Homework 8

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Github Link: https://github.com/Ahantya/SDS315/blob/main/HW8/HW8Markdown.Rmd

Problem 1 - regression warm up

A.

The creatinine clearance rate we should expect for a 55-year-old is approximately 113.723. This was done by finding the linear model of the relationship between a patient's age (in years) and a patient's creatine clearance rate (in mL/minute). Then we used that formula with the intercept as 147.8129 and the slope as -0.6198 and plugged in x (the age) as 55, to find the predicted creatinine clearance rate.

B.

The creatinine clearance rate changes with age by -0.6198 mL/minutes per year. This is found by the slope of our linear model (formally named as the age coefficient in the linear model).

C.

The creatinine clearance rate is higher (higher) for a 40-year-old with a rate of 135 compared to a 60-year-old with a rate of 112. This is because through the linear model equation (147.8219 - 0.168x), a 60-year-old is expected to have a creatinine clearance rate of 110.624 while a 40-year-old is expected to have a creatinine clearance rate of 123.0203. Since the difference between the 40-year-old's creatinine clearance rate of 135 to its predicted value is higher compared to the difference between the 60-year-old's creatinine clearance rate of 112 to its predicted value, this means that the 40-year-old's creatinine clearance rate is higher and healthier.