Assignment 10

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Question 11.1

If the parity of labels in S is 1, by fix fold $(x,y) \subseteq S$ we have two case:

- The parity of the labels on (S) is 1 ,so $y = 0$ and the algorithm outputs h(x) = 1 and the leave-one-out estimate using this fold is 1.
- The parity of the labels on (S) is 0 ,so $y = 1$ and the algorithm outputs h(x) = 0 and the leave-one-out estimate using this fold is 0.

by definition of h, it is clear that $L_D(h) = \frac{1}{2}$, and averaging over the folds, the estimate of the error of h is 1, so the difference between the estimate and the true error is $\frac{1}{2}$.
The same is true if we set the parity of labels in S , 1.