What is Machine Learning.   In-class Exercise 1

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

Question

For each of the proposed algorithms below, indicate whether the use a machine learning (i.e. data driven) approach or not (e.g. expert or domain knowledge)

Num	Algorithm	ML Approach?	
		Yes	No
1	A robot determines its route in a room using a shortest path algorithm combined with data on the obstacle locations.		X
2	You predict the weather tomorrow using data on how whether has changed in the past.	X	
3	A computer program playing poker decides to fold or not fold in a game by calculating the probability that its poker hand is the best.		X
4	A program estimates whether a customer will purchase a product from sales records of past customers and their attributes.	X	

Solution

1. **Not ML**. Although the solution uses data on the room, the mapping from the room to the path is not trained. It is a fixed algorithm, the shortest path algorithm.
2. **ML** since the algorithm is based on past whether patterns.
3. **Not ML**. In this case, the probability can be computed with a fixed formula and there is a fixed rule from the probability to the decision to fold or not fold.
4. **ML** since decision is learned from past customer records.