Year to Year IS210 Bid Analysis

Load Libraries

```
install.packages("tidyverse")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.4'
## (as 'lib' is unspecified)
```

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.5.1     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.1
## v purrr     1.0.2
```

```
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become error
```

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

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.4'
## (as 'lib' is unspecified)
```

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

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.4'
## (as 'lib' is unspecified)
```

```
library("here")
```

```
## here() starts at /cloud/project
```

```
install.packages("skimr")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.4'
## (as 'lib' is unspecified)
```

```
library("skimr")
install.packages("janitor")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.4'
## (as 'lib' is unspecified)
```

```
library("janitor")
```

```
##
## Attaching package: 'janitor'
##
```

```
## The following objects are masked from 'package:stats':
##
##     chisq.test, fisher.test
```

```
install.packages("dplyr")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.4'
## (as 'lib' is unspecified)
```

```
library("dplyr")
install.packages("readxl")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.4'
## (as 'lib' is unspecified)
```

```
library(readxl)
```

Prepare the data

```
library(dplyr)
library(readxl)

# Define the years and initialize an empty list to hold data frames
years <- c("2021-22", "2022-23", "2023-24")
bidding_data_list <- list()

# For loop to read datasets for each year and add them to the list
for (year in years) {
  file_path <- paste0("bidding_data/", year, "_T1.xls")
  temp <- read_excel(file_path)
  temp <- temp %>% mutate(Year = year)
  bidding_data_list[[year]] <- temp
}

# Combine all data frames in the list into a single data frame
bidding_data <- bind_rows(bidding_data_list)
```

Plot the data 1 -> Bidding Price vs Instructor , Section

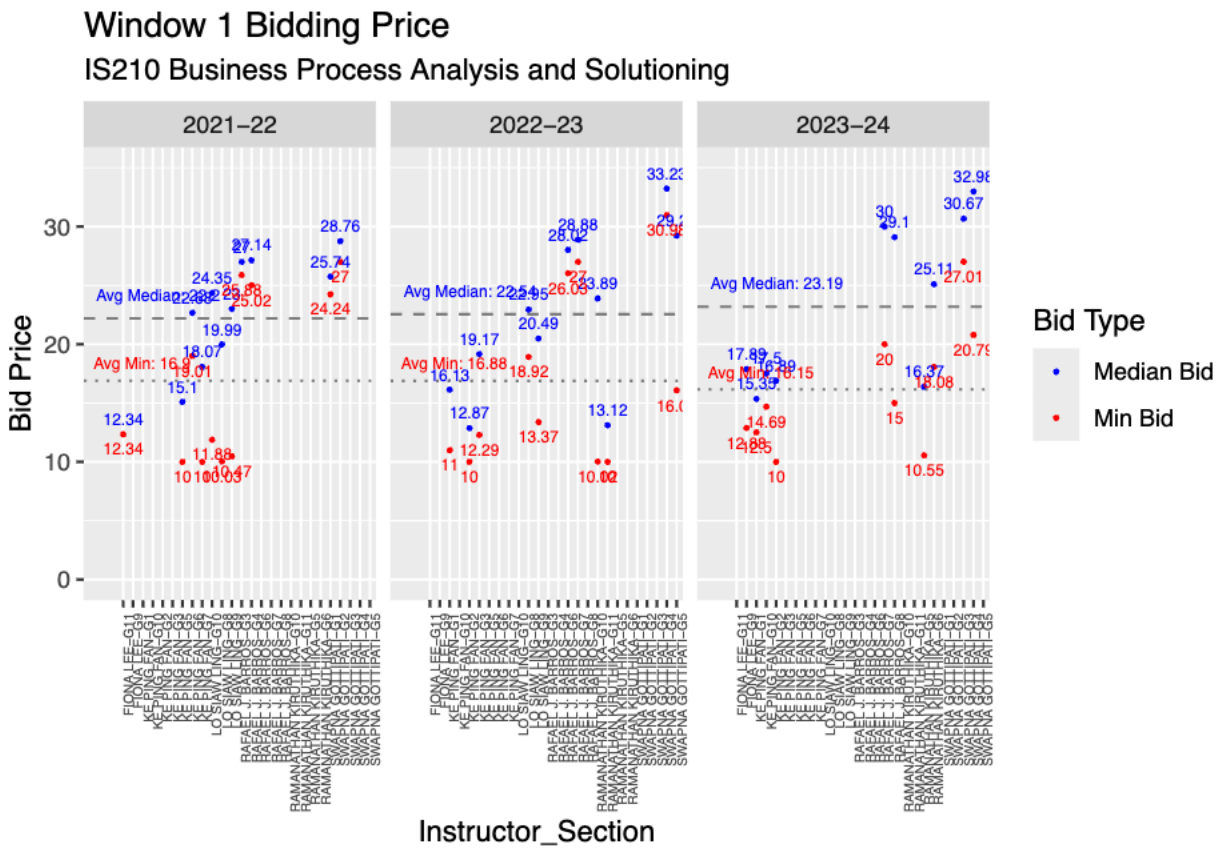
```
bidding_data_filtered <- bidding_data %>%
  select(`Bidding Window`,`Course Code`,`Median Bid`,`Min Bid`  ,`Instructor`,Section ,Year) %>%
  filter(`Course Code` == "IS210",`Median Bid` != 0, `Min Bid`!= 0,`Bidding Window` == "Round 1 Window
  unite("Instructor_Section",Instructor,Section,sep = "-")


averages <- bidding_data_filtered %>%
  group_by(Year) %>%
  summarise(avg_median_bid = mean(`Median Bid`, na.rm = TRUE),avg_min_bid = mean(`Min Bid`, na.rm = TRU

bidding_data_with_averages <- bidding_data_filtered %>%
  left_join(averages, by = "Year")

ggplot(bidding_data_filtered) +
  geom_point(mapping = aes(x = Instructor_Section, y = `Median Bid`, color = "Median Bid"), size = 0.5)
  geom_point(mapping = aes(x = Instructor_Section, y = `Min Bid`, color = "Min Bid"), size = 0.5) +
```

```
  geom_text(mapping = aes(x = Instructor_Section, y = `Median Bid`, label = `Median Bid`), vjust = -0.8
  geom_text(mapping = aes(x = Instructor_Section, y = `Min Bid`, label = `Min Bid`), vjust = 1.8, color
  theme(axis.text.x = element_text(angle = 90, hjust = 1, size=5)) + geom_hline(data = averages, aes(yi
  geom_hline(data = averages, aes(yintercept = avg_min_bid, color = "Avg Min Bid"), linetype = "dotted"
  geom_text(data = averages, aes(x = -3, y = avg_median_bid, label = paste("Avg Median:", round(avg_med
geom_text(data = averages, aes(x = -3, y = avg_min_bid, label = paste("Avg Min:", round(avg_min_bid, 2
  labs(title = "Window 1 Bidding Price",subtitle = "IS210 Business Process Analysis and Solutioning",y =
  scale_y_continuous(limits = c(0, 35)) +
  facet_wrap(~Year) +
  scale_color_manual(values = c("Median Bid" = "blue", "Min Bid" = "red"), name = "Bid Type")
```




```
ggsave("IS210_ANALYSIS1.png",, width = 10, height = 6)
```

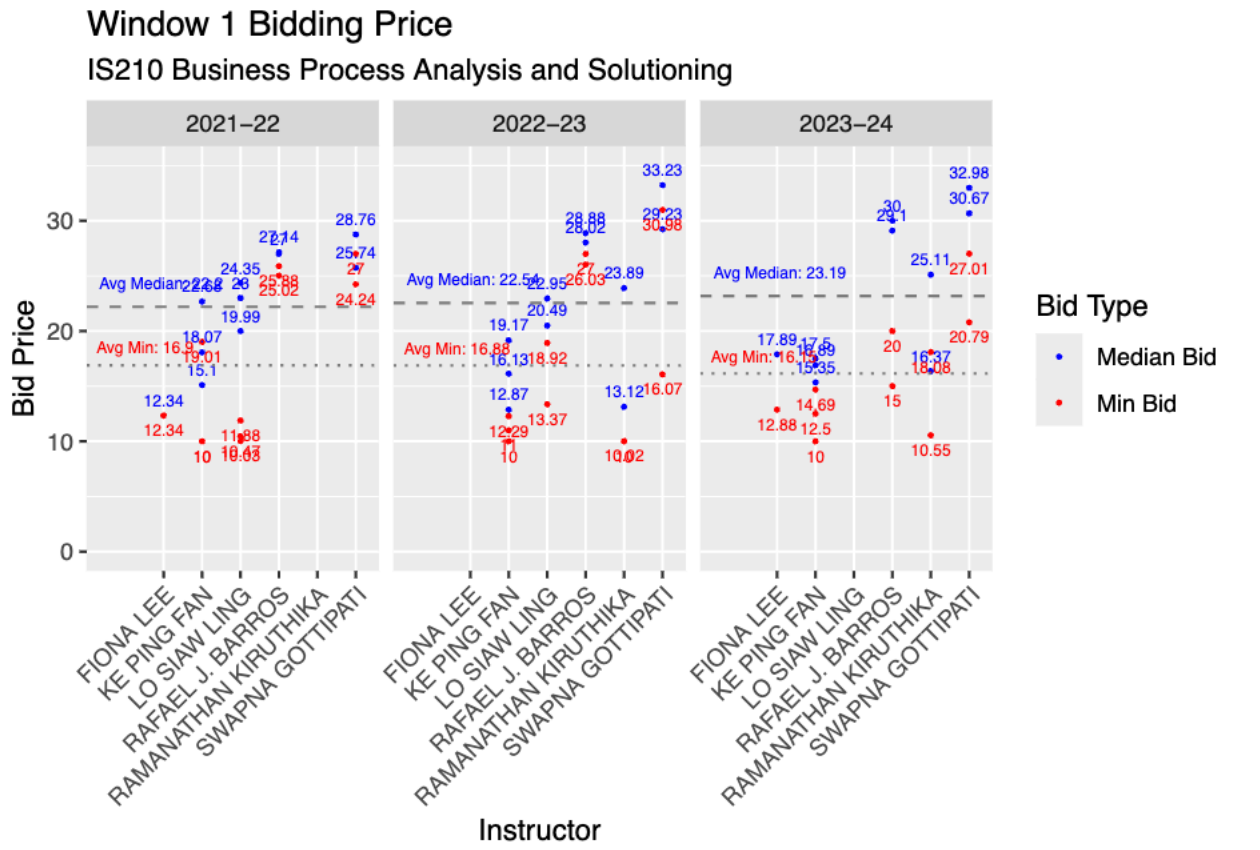
Plot the data 2 -> Bidding Price vs Instructor

```
bidding_data_filtered <- bidding_data %>%
  select(`Bidding Window`,`Course Code`,`Median Bid`,`Min Bid`  ,`Instructor`,Section ,Year) %>%
  filter(`Course Code` == "IS210",`Median Bid` != 0, `Min Bid`!= 0,`Bidding Window` == "Round 1 Window

averages <- bidding_data_filtered %>%
  group_by(Year) %>%
  summarise(
    avg_median_bid = mean(`Median Bid`, na.rm = TRUE),
    avg_min_bid = mean(`Min Bid`, na.rm = TRUE)
  )
```

```r
bidding_data_with_averages <- bidding_data_filtered %>%
  left_join(averages, by = "Year")

ggplot(bidding_data_filtered) +
  geom_point(mapping = aes(x = Instructor, y = `Median Bid`, color = "Median Bid"), size = 0.5) +
  geom_point(mapping = aes(x = Instructor, y = `Min Bid`, color = "Min Bid"), size = 0.5) +
  geom_text(mapping = aes(x = Instructor, y = `Median Bid`, label = `Median Bid`), vjust = -0.8, color =
  geom_text(mapping = aes(x = Instructor, y = `Min Bid`, label = `Min Bid`), vjust = 1.8, color = "red"
  theme(axis.text.x = element_text(angle = 45, hjust = 1)) + geom_hline(data = averages, aes(yintercept
  geom_hline(data = averages, aes(yintercept = avg_min_bid, color = "Avg Min Bid"), linetype = "dotted"
  geom_text(data = averages, aes(x = -1, y = avg_median_bid, label = paste("Avg Median:", round(avg_med
  geom_text(data = averages, aes(x = -1, y = avg_min_bid, label = paste("Avg Min:", round(avg_min_bid,
  labs(title = "Window 1 Bidding Price",subtitle = "IS210 Business Process Analysis and Solutioning",y =
  scale_y_continuous(limits = c(0, 35)) +
  facet_wrap(~Year) +
  scale_color_manual(values = c("Median Bid" = "blue", "Min Bid" = "red"), name = "Bid Type")
```




```r
ggsave("IS210_ANALYSIS2.png",, width = 10, height = 6)
```