**Linear regression model (heart disease)**

Answer submission

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**Source code**

**Plots**

1) Age vs. Resting Blood Pressure plot

2) Age vs. Serum Cholesterol plot

**Summary and data structure**

1) coefficient for plot 1 2) coefficient for plot 2

**Report**

This data set includes information related to cardiovascular diseases. The main fields in the data table are patient age, resting blood pressure, serum cholesterol levels, and other variables. The summary and structure of the data set are generated, and the data visualization part was done using the ggplot2 library. The plots visually represent the relationship between age and two risk factors that mainly affect cardiovascular diseases. The plots are in “y=mx+c” type.

The first scatter plot shows how the resting blood pressure varies with age. The intercept is 102.1998345; the intercept shows estimated resting blood pressure when age equals 0. Practically, age is never becoming 0, as it is likely never 0 in the dataset. The coefficient for age is 0.5354184. That means for each one-unit increase in age, the estimated resting blood pressure is expected to increase approximately by 0.54 units. It’s a positive increase. Age and resting blood pressure are inversely proportional.

The second scatter plot shows how serum cholesterol levels vary with age. The intercept is 181.691994, which shows estimated serum cholesterol levels when age equals 0. Practically, age is never becoming 0, as it is likely never 0 in the dataset. The coefficient for age is 1.248633. That means for each one-unit increase in age, the estimated serum cholesterol level tends to positively increase approximately by 1.25 units. Age and serum cholesterol levels are inversely proportional.

In summary, both linear models show a positive relationship between age and the other variable (Y). Additionally, the reading of the intercept when age is 0 may not be practically meaningful. These conclusions are based solely on the relationships observed in the dataset. Other factors may increase resting blood pressure and serum cholesterol levels.

Thank you.