

Part A [3 Points]

- Use a linear regression model to predict the number of customers (population served) these airlines serve from the length of the flight and the daily flight time per plane.
- Report your model (linear equation).
- What is your predicted value for the number of customers served for a flight that is 200 miles in length and has a daily flight time per plane of 7.2 hours?

$$y = c + mX_1 + mX_2$$

$$y = -8926.321 + 193.699 * X_1 + -346.445 * X_2$$

$$\text{predicted_value} = -8926.321 + 193.699 * 200 + -346.445 * 7.2$$

$$\text{predicted value} = 27,319.075$$

Part B [3 Points]

- Next, build another regression model to predict the total assets of an airline from the customer served by the airline.
- Once again, report your model.
- What is your prediction for total assets for an airline, given they serve 20,300,000 customers?

$$y = c + mX_1$$

$$y = -91.085 + 0.022X$$

$$\text{predicted_assets} = -91.085 + 0.022 * 20300000$$

$$\text{predicted assets is } 446,508.915$$

PROBLEM 2 [4 POINTS]

- Use the gradient descent algorithm to find the optimal gradients for this problem. Report your model (gradient values). [4 points]

Encountered problems with the code, error code 'object is not subscriptable'. Will continue looking at this problem and other online example to figure out what is the source.

Not very comfortable working with gradient descent yet and the coding behind the function.