Consider the following linear model:
$$y = 3.2 + 1.87x$$

1. (3 points) Interpret the slope of the line.

2. (3 points) The coefficient of determination of the above model is 89%. Interpret it.

3. (3 points) Using the model, estimate the value of y when $x = 3.2$.

4. Consider the `Batting.csv` data file. This data file contains player batting statistics since 1871. We are going to explore the relationship between career home runs and career strikeouts for all players in baseball history with at least 5000 career at bats. **In Python**, answer the following:

   (a) (3 points) Using pandas, read the csv file and create a data-frame called `batting`.

   (b) (4 points) (4 points) Create another data-frame called `batting_agg` that contains aggregated data at the player level. That is the `batting_agg` should contain the total home-runs, total at bats, and total strikeouts.

   (c) (4 points) Select players with at least 5000 career at bats.

   (d) (4 points) Compute the home-run rate as total home-runs divided by total at bats. Also compute the strikeout rate as total strikeout divided by total at bats.

   (e) (4 points) Create the scatter-plot between home-run rate and strikeout rate. Comment on the plot.

   (f) (5 points) Build a linear regression model in which home-run rate is the predictor variable and strikeout rate is the target variable. Using this model, predict the strikeout rate of a player with a home-run rate of 0.05.