Basic Course Review Plots

```
library(dplyr)
```

```
Attaching package: 'dplyr'

The following objects are masked from 'package:stats':

    filter, lag

The following objects are masked from 'package:base':

    intersect, setdiff, setequal, union
```

```
library(tidyr)
library(ggplot2)

data <- read.csv("data.csv", stringsAsFactors = FALSE)

grade_to_numeric <- function(grade) {
  case_when(
    grade %in% c("A+", "A") ~ 4.0,
    grade == "A-" ~ 3.7,
    grade == "B+" ~ 3.3,
    grade == "B"  ~ 3.0,
    grade == "B-" ~ 2.7,
    grade == "C+" ~ 2.3,
    grade == "C"  ~ 2.0,
    grade == "C-" ~ 1.7,
    grade == "D+" ~ 1.3,
```

```
    grade == "D"  ~ 1.0,
    grade == "F"  ~ 0.0,
    TRUE ~ NA_real_
  )
}
```

Course Rating, Grade

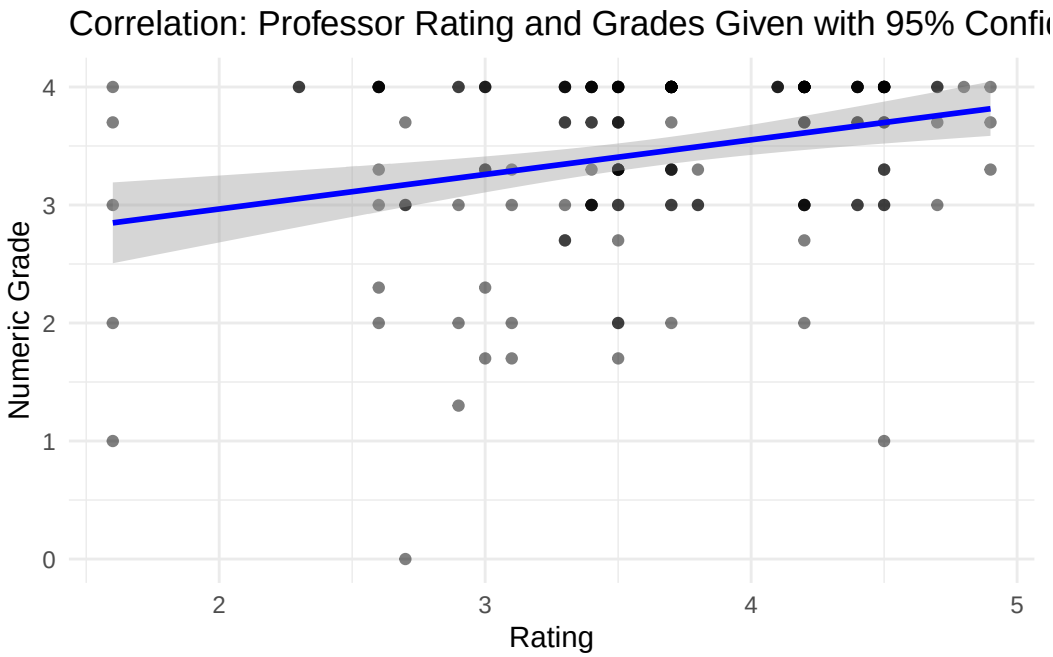
```
data$Numeric_Grade <- sapply(data$Grade, grade_to_numeric)

cleaned_data <- na.omit(data, cols = c("Star_rating", "Numeric_Grade", "Student_rated_diff

correlation <- cor(cleaned_data$Star_rating, cleaned_data$Numeric_Grade)

ggplot(cleaned_data, aes(x = Star_rating, y = Numeric_Grade)) +
  geom_point(alpha = 0.5) +
  geom_smooth(method = "lm", col = "blue") +
  labs(title = "Correlation: Professor Rating and Grades Given with 95% Confidence",
       x = "Rating",
       y = "Numeric Grade") +
  theme_minimal()
```

```
`geom_smooth()` using formula = 'y ~ x'
```




```
print(paste("Correlation coefficient:", correlation))
```

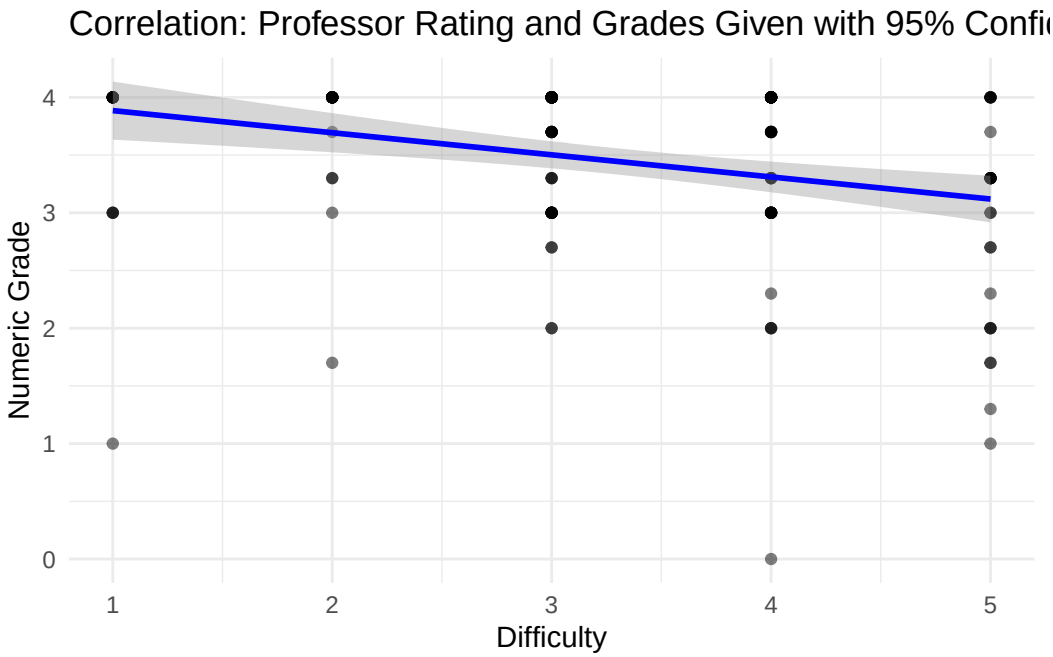
```
[1] "Correlation coefficient: 0.280914503866291"
```

Course Difficulty, Grade

```
correlation2 <- cor(cleaned_data$Student_rated_difficulty, cleaned_data$Numeric_Grade)

ggplot(cleaned_data, aes(x = Student_rated_difficulty, y = Numeric_Grade)) +
  geom_point(alpha = 0.5) +
  geom_smooth(method = "lm", col = "blue") +
  labs(title = "Correlation: Professor Rating and Grades Given with 95% Confidence",
       x = "Difficulty",
       y = "Numeric Grade") +
  theme_minimal()
```

```
`geom_smooth()` using formula = 'y ~ x'
```




```
print(paste("Correlation coefficient:", correlation2))
```

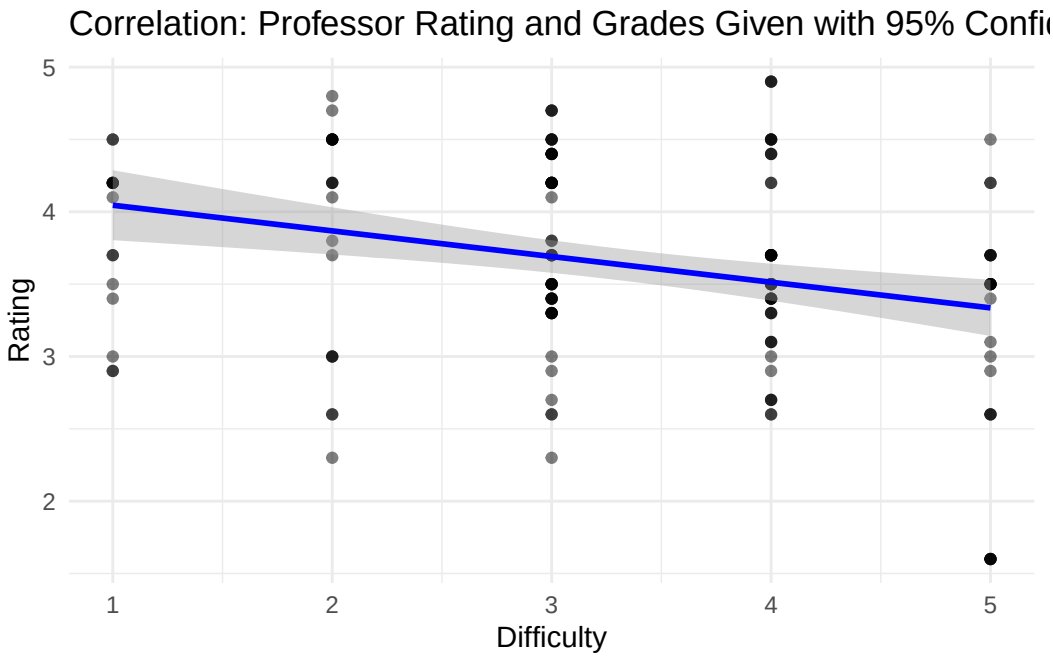
```
[1] "Correlation coefficient: -0.29574020699127"
```

Course Difficulty, Rating

```
correlation3 <- cor(cleaned_data$Student_rated_difficulty, cleaned_data$Star_rating)

ggplot(cleaned_data, aes(x = Student_rated_difficulty, y = cleaned_data$Star_rating)) +
  geom_point(alpha = 0.5) +
  geom_smooth(method = "lm", col = "blue") +
  labs(title = "Correlation: Professor Rating and Grades Given with 95% Confidence",
       x = "Difficulty",
       y = "Rating") +
  theme_minimal()
```

```
`geom_smooth()` using formula = 'y ~ x'
```




```
print(paste("Correlation coefficient:", correlation3))
```

```
[1] "Correlation coefficient: -0.285569667686874"
```