Multiple Linear Regression. In-class Exercise 2

EL-GY 6143 Intro Machine Learning. Prof. Sundeep Rangan

Question

Consider a linear model:

$$[\text{HR increase}] \approx \beta_0 + \beta_1[\text{mins exercise}] + \beta_2[\text{exercise intensity}].$$

We are given the following data: Only the first three rows and the final entry are shown.

Subject number	HR before	HR after	Mins on treadmill	Speed (min/km)	Days exercise / week
123	60	90	1	5.2	3
456	80	110	2	4.1	1
789	70	130	5	3.5	2
⋮	⋮	⋮	⋮	⋮	⋮
283	75	100	1	4.8	0

100 subjects

- Q1: What is the feature matrix A and target vector y. What are their dimensions?
  - Fill in only the values from the first three rows and the last row
- Q2. Suppose that after training, we find parameters $\beta = [0,15,3]$. If the initial HR is 70 bpm, what is the predicted HR after 2 minutes of exercise at 5 km/hr.

Solution