Assignment_5

Markus Min

2/17/2021

```
library(here)
```

```
## here() starts at /Users/markusmin/Documents/UW_courses/Winter_2021/FISH497/Assignment-5
```

```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.0 --

## v ggplot2 3.3.3     v purrr   0.3.4
## v tibble  3.0.6     v dplyr   1.0.4
## v tidyr   1.1.2     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.0

## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
dat <- read.csv(here("data","siscowet.csv"))
```

Let's explore length/weight relationships, and if it differs by location.

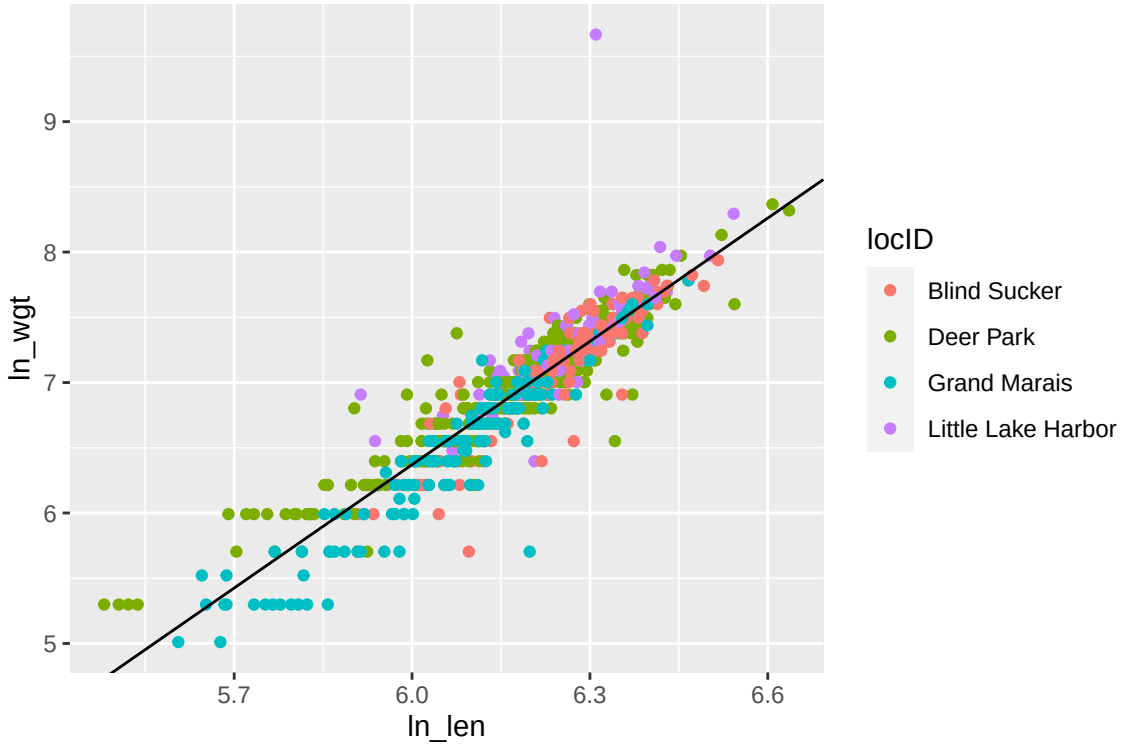
```
dat %>%
  mutate(ln_len = log(len)) %>%
  mutate(ln_wgt = log(wgt)) -> dat

# Let's fit a linear regression to the data
lm_data <- lm(ln_wgt~ln_len, data = dat)
lm_data$coefficients
```

```
## (Intercept)      ln_len
##  -12.533934    3.150717
```

Exploratory plot

```
ggplot(dat, aes(x = ln_len, y = ln_wgt, color = locID))+
  geom_point()+
  # geom_smooth(aes(x = ln_len, y = ln_wgt))
  geom_abline(intercept = lm_data$coefficients[1], slope = lm_data$coefficients[2])
```

```
## Warning: Removed 1 rows containing missing values (geom_point).
```



Expository Figure

```
# Create colorblind safe color scheme
loc_colors <- c("Blind Sucker" = "#a6cee3", "Deer Park" = "#1f78b4",
                "Grand Marais" = "#b2df8a", "Little Lake Harbor" = "#33a02c")


ggplot(dat, aes(x = ln_len, y = ln_wgt, color = locID))+
  geom_point()+
  # geom_smooth(aes(x = ln_len, y = ln_wgt))
  geom_abline(intercept = lm_data$coefficients[1], slope = lm_data$coefficients[2], lty = 2)+
  ylab("ln(weight (g))")+
  xlab("ln(length (mm))")+
  labs(color = "Location")+
  scale_color_manual(values = loc_colors)+
  theme(panel.background = element_rect(color = "black", fill = "white"),
        axis.text = element_text(size = 12),
        axis.title = element_text(size = 15),
        panel.grid.major = element_blank(),
        panel.grid.minor = element_blank(),
        legend.position = c(0.2, 0.75),
        legend.box.background = element_rect(color = "black"),
        legend.key=element_blank())+
  annotate(geom = "text", x = 6.3, y = 9, hjust = 0,
           label = paste0("y = ", round(lm_data$coefficients[2], 3), "x ", round(lm_data$coefficients[1
```

```
## Warning: Removed 1 rows containing missing values (geom_point).
```