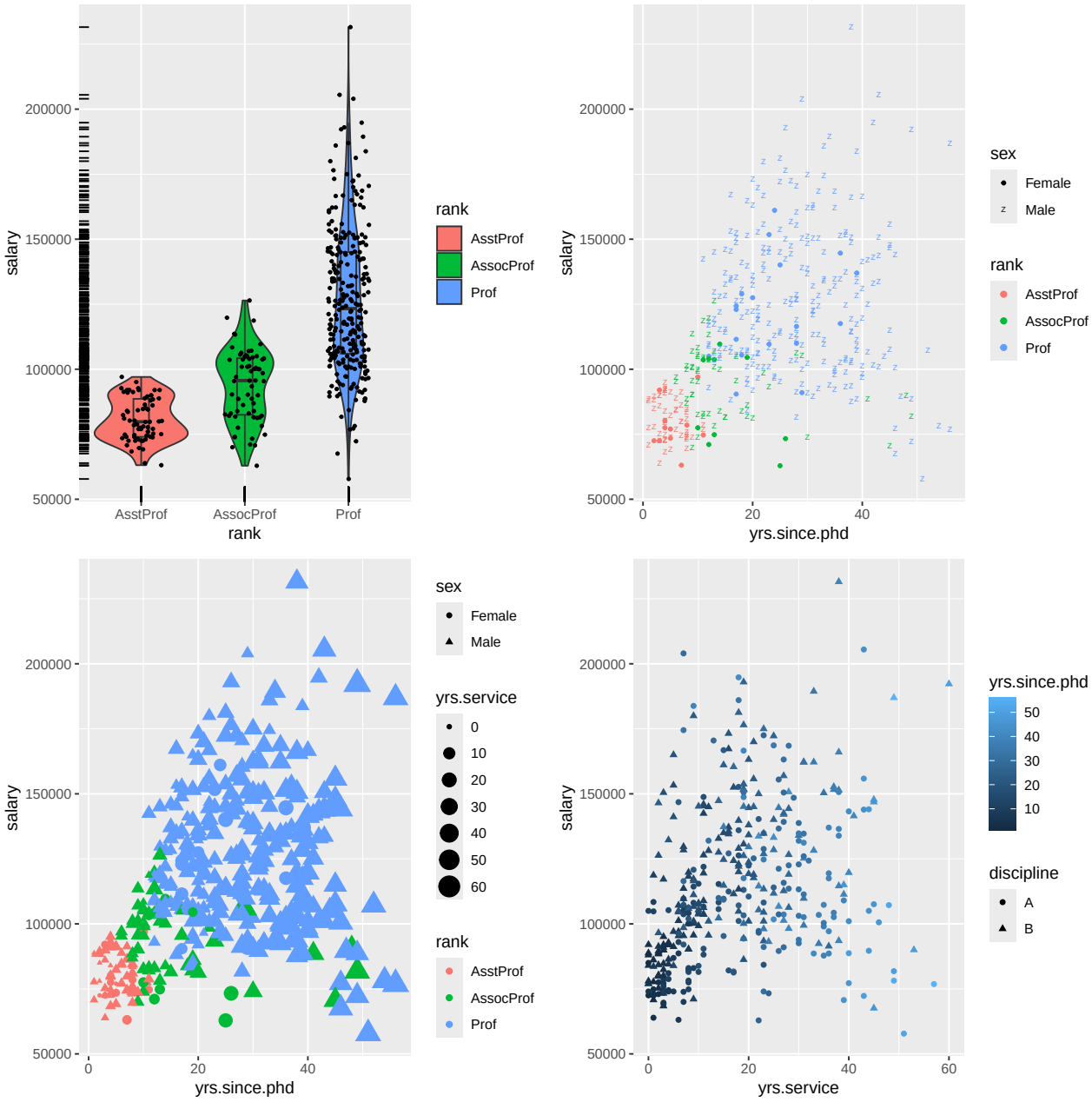
Na 5 tło białe i z siatki pozostają tylko linie przerywane poziome szare, słabo widoczne, legedna jest oprwaiona w czarne ramki. Brak obramowania wykresu z góry i od lewej strony.

6 Sekcja 7

6.1 zadanie 1

```
library(gridExtra)
library(carData)
data("Salaries")

wykres1<-ggplot(Salaries, aes(x=rank, y=salary, fill=rank)) +
  geom_violin()+ geom_boxplot(outlier.shape = NA, show.legend=FALSE, width=0.15)+
  geom_jitter(show.legend=FALSE, size=0.7, width=0.2)+ geom_rug()

wykres2<-ggplot(Salaries, aes(x=yrs.since.phd, y=salary, color=rank, shape=sex)) +
  geom_point()+scale_shape_manual(values=c(20,90))
```

```
wykres3<-ggplot(Salaries,
          aes(x=yrs.since.phd, y=salary, color=rank, size=yrs.service, shape=sex)) +
  geom_point()

wykres4<-ggplot(Salaries, aes(x=yrs.service, y=salary, color=yrs.since.phd, shape=discipline)) +
  geom_point()

grid.arrange(wykres1,wykres2,wykres3,wykres4, ncol=2)
```

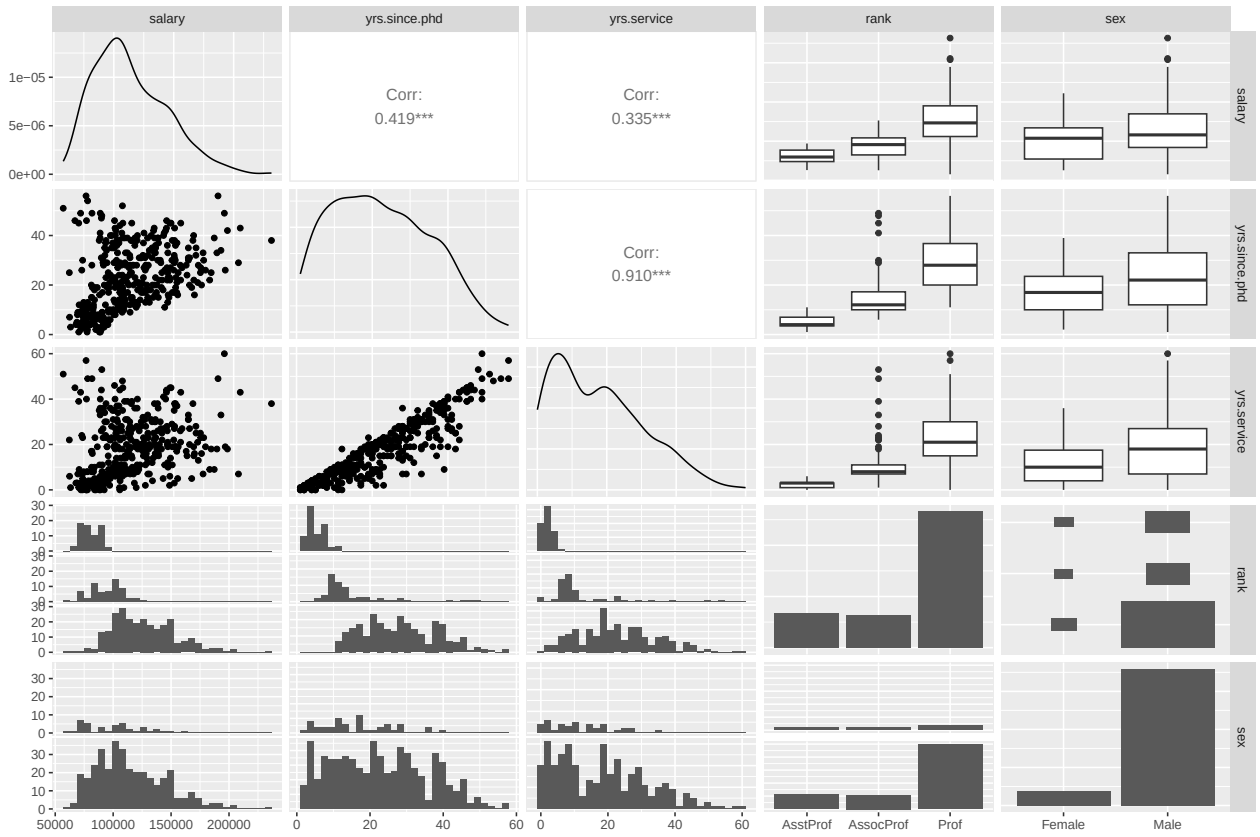


6.2 zadanie 2

```
library(GGally)
library(dplyr)
```

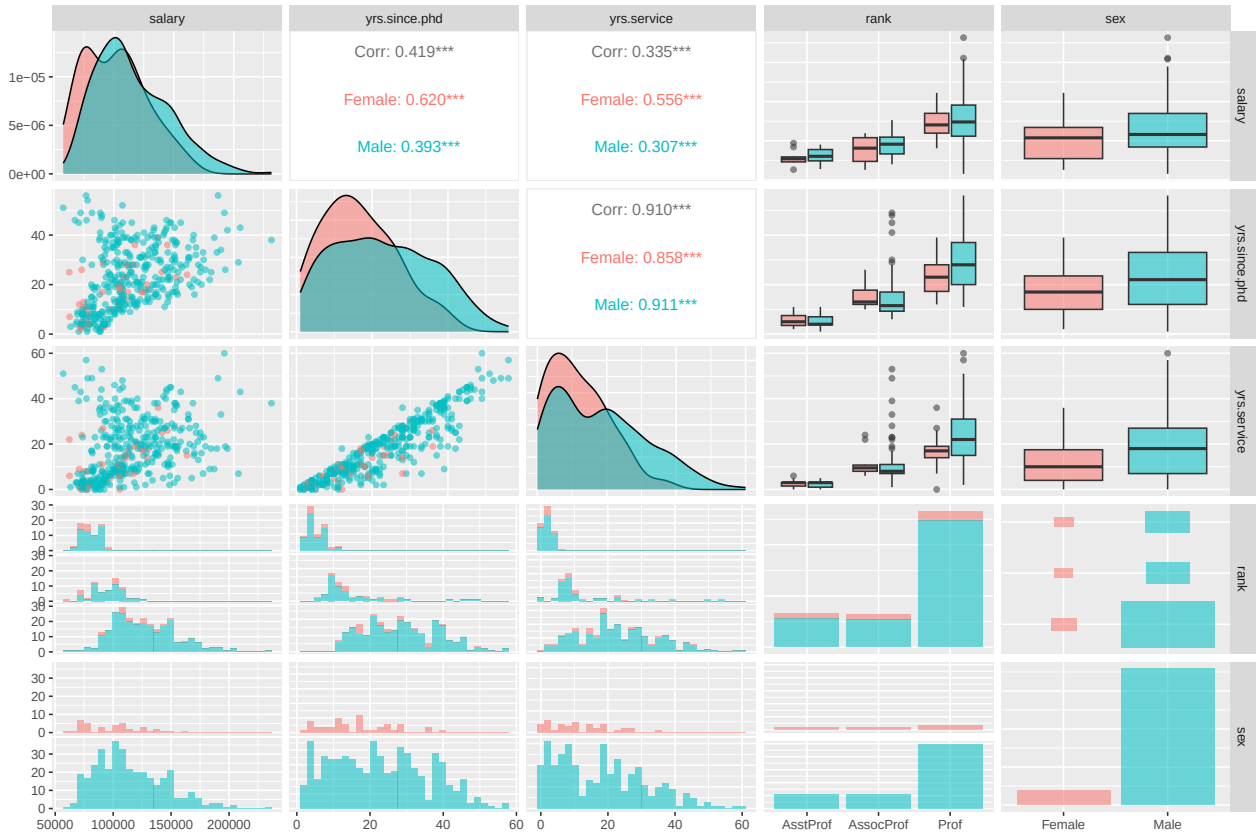
a)

```
Salaries%>%
  select("salary","yrs.since.phd","yrs.service","rank","sex")%>%
  ggpairs()
```



b)

```
Salaries%>%
  select("salary","yrs.since.phd","yrs.service","rank","sex")%>%
  ggpairs(mapping=aes(color=sex, alpha=0.2))
```



c)

```
Salaries%>%
  select("salary","yrs.since.phd","yrs.service","rank","sex")%>%
  ggpairs(mapping=aes(color=rank, alpha=0.2))
```


salary
yrs.since.phd
yrs.service
rank
sex
Corr: 0.419***
AsstProf: −0.158
AssocProf: −0.288*
Prof: −0.001
Corr: 0.335***
AsstProf: 0.143
AssocProf: −0.288*
Prof: −0.050
Corr: 0.910***
AsstProf: 0.460***
AssocProf: 0.927***
Prof: 0.845***
AsstProf
AssocProf
Prof
Female
Male