PadhAI: Probability Theory

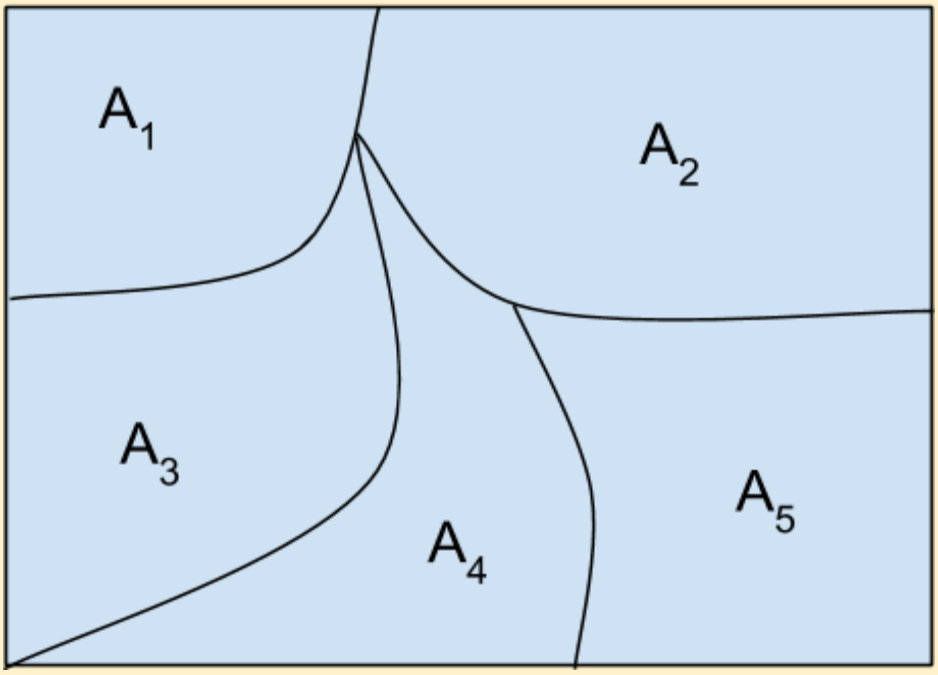
One Fourth Labs

Basics of Probability Theory

What are the axioms of Probability

1. Consider the following sample space

Ω



2. For any event A,
   a. 0 <= P(A) <= 1
3. If A_1, A_2,...A_n are disjoint events, ie $A_i \cap A_j = \phi \quad \forall (!i) = j$
   a. $P(\cup A_i) = \Sigma_i P(A_i)$
   b. The probability of the union of all the events is equal to the sum of the individual probabilities of those events
   c. $P(\cup A_i) = P(A_1) + P(A_2) + P(A_3) + P(A_4) + P(A_5)$
4. If Ω is the universal set containing all the events, then
   a. $P(\Omega) = 1$