Matt Kaufman

Internet of Things

Homework 1 – 02/01/2023

NOTE: The supporting Python code is included in the submission as a *.txt* file and the plot generated from it is included on the second page of this document.

1. Linear regression line was found to be (where x is the student's attendance):

$$score = 5.03x - 7.73$$

2. If a student's attendance is 9, it is **unlikely** that they will pass (their expected score would be approximately 37.5). If a student's attendance is 14, it is **likely** that they will pass (expected score of approximately 62.7).

3. To find the minimum attendance to pass the class, the linear regression line equation can be solved for x:

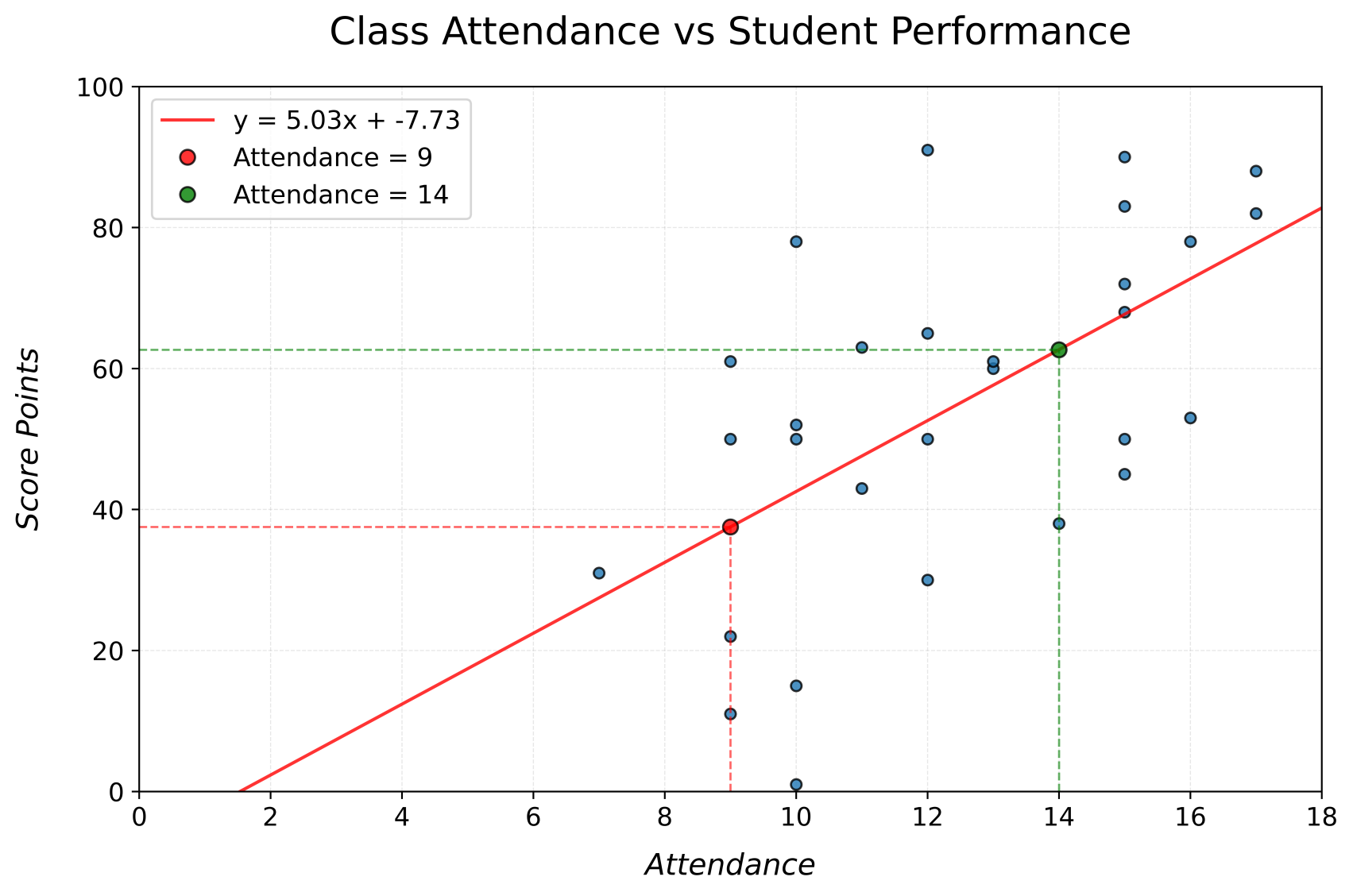
$$score = 5.03x - 7.73$$

$$5.03x = score + 7.73$$

$$x = \frac{score + 7.73}{5.03}$$

To pass the class with minimum attendance, $score$ can be set equal to 40:

$$x = \frac{40 + 7.73}{5.03} = \frac{47.73}{5.03} \quad \rightarrow \quad x = 9.49 \quad \rightarrow \quad x = 10\ classes$$


Class Attendance vs Student Performance
y = 5.03x + -7.73
Attendance = 9
Attendance = 14
Score Points
Attendance
0
20
40
60
80
100
0
2
4
6
8
10
12
14
16
18