

Day 5 Quiz

4.07.2024

Question 1: What is artificial intelligence and what are the main different approaches to it?

Question 2: What is machine learning and what are the two main approaches? How are each defined.
Bonus: What is the third main approach we haven't covered yet?

Question 3: Explain why we might want to do clustering. Use an example from healthcare or finance to support your answer.

Question 4: What does the following notation mean? $x_8^{(9)}$

Question 5: Explain of the following, stating what they are

- θ
- $h_\theta(X)$
- \hat{y} and y

Question 6: What is the goal of supervised learning? (the standard sentence with explanation of key terms)

Question 7: What is the mathematical goal of clustering? State in words rather than mathematical notation.

Question 8: Explain the process of gradient descent in detail.

Question 9: Explain the following fitted linear regression. What does this say about the relationship between education and wages? Support your answer with a graph.

$$\widehat{\text{wage}}^{(i)} = 10 + 1.2\text{edu}^{(i)}$$

Question 10*: Consider the following linear regression. What does this say about the relationship between education and wages? Support your answer with a graph.

$$\widehat{\text{wage}}^{(i)} = 10 + 1.2\text{edu}^{(i)} + -0.2\text{edu}^{(i)^2}$$

Assuming education is measure in years, how could you mathematically show the effect of one extra year of education? **Hint:** Those of you who have seen differentiation before might find this helpful.

* Hard