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CSCI-4047-901
Exercise 3

1. Calculate and report the covariance for salary and education.

```
> cova_SE = cov(data$salary, data$education)
> print(cova_SE)
[1] 1092.436
```

2. Calculate and report covariance for salary and prestige.

```
> cova_SP = cov(data$salary, data$prestige)
> print(cova_SP)
[1] 1174.623
```

3. Calculate and report covariance for education and prestige.

```
> cova_EP = cov(data$education, data$prestige)
> print(cova_EP)
[1] 1400.158
```

4. Calculate and report Pearson's correlation coefficients and the p-values for salary and Education.

```
> corr_SE = cor.test(data$salary, data$education, method = "pearson")
> corr_SE$estimate
      cor
0.8476611
> corr_SE$p.value
[1] 2.058579e-13
```

  a. Salary and Education have a pretty strong positive correlation (corr_SE > .7)
  b. This correlation is very trustworthy since it is significantly less than .05
     (0.0000000000000205~)

5. Calculate and report Pearson's correlation coefficients and the p-values for salary and Prestige.

```
> corr_SP = cor.test(data$salary, data$prestige, method = "pearson")
> corr_SP$estimate
      cor
0.8981787
> corr_SP$p.value
[1] 6.02295e-17
```

  a. Salary and Prestigehave a very strong positive correlation (corr_SP > .7)
  b. This correlation is very trustworthy since it is significantly less than .05
     (0.00000000000000000602~)

6. Calculate and report Pearson's correlation coefficients and the p-values for education and prestige.

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```
> corr_PE = cor.test(data$prestige, data$education, method = "pearson")
> corr_PE$estimate
      cor
0.9050644
> corr_PE$p.value
[1] 1.434428e-17
```

    a. Prestige and Education have a pretty strong positive correlation (corr_SE > .7)
    b. This correlation is very trustworthy since it is significantly less than .05
       (0.00000000000000000143~)

8. Pearson's correlation coefficient or covariance can be both used to measure the direction of the relationship between two variables (e.g., education and salary). Explain which measure is better and why.

Pearson, provides a standardized measurement from -1 to +1 and is dimensionless. This means the measurement isn't affected by scale and is easier to interpret across different datasets.