Bid Analysis

Load Libraries

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

```
##
## The downloaded binary packages are in
##  /var/folders/49/cyj4306s591c7v890zddyx_c0000gn/T//Rtmp4XX02e/downloaded_packages
```

```
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 errors
```

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

```
##
## The downloaded binary packages are in
##  /var/folders/49/cyj4306s591c7v890zddyx_c0000gn/T//Rtmp4XX02e/downloaded_packages
```

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

```
##
## The downloaded binary packages are in
##  /var/folders/49/cyj4306s591c7v890zddyx_c0000gn/T//Rtmp4XX02e/downloaded_packages
```

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

```
## here() starts at /Users/luanjiechen/Desktop/Personal Projects/bidding_analysis/Code
```

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

```
##
## The downloaded binary packages are in
##  /var/folders/49/cyj4306s591c7v890zddyx_c0000gn/T//Rtmp4XX02e/downloaded_packages
```

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

```
##
## The downloaded binary packages are in
##  /var/folders/49/cyj4306s591c7v890zddyx_c0000gn/T//Rtmp4XX02e/downloaded_packages
```

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

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

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

```
##
## The downloaded binary packages are in
##  /var/folders/49/cyj4306s591c7v890zddyx_c0000gn/T//Rtmp4XX02e/downloaded_packages
```

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

```
##
## The downloaded binary packages are in
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```

```
library(readxl)
```

Prepare the data

```
# 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)
```

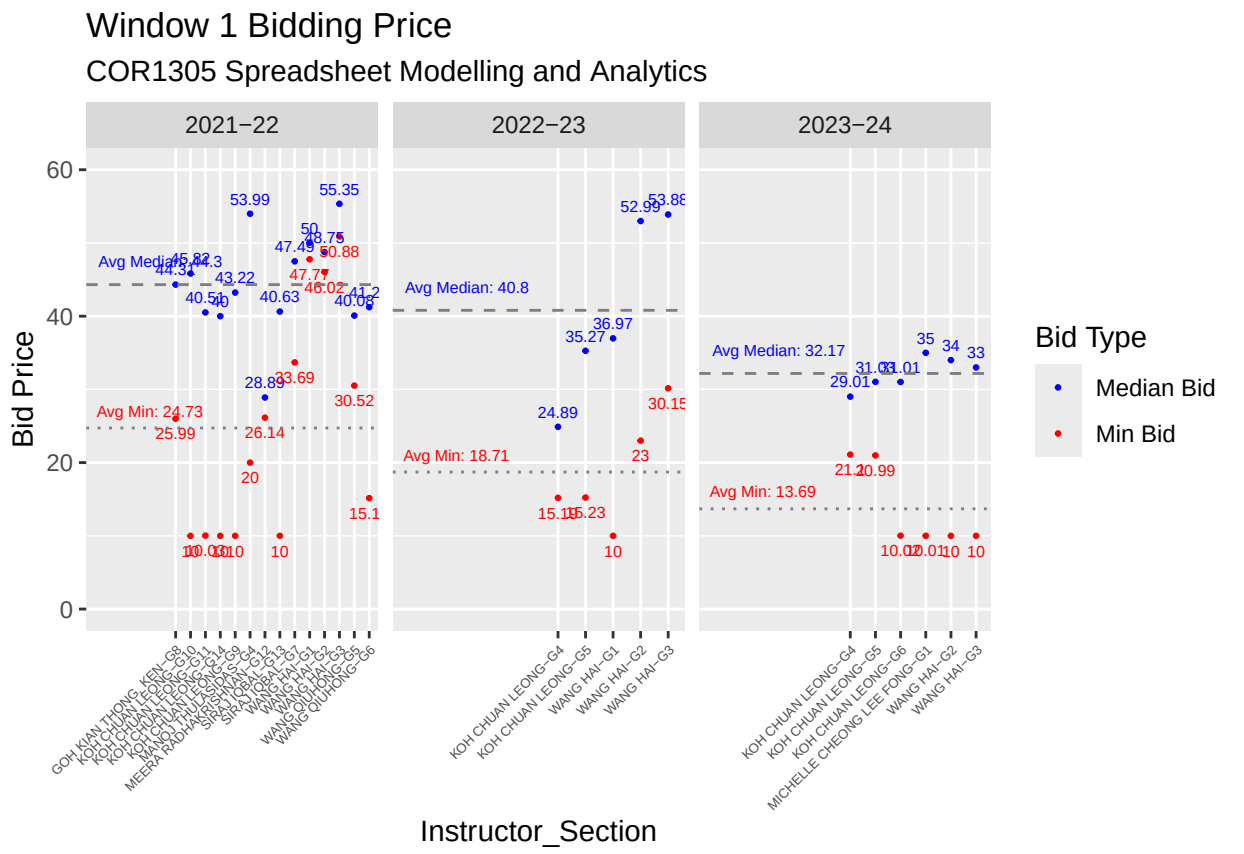
```
  temp <- temp %>% mutate(Year = year)
  bidding_data_list[[year]] <- temp
}

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

Module Information

```
#Input intended Course , Course Name and Instructor
course <- "COR1305"
course_name <- "Spreadsheet Modelling and Analytics" #edit intended course name
semester <- "Y2S1"
max_range <- 60
instructor <- "WANG HAI"
```

Plot 1 -> Bidding Price vs ALL Instructor

```
bidding_data_filtered <- bidding_data %>%
  select(`Bidding Window`,`Course Code`,`Median Bid`,`Min Bid`  ,`Instructor`,Section ,Year) %>%
  filter(`Course Code` == course,`Median Bid` != 0, `Min Bid`!= 0,`Bidding Window` == "Round 1 Window 1
  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 = 45, 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 = -5, y = avg_median_bid, label = paste("Avg Median:", round(avg_medi
  geom_text(data = averages, aes(x = -5, y = avg_min_bid, label = paste("Avg Min:", round(avg_min_bid, 1
  labs(title = "Window 1 Bidding Price",subtitle = paste0(course," ",course_name) ,y = "Bid Price") +
  scale_y_continuous(limits = c(0, max_range)) +
  facet_wrap(~Year, scales = "free_x") +
  scale_color_manual(values = c("Median Bid" = "blue", "Min Bid" = "red"), name = "Bid Type")
```

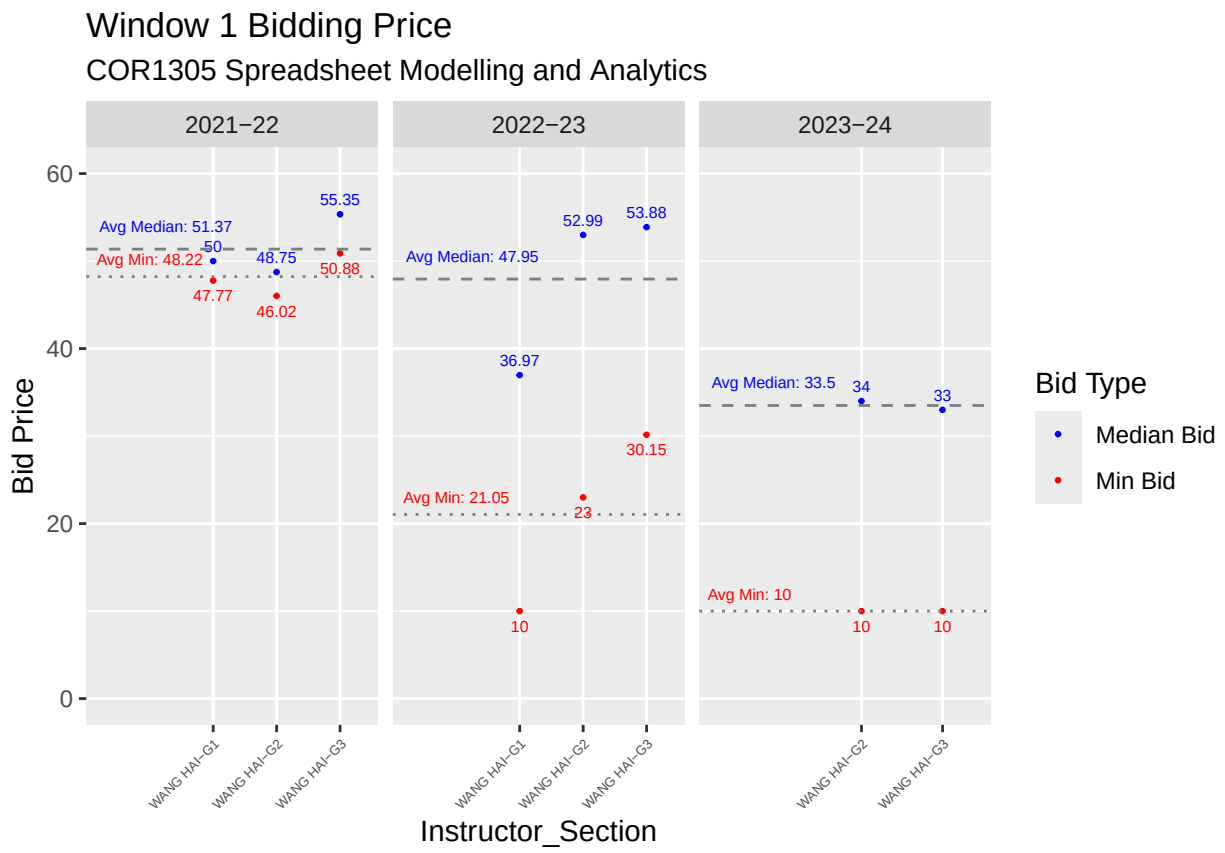



```
save_path = paste0(semester,"_ANALYSIS/", course, "_ANALYSIS.png")

ggsave(save_path,, width = 10, height = 6)
```

Plot 2 -> Bidding Price vs SPECIFIC Instructor

```
bidding_data_filtered <- bidding_data %>%
  select(`Bidding Window`,`Course Code`,`Median Bid`,`Min Bid`  ,`Instructor`,Section ,Year) %>%
  filter(`Course Code` == course,`Median Bid` != 0, `Min Bid`!= 0,`Bidding Window` == "Round 1 Window 1
  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 = 45, 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 = -1, y = avg_median_bid, label = paste("Avg Median:", round(avg_medi
  geom_text(data = averages, aes(x = -1, y = avg_min_bid, label = paste("Avg Min:", round(avg_min_bid, 1
  labs(title = "Window 1 Bidding Price",subtitle = paste0(course," ",course_name) ,y = "Bid Price") +
  scale_y_continuous(limits = c(0, max_range)) +
  facet_wrap(~Year, scales = "free_x") +
  scale_color_manual(values = c("Median Bid" = "blue", "Min Bid" = "red"), name = "Bid Type")
```




```
save_path = paste0(semester,"_ANALYSIS/", course, "_INSTRUCTOR_ANALYSIS.png")

ggsave(save_path,, width = 10, height = 6)
```