(1) Using data set CEOSAL2.dta estimate the regression: Salary = \( \beta_0 + \beta_1 \text{ceoten} + u \).

(i) What is the expected salary of a CEO who has been a CEO with the company for 10 years?

(ii) Construct a 95% confidence interval on the prediction for the average CEO who has been a CEO with the company for 10 years. What is the margin of error of your prediction? What is the high and low expected salary?

(iii) In STATA show graphically the regression line with a 95% confidence on the mean prediction.

(iv) Construct a 95% confidence interval on the prediction for an individual CEO who has been a CEO with the company for 10 years. What is the margin of error of your prediction? What is the high and low expected salary?

(v) In STATA show graphically the regression line with a 95% confidence on the individual prediction.

(vi) Construct a 95% confidence interval on the prediction for an individual CEO who has been a CEO with the company for 20 years. What is the margin of error of your prediction? What is the high and low expected salary? Is the margin of error different for those with ten years? Why? Explain fully.

(vii) List the ceo tenure, predicted salary, margin of error and confidence interval for each value of tenure from lowest to highest.

(2) Using data set Wage2.dta, estimated the regression Wage = \( \beta_0 + \beta_1 \text{IQ} + u \).

(i) What is the expected wage of someone with an IQ of 100?

(ii) Construct a 95% confidence interval on the prediction for the average person with an IQ of 100. What is the margin of error of your prediction? What is the high and low expected salary?

(iii) In STATA show graphically the regression line with a 95% confidence on the mean prediction.

(iv) Construct a 95% confidence interval on the prediction for an individual with an IQ of 100. What is the margin of error of your prediction? What is the high and low expected salary?

(v) In STATA show graphically the regression line with a 95% confidence on the individual prediction.

(vi) Construct a 95% confidence interval on the prediction for an individual with an IQ of 125. What is the margin of error of your prediction? What is the high and low expected monthly wage? Is the margin of error different for those with an IQ of 125? Why? Explain fully.

(vii) List the IQ, predicted wage, margin of error and confidence interval for each value of IQ from lowest to highest.