

SAD- projekt 1

Autorzy

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Wykożystane pakiety i ustawienia

```
require(tidyverse)
theme_set(theme_bw())
```

Zadanie 1

Inflacja od 2023-01 do 2024-03

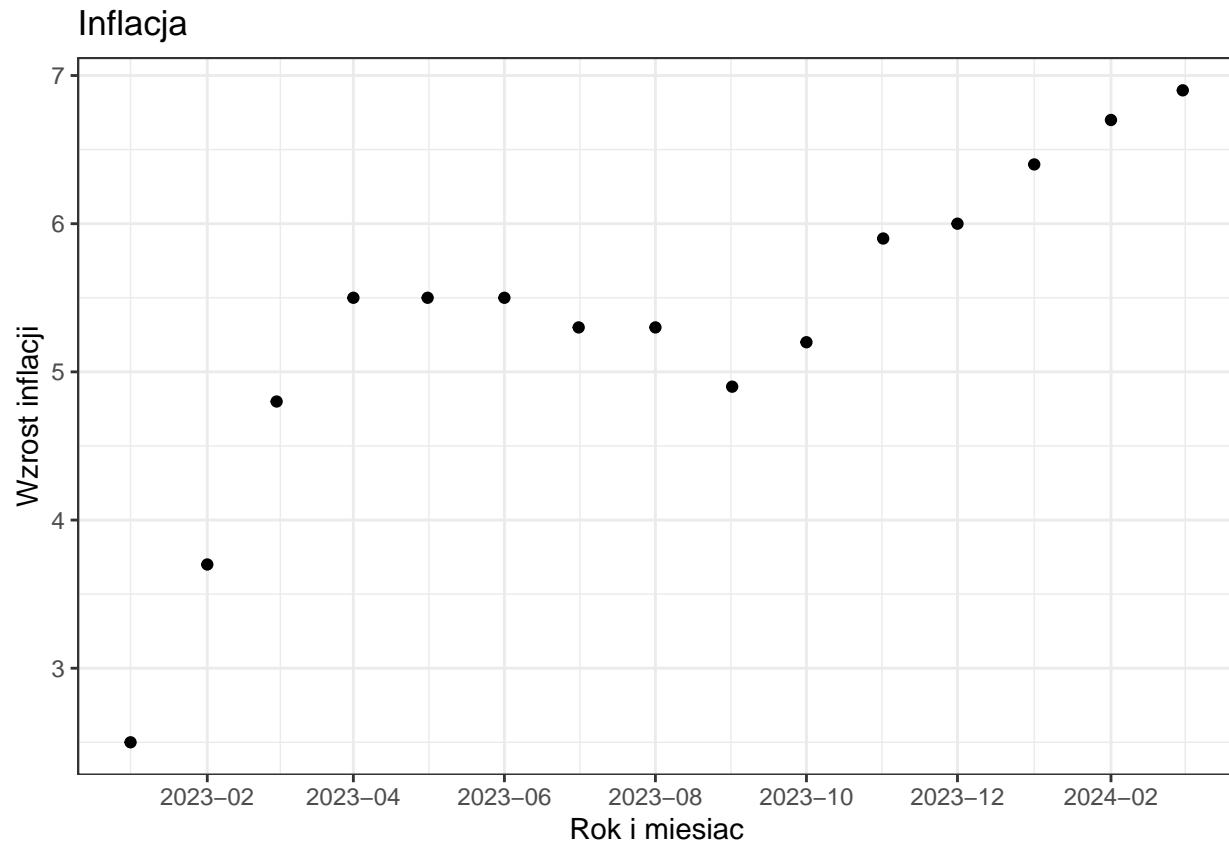
```
infl_mies <- read_csv2("inflacja_mies.csv", locale=locale(encoding="latin1"),
  show_col_types = FALSE)
```

```
## i Using "','" as decimal and "'.'" as grouping mark. Use 'read_delim()' for more control.
```

```
infl_mies <- infl_mies %>% filter(reprezentacja == "Poprzedni miesiac = 100")
infl_mies <- infl_mies %>% select(Rok, Miesiac, Wartosc)
infl_mies <- infl_mies %>%
  mutate(Year_Month = as.Date(sprintf("%04d-%02d-01", Rok, Miesiac)))
infl_mies <- infl_mies %>% filter(Year_Month < as.Date("2024-04-01"),
  Year_Month >= as.Date("2023-01-01"))
infl_mies <- infl_mies %>% arrange(Year_Month)
abs_value <- numeric(length(infl_mies$Wartosc))
abs_value[1] = infl_mies$Wartosc[1] - 100.0
for (i in 2:length(infl_mies$Wartosc)){
  abs_value[i] <- infl_mies$Wartosc[i] - 100 + abs_value[i-1]
}

infl_mies_modif <- tibble(date = infl_mies$Year_Month, wartosc = abs_value)

ggplot(data = infl_mies_modif, aes(x=date, y = wartosc)) + geom_point() +
scale_x_date(date_labels = "%Y-%m", date_breaks = "2 month") +
labs(x = "Rok i miesiac", y = "Wzrost inflacji") + ggtitle("Inflacja")
```



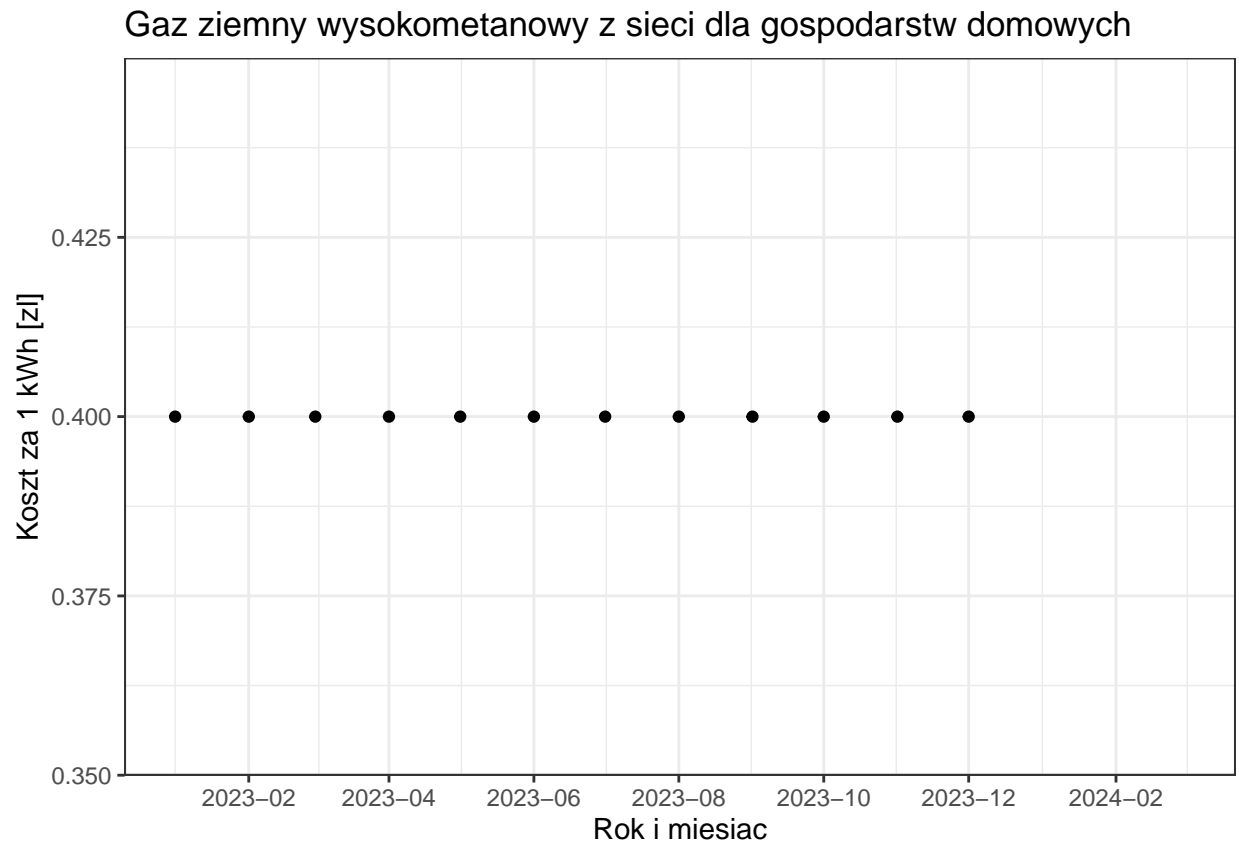
```
products <- read_csv2("produkty.csv", locale=locale(encoding="latin1"),
  show_col_types = FALSE)
```

i Using "','" as decimal and "'.'" as grouping mark. Use 'read_delim()' for more control.

```
products <- products %>% select(id_pozycja_2, wartosc, opis_okres)
products <- products %>% mutate(year_month = as.Date(paste(substr(opis_okres, 1, 4),
  substr(opis_okres, 7, 8), "01", sep = "-")))
energy <- products %>% filter(id_pozycja_2 == 5946305)
energy <- energy %>% arrange(year_month)
water <- products %>% filter(id_pozycja_2 == 5946307)
water <- water %>% arrange(year_month)
heat <- products %>% filter(id_pozycja_2 == 5946309)
heat <- heat %>% arrange(year_month)
gaz <- products %>% filter(id_pozycja_2 == 7174400)
gaz <- gaz %>% arrange(year_month)
```

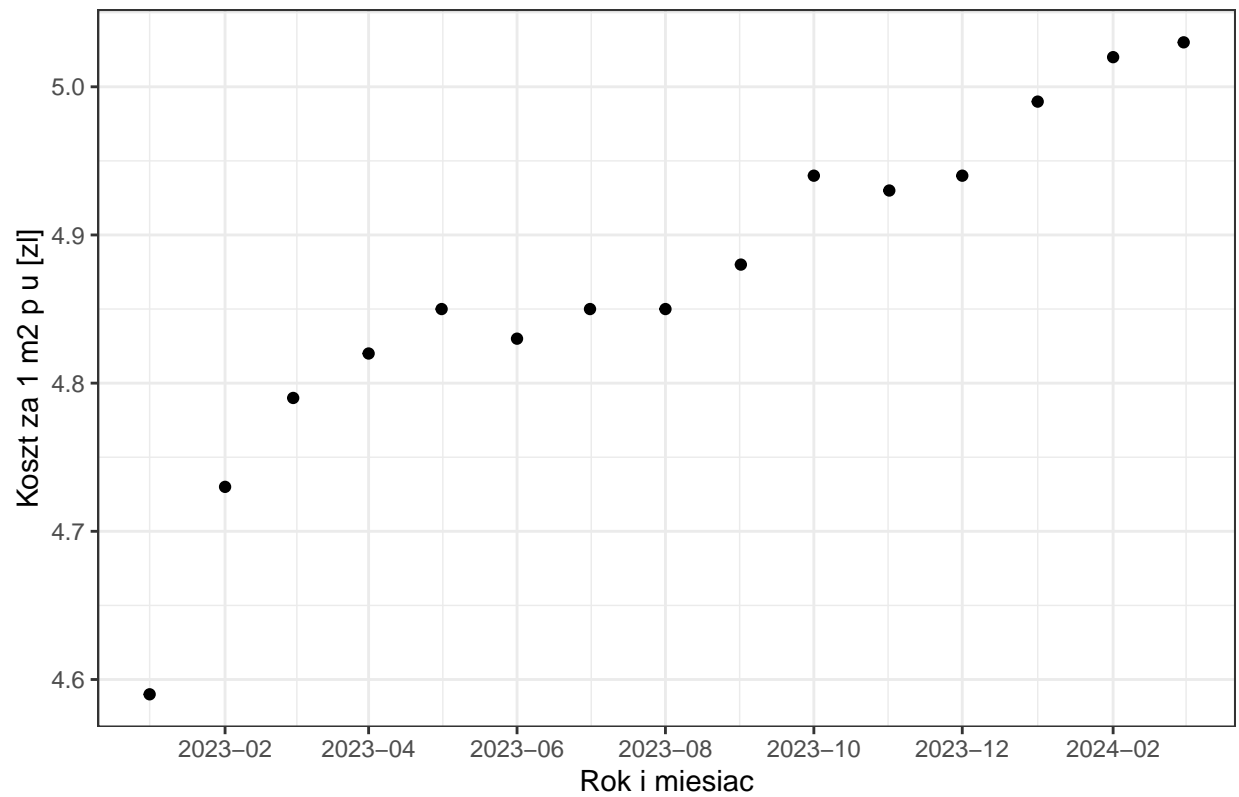
```
ggplot(data = gaz, aes(x=year_month, y = wartosc)) + geom_point() +
  scale_x_date(date_labels = "%Y-%m", date_breaks = "2 month")+
  labs(x = "Rok i miesiac", y = "Koszt za 1 kWh [zł]") +
  ggtitle("Gaz ziemny wysokometanowy z sieci dla gospodarstw domowych")
```

```
## Warning: Removed 3 rows containing missing values or values outside the scale
## range ('geom_point()').
```



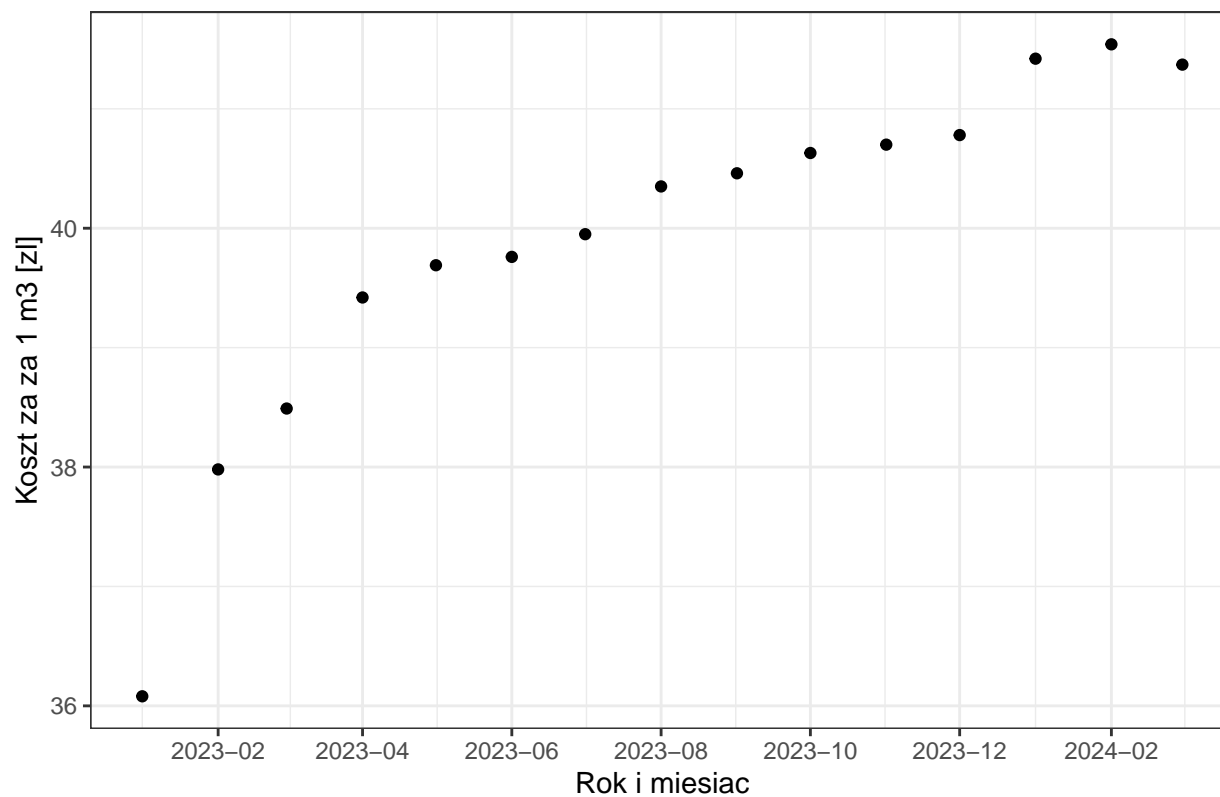
```
ggplot(data = heat, aes(x=year_month, y = wartosc)) + geom_point() +  
  scale_x_date(date_labels = "%Y-%m", date_breaks = "2 month")+  
  labs(x = "Rok i miesiąc", y = "Koszt za 1 m2 p u [zł]") +  
  ggtitle("Centralne ogrzewanie lokali mieszkalnych")
```

Centralne ogrzewanie lokali mieszkalnych

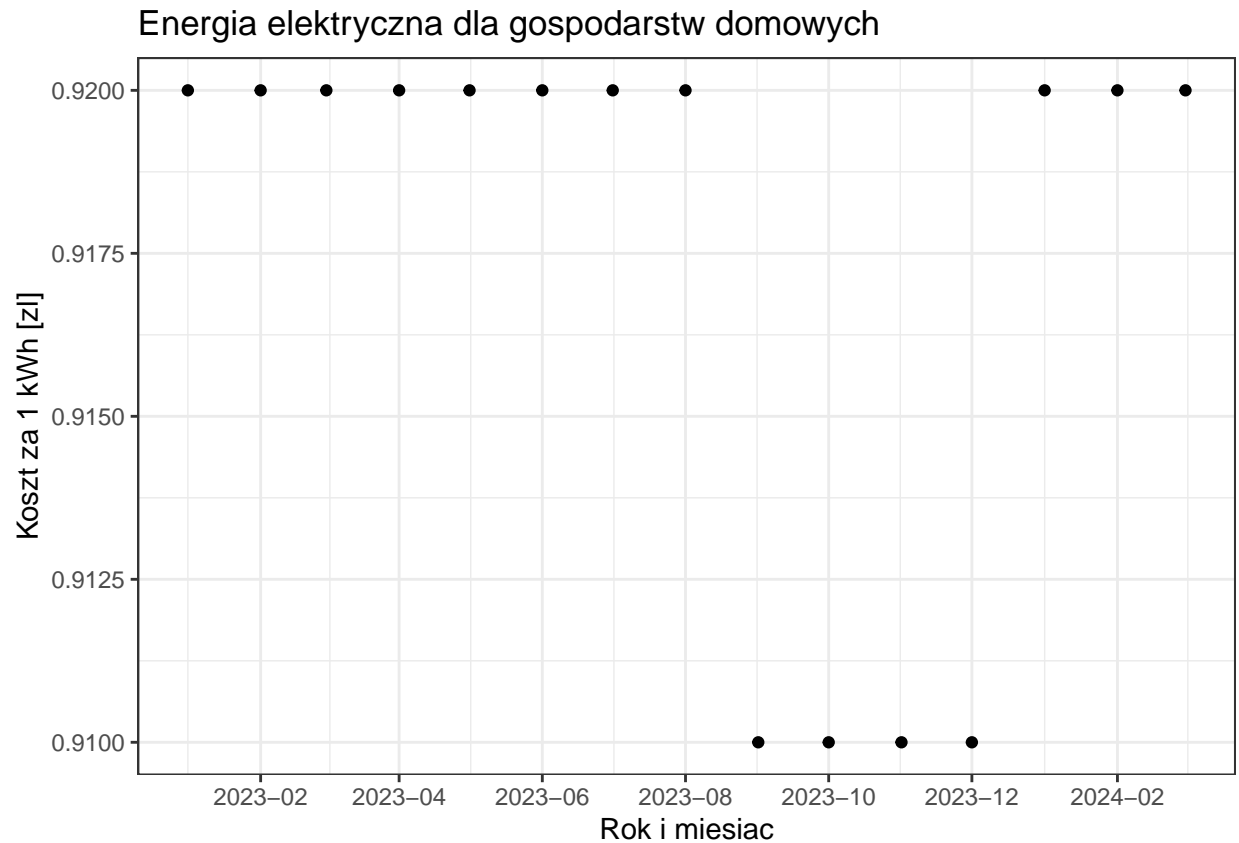


```
ggplot(data = water, aes(x=year_month, y = wartosc)) + geom_point() +  
  scale_x_date(date_labels = "%Y-%m", date_breaks = "2 month")+  
  labs(x = "Rok i miesiac", y = "Koszt za za 1 m3 [zł]") +  
  ggtitle("Ciepła woda")
```

Ciepła woda



```
ggplot(data = energy, aes(x=year_month, y = wartosc)) + geom_point() +  
  scale_x_date(date_labels = "%Y-%m", date_breaks = "2 month")+  
  labs(x = "Rok i miesiąc", y = "Koszt za 1 kWh [zł]") +  
  ggtitle("Energia elektryczna dla gospodarstw domowych")
```



Oficjalna inflacja razem ze zmianami produktów

```
normalise <- function(x) {
  normalised <- numeric(length(x))
  normalised[1] = 0
  for(i in 2:length(x)){
    normalised[i] = x[i] * 100.0/x[i-1] - 100 + normalised[i-1]
  }
  normalised
}
```

```
gaz$norm = normalise(gaz$wartosc)
heat$norm = normalise(heat$wartosc)
water$norm = normalise(water$wartosc)
energy$norm = normalise(energy$wartosc)
offset = infl_mies_modif$wartosc[1]
infl_mies_modif <- infl_mies_modif %>% mutate(norm = infl_mies_modif$wartosc - offset)

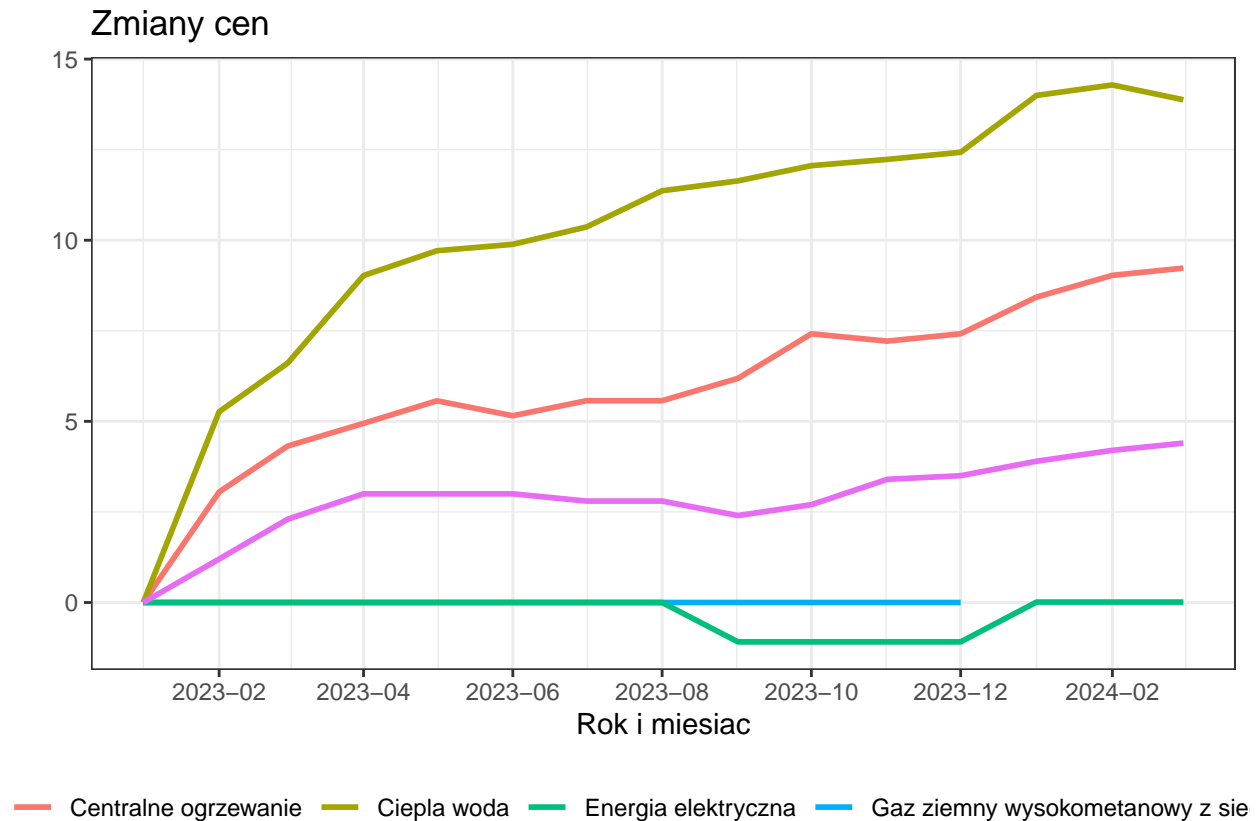
plot_data <- tibble(date = infl_mies_modif$date, gaz_norm = gaz$norm,
  heat_norm = heat$norm, water_norm = water$norm,
  energy_norm = energy$norm, infl_norm = infl_mies_modif$norm )

plot <- ggplot(plot_data, aes(date)) +
```

```
geom_line(aes(y = gaz_norm, color = "Gaz ziemny wysokometanowy z sieci "),
  size = 1) +
geom_line(aes(y = heat_norm, color = "Centralne ogrzewanie"), size = 1) +
geom_line(aes(y = water_norm, color = "Ciepła woda"), size = 1) +
geom_line(aes(y = energy_norm, color = "Energia elektryczna"), size = 1) +
geom_line(aes(y = infl_norm, color = "Inflacja"), size = 1) +
labs(x = "Rok i miesiąc", y = "", color = "Towary") +
ggtitle("Zmiany cen") +
theme(legend.position = "bottom") +
scale_x_date(date_labels = "%Y-%m", date_breaks = "2 month")
```

plot

```
## Warning: Removed 3 rows containing missing values or values outside the scale
## range ('geom_line()').
```



Zadanie 2

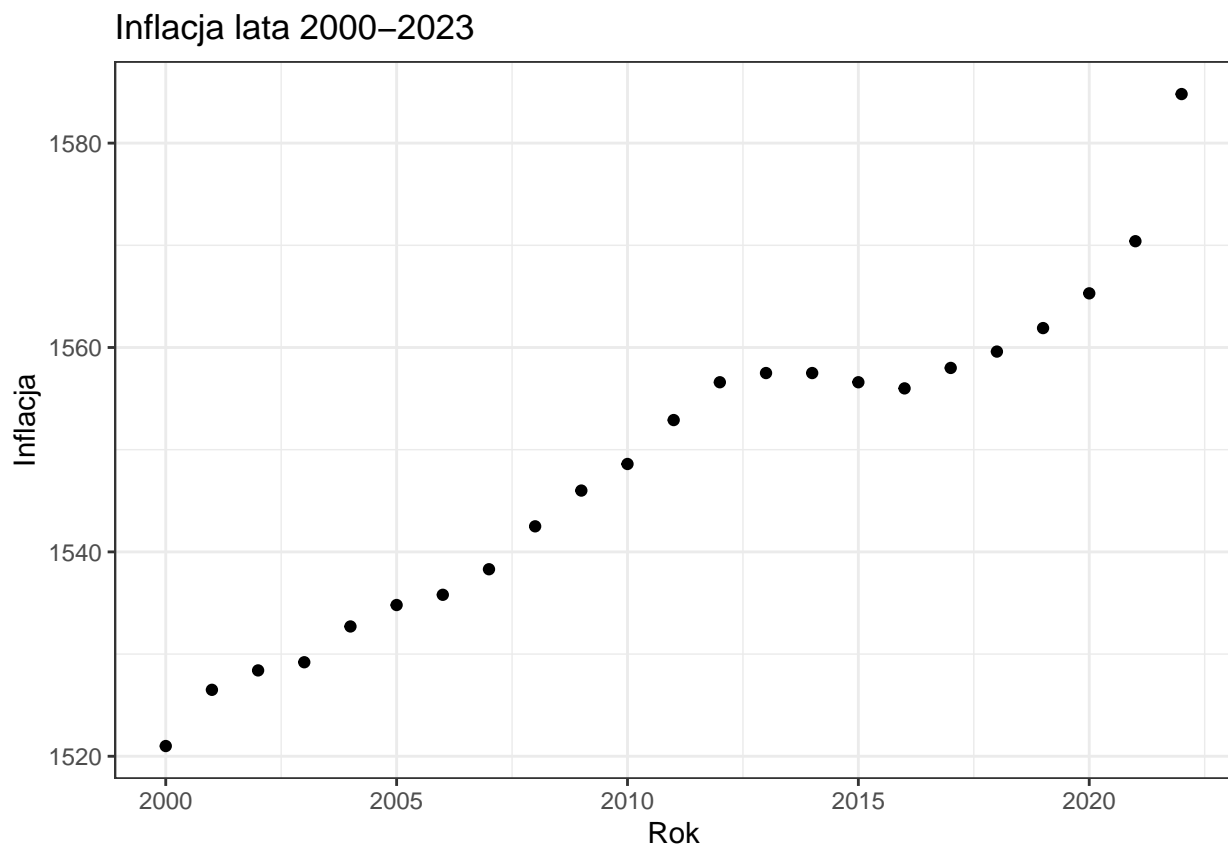
Inflacja oraz nakład na badania i rozwój dla lat od 2000-2023

```
infl = read_csv2("inflacja.csv", locale=locale(encoding="latin1"),
  show_col_types = FALSE)
```

i Using "','" as decimal and "'.'" as grouping mark. Use 'read_delim()' for more control.

```
infl = infl %>% select(Rok, Wartosc)
infl = infl %>% arrange(Rok)
abs_value <- numeric(length(infl$Wartosc))
abs_value[1] = infl$Wartosc[1] - 100.0
for (i in 2:length(infl$Wartosc)){
  abs_value[i] <- infl$Wartosc[i] - 100 + abs_value[i-1]
}

modif_inflation <- tibble(rok = infl$Rok, wartosc =abs_value)
modif_inflation <- modif_inflation %>% filter(rok >= 2000, rok <= 2022)
ggplot(data = modif_inflation , aes(x=rok, y = wartosc)) + geom_point() +
  labs(x = "Rok", y = "Inflacja") +
  ggtitle("Inflacja lata 2000-2023")
```



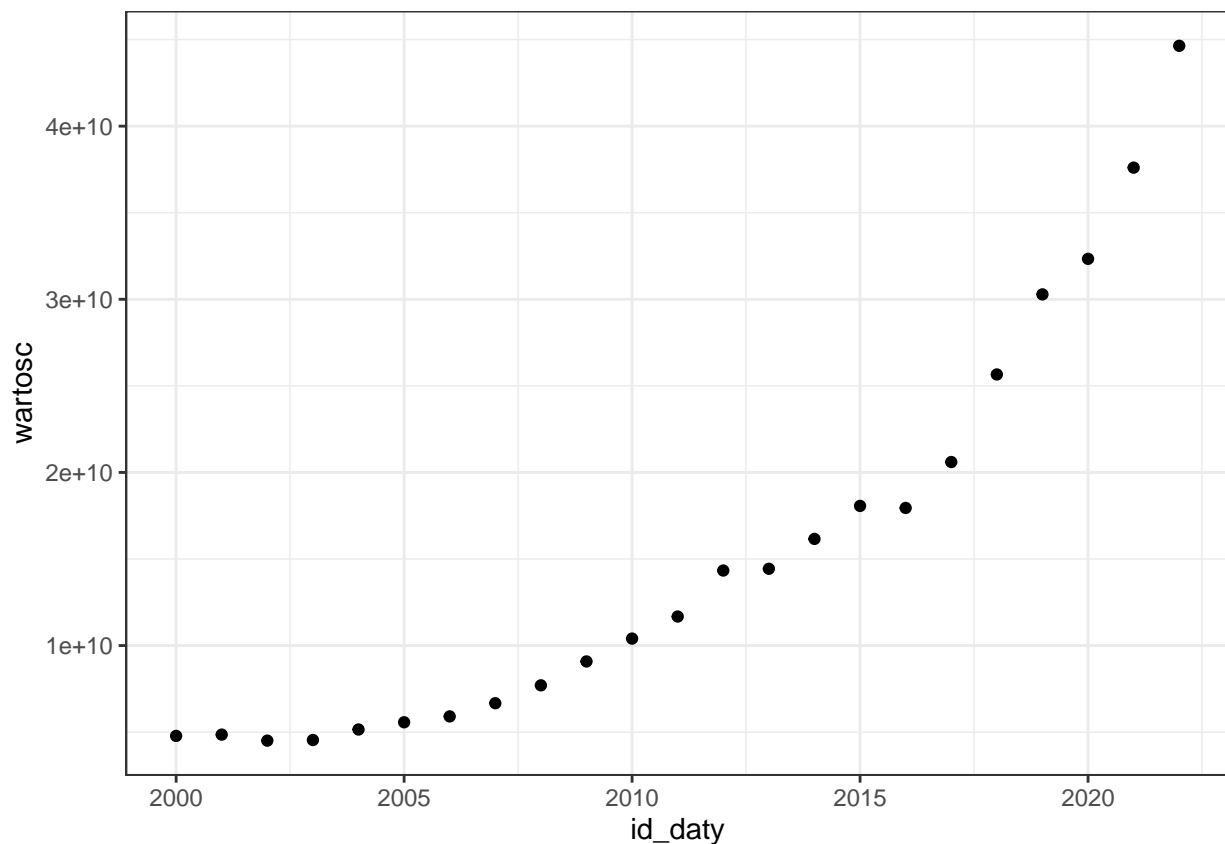
```
brl = read_csv2("brl.csv", show_col_types = FALSE)
```



```
## i Using "','" as decimal and "'.'" as grouping mark. Use 'read_delim()' for more control.
```

```
b = brl %>% select(id_zmienna, id_daty, wartosc)
l = b %>% filter(id_zmienna == 581, id_daty <= 2022, id_daty >= 2000)
b = b %>% filter(id_zmienna == 406, id_daty <= 2022, id_daty >= 2000)
b = b %>% arrange(id_daty)
l = l %>% arrange(id_daty)
```

```
b_all_money = b %>% mutate(wartosc = wartosc*l$wartosc)
ggplot(data = b_all_money, aes(x=id_daty, y = wartosc)) + geom_point()
```



Nałożone na siebie wartości inflacji oraz nakładów na badania i rozwój

```
b_all_money$norm = normalise(b_all_money$wartosc)
offset = modif_inflation$wartosc[1]
modif_inflation <- modif_inflation %>% mutate(norm = modif_inflation$wartosc - offset)
plot_data <- tibble(date = modif_inflation$rok, infl_norm = modif_inflation$norm,
  b_norm = b_all_money$norm)
plot <- ggplot(plot_data, aes(date)) +
  geom_line(aes(y = b_norm, color = "Badania i rozwój"), size = 1) +
```

```
geom_line(aes(y = infl_norm, color = "Inflacja"), size = 1) +
labs(x = "Rok", y = "", color = "") +
ggtitle("Nakłady na badania i rozwój oraz inflacja") +
theme(legend.position = "bottom")
plot
```

