

Advanced Machine Learning: Homework Problem Set III

Guidelines: You have to submit hardcopy of the solutions (printed or handwritten) by April 11, 2018 beginning of lecture class. Write your name and roll number clearly on top of the solution. Be clear and precise in your solution.

Problem:

We proved Sauer Lemma by proving that for every class \mathcal{H} of finite VC-dimension d , and for every subset A of the domain,

$$|\mathcal{H}_A| \leq |\{B \subseteq A : \mathcal{H} \text{ shatters } B\}| \leq \sum_{i=0}^d \binom{|A|}{i}.$$

Give example of cases where the above two inequalities are : (i) strict inequalities, (ii) equalities.