Final Portfolio Project

Seth Bonney and Cuong Tran
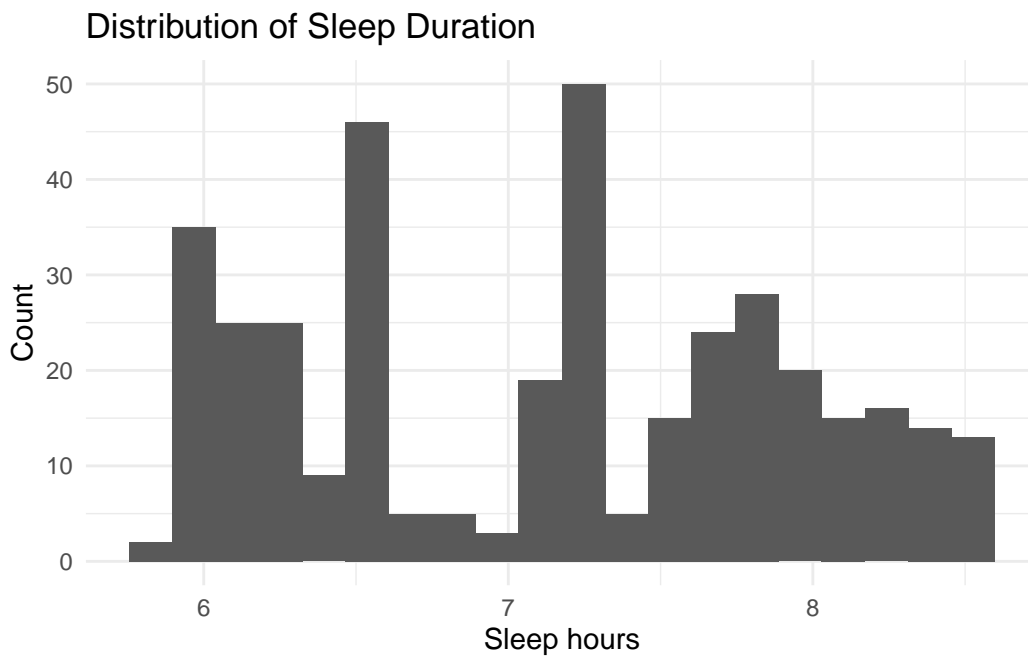
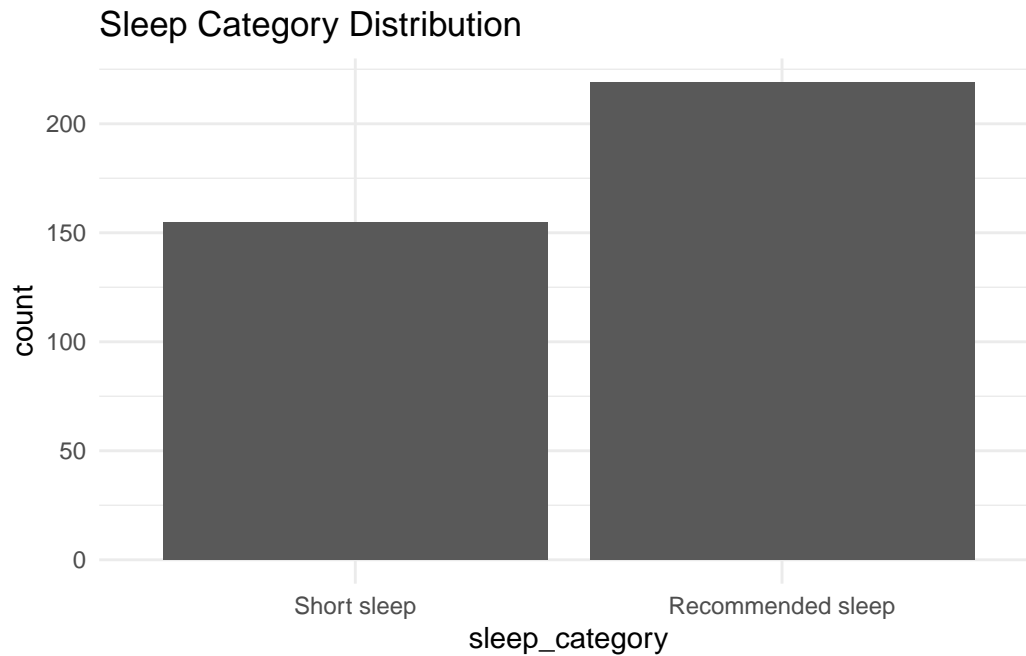**Research Question**

Will come up soon

```
full_data_clean <- full_data |>
  select(-c(sleep_hours)) |>
  relocate(sleep_duration)
```

Research question 1

```
library(ggplot2)
ggplot(sleep, aes(sleep_duration)) +
  geom_histogram(bins = 20) +
  theme_minimal() +
  labs(
    title = "Distribution of Sleep Duration",
    x = "Sleep hours",
    y = "Count"
  )
```
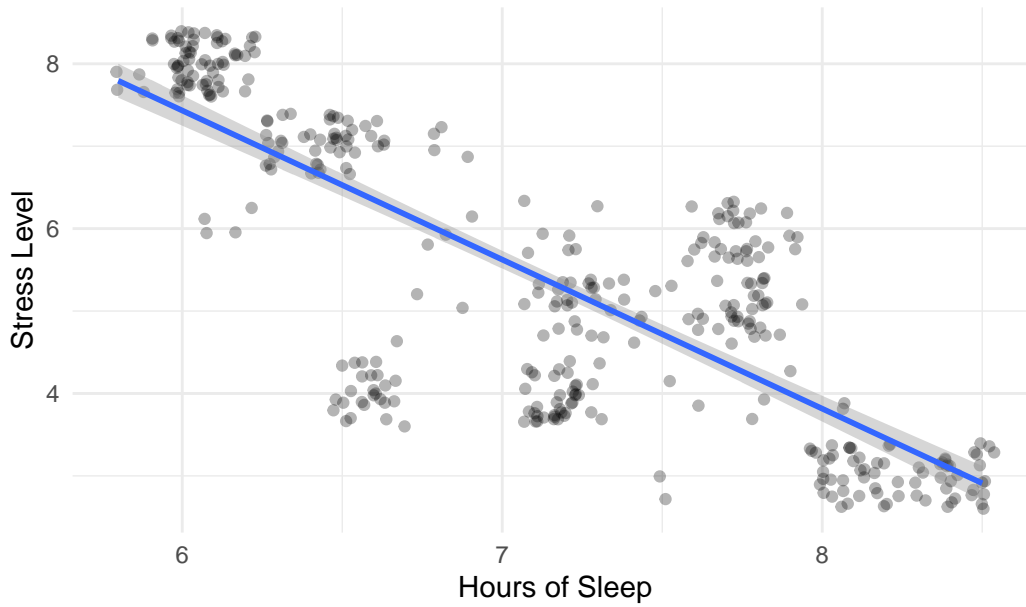

Distribution of Sleep Duration

```
ggplot(sleep, aes(sleep_category)) +
  geom_bar() +
  theme_minimal() +
  labs(
    title = "Sleep Category Distribution"
  )
```

Sleep Category Distribution


```
ggplot(sleep, aes(sleep_duration, stress_level)) +
  geom_jitter(alpha = 0.3) +
  geom_smooth(method = "lm", se = TRUE) +
  theme_minimal() +
  labs(
    title = "Sleep Duration vs Stress",
    x = "Hours of Sleep",
    y = "Stress Level"
  )
```

```
`geom_smooth()` using formula = 'y ~ x'
```
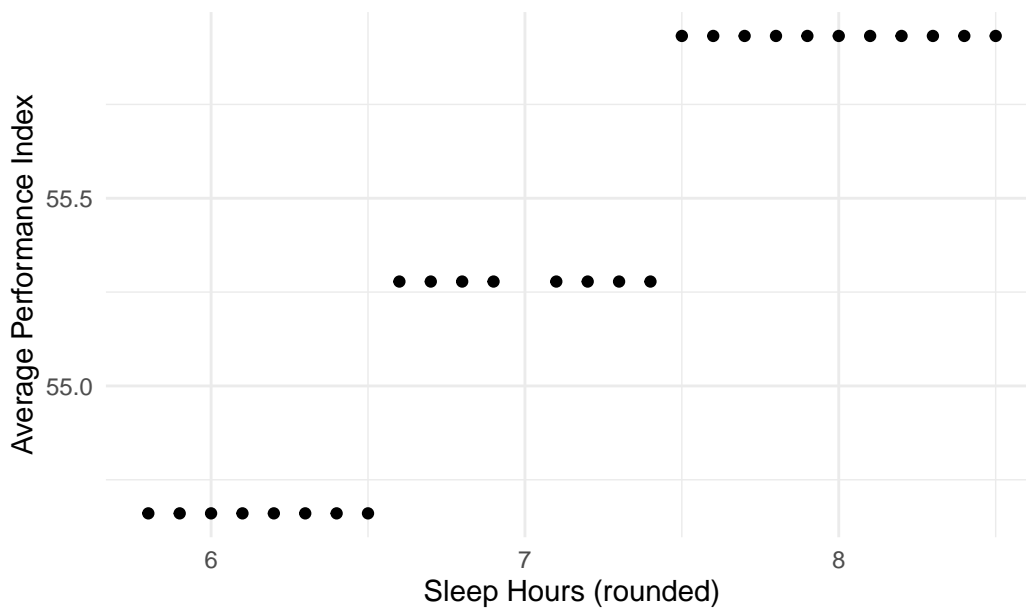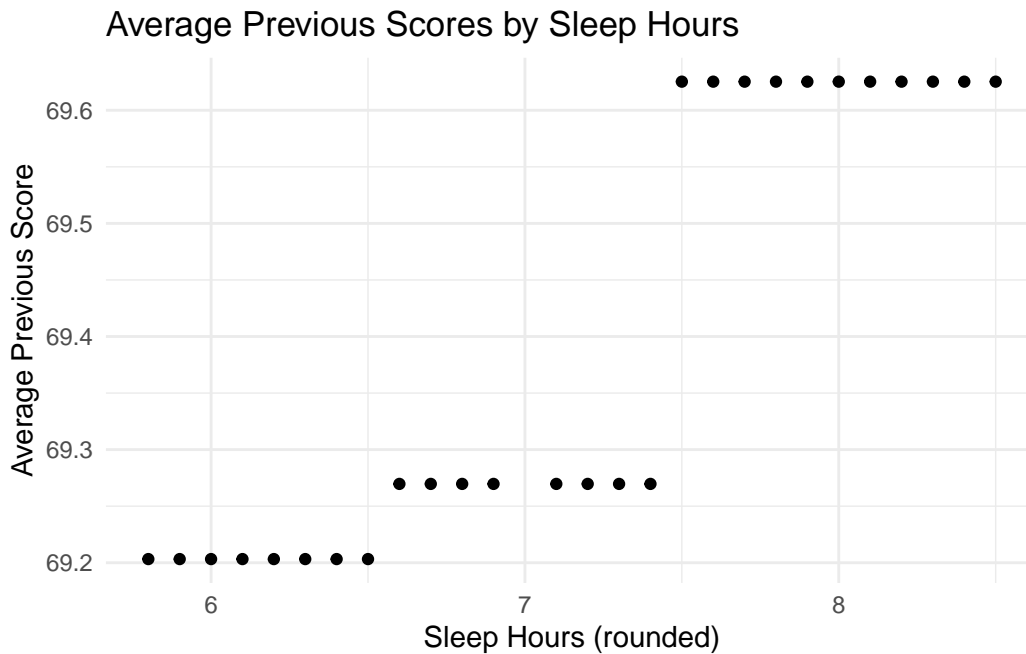
Sleep Duration vs Stress

Research question 3

```r
# Sleep hours vs academic performance index
ggplot(full_data, aes(x = sleep_duration, y = avg_performance)) +
  geom_point() +
  theme_minimal() +
  labs(
    title = "Average Performance Index by Sleep Hours",
    x = "Sleep Hours (rounded)",
    y = "Average Performance Index"
  )
```
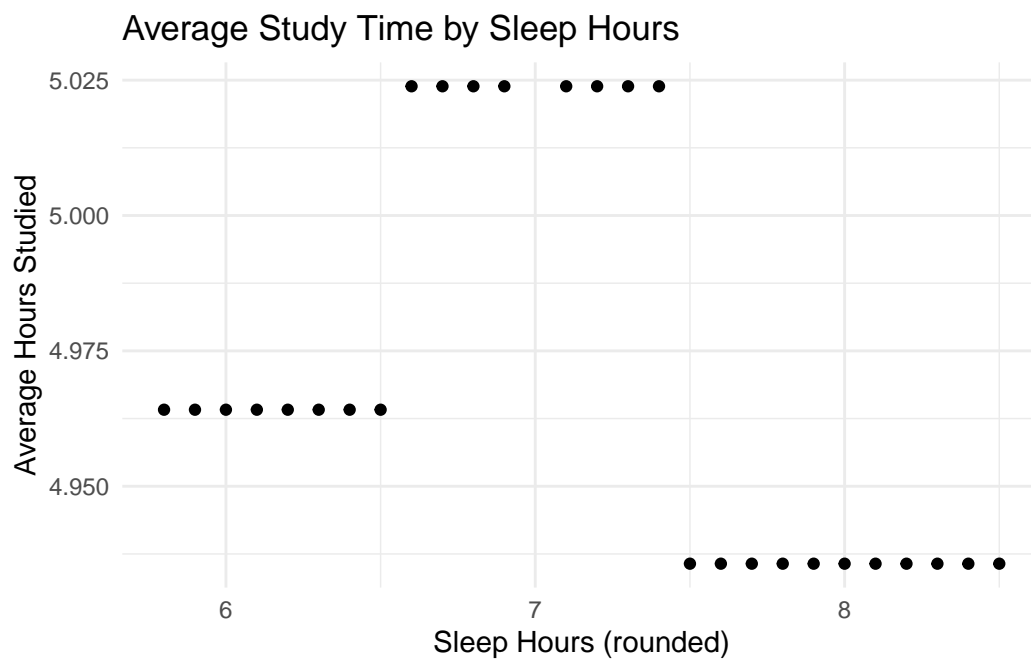
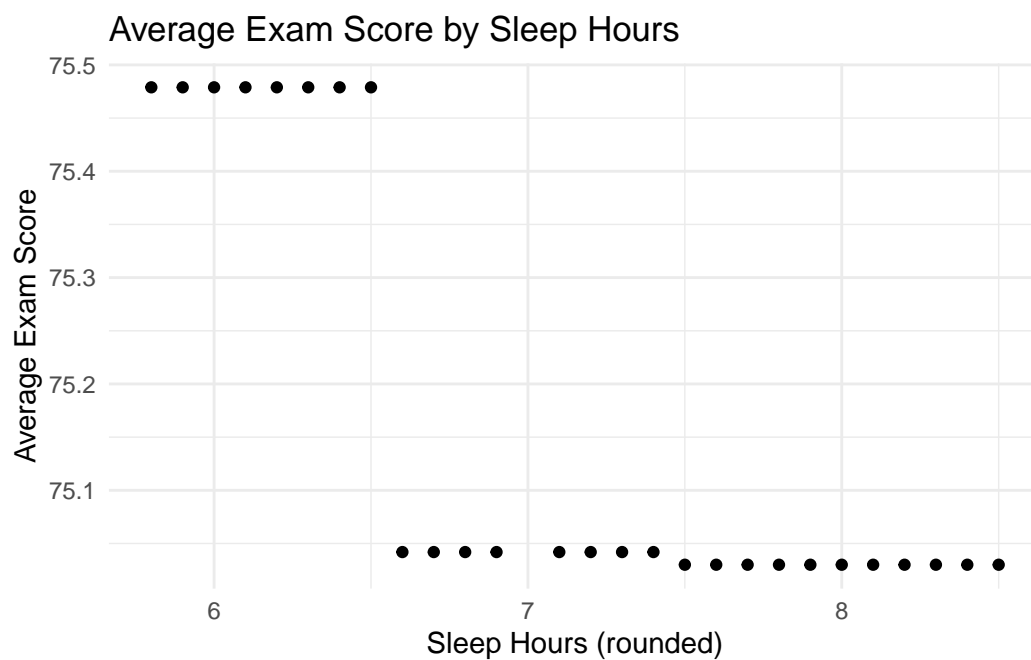## Average Performance Index by Sleep Hours

```
# Sleep hours vs previous scores
ggplot(full_data, aes(x = sleep_duration, y = avg_previous_score)) +
  geom_point() +
  theme_minimal() +
  labs(
    title = "Average Previous Scores by Sleep Hours",
    x = "Sleep Hours (rounded)",
    y = "Average Previous Score"
  )
```


Average Previous Scores by Sleep Hours

```
# Sleep hours vs hours studied
ggplot(full_data, aes(x = sleep_duration, y = avg_hours_studied)) +
  geom_point() +
  theme_minimal() +
  labs(
    title = "Average Study Time by Sleep Hours",
    x = "Sleep Hours (rounded)",
    y = "Average Hours Studied"
  )
```
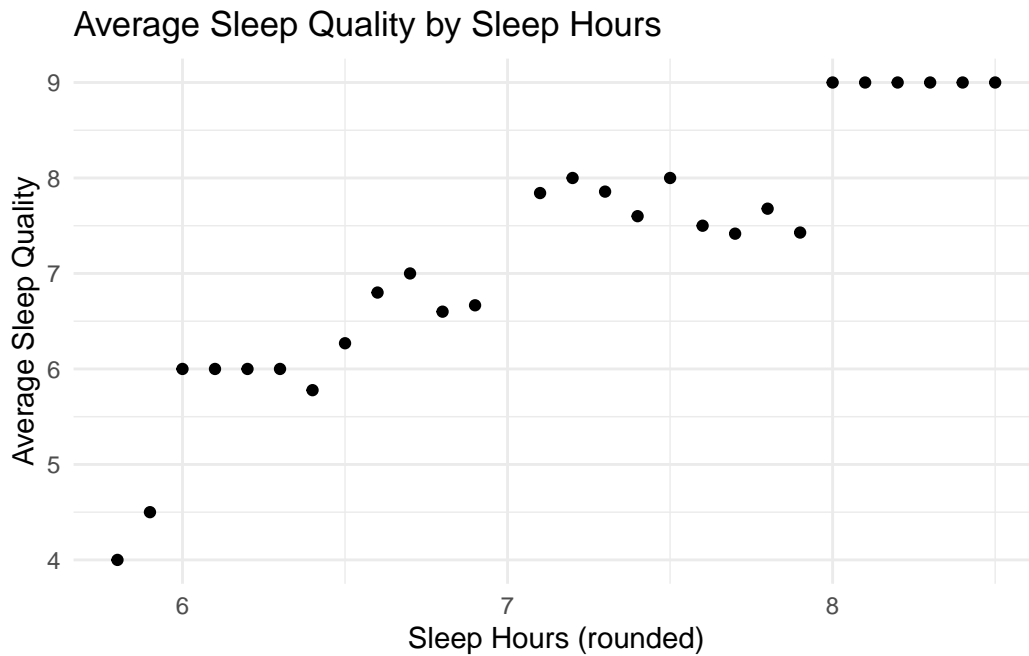
Average Study Time by Sleep Hours


```r
# Sleep hours vs exam score (from factors dataset)
ggplot(full_data, aes(x = sleep_duration, y = avg_score)) +
  geom_point() +
  theme_minimal() +
  labs(
    title = "Average Exam Score by Sleep Hours",
    x = "Sleep Hours (rounded)",
    y = "Average Exam Score"
  )
```

Average Exam Score by Sleep Hours


```r
# Sleep hours vs sleep quality
ggplot(full_data, aes(x = sleep_duration, y = avg_sleep_quality)) +
```

```
  geom_point() +
  theme_minimal() +
  labs(
    title = "Average Sleep Quality by Sleep Hours",
    x = "Sleep Hours (rounded)",
    y = "Average Sleep Quality"
  )
```

Average Sleep Quality by Sleep Hours


```
# Sleep hours vs stress level
ggplot(full_data, aes(x = sleep_duration, y = avg_stress_level)) +
  geom_point() +
  theme_minimal() +
  labs(
    title = "Average Stress Level by Sleep Hours",
    x = "Sleep Hours (rounded)",
    y = "Average Stress Level"
  )
```

Average Stress Level by Sleep Hours