1. You are going to play 2 games of chess with an opponent whom you have never played against before (for the sake of this problem). Your opponent is equally likely to be a beginner, intermediate, or a master. Depending on   
   (a) What is your probability of winning the first game?   
   (b) Congratulations: you won the first game! Given this information, what is the probability that you will also win the second game   
   (c) Explain the distinction between assuming that the outcomes of the games are independent and assuming that they are conditionally independent given the opponent’s skill level. Which of these assumptions seems more reasonable, and why?

Sol)

(a) The probability of winning the first game is 0.5 or 50%.

(b) Without additional information, we cannot determine the probability of winning the second game given that you won the first game.

(c) Assuming the outcomes of the games are conditionally independent given the opponent's skill level is more reasonable as it takes into account the potential influence of skill on the game's outcome.