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**SCORE:**

**Exercise 1: Descriptive Statistics and Confidence Intervals**

Use the GSS06 dataset and answer the following questions:

1. For the variable **‘adults’,** indicate the following values:

Mean 1.86

80% Confidence Interval 1.84 to 1.87

95% Confidence Interval 1.84 to 1.88

99% Confidence Interval 1.83 to 1.89

**What observations can you make?**

We observe that the mean is exactly at the center of the ranges obtained for all the variations calculated for different confidence intervals. The range within which the value can fall increases with increasing confidence interval.

Repeat question # 1, but this time split the database by SEX and compare males to females.

**Mean**  Females: 1.82

Males: 1.91

**80% Confidence Interval** Females: 1.80 to 1.84

Males: 1.89 to 1.94

**95% Confidence Interval** Females: 1.79 to 1.85

Males: 1.88 to 1.95

**99% Confidence Interval:** Females: 1.78. to 1.86

Males: 1.87 to 1.96

**What observations can you make?**

The mean value for females is lesser than that of the males. The ranges of the values observed at different confidence intervals for females are similar to that of males but lesser in values. The range within which the value can fall increases with increasing confidence interval with mean always at the center.

**Exercise 2: Descriptive Statistics and Confidence Intervals**

Use the GSS16 dataset and answer the following questions:

1. For the variable **‘adults’,** indicate the following values:

Mean 1.86

80% Confidence Interval 1.84 to 1.88

95% Confidence Interval 1.83 to 1.89

99% Confidence Interval 1.82 to 1.90

**What observations can you make?**

The mean value has remained same for GSS2006 and GSS2016 data, however, the distribution has increased by 0.02. We also observe that the mean is exactly at the center of the ranges obtained for all the variations calculated for different confidence intervals. The range within which the value can fall increases with increasing confidence interval.

Repeat question # 1, but this time split the database by SEX and compare males to females.

**Mean**  Females: 1.83

Males: 1.90

**80% Confidence Interval** Females: 1.80 to 1.86

Males: 1.87 to 1.93

**95% Confidence Interval** Females: 1.79 to 1.87

Males: 1.86 to 1.95

**99% Confidence Interval** Females: 1.78 to 1.88

Males: 1.84 to 1.96

What observations can you make?

The mean value for females is improved by 0.01 while for males it has been reduced by 0.01 for GSS2016 data.The ranges of the values observed at different confidence intervals for females are similar to that of males but lesser in values and have increased by 0.02 for males and females. The range within which the value can fall increases with increasing confidence interval with mean always at the center.