# Weekly report of lessons

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**The week** : 09 sept, 10 sept ,11sept

**The topics covered** : Ordering of instances, Find-S algorithm, Version Space, Candidate elimination algorithm ,Effect of incomplete hypothesis space,Inductive Bias ,PAC learning model.

**Summary topic wise** :

- Ordering of instances based on positive and negative examples into lattice structure. In that structure general hypotheses are combined to give more specific hypotheses.
- Find-S algorithm finds the most specific hypothesis that fits all the positive examples .It starts with the most specific hypothesis and generalizes this hypothesis each time it fails to classify an observed positive training data . The major disadvantage of it is that it does not consider negative examples. General hypothesis is represented by: {?, ?, ?, ?, ?, ?} , specific hypothesis is represented by : {ϕ, ϕ, ϕ, ϕ, ϕ, ϕ} .
- Version Space is a way representing all the hypotheses that are consistent with the data.Boundaries of VS are most general(bottom) and most specific samples(top) .
- Candidate elimination algorithm overcomes the disadvantage of Find-S algorithm by considering negative examples as well.It generates version space that are consistent with the Training example.
- Only if the target function exists in hypothesis space then only Find -S and candidate elimination algorithm will work otherwise we will get an empty version space.
- Inductive Bias is helpful when the target concept is not present in hypothesis space . The obvious solution is to provide a hypothesis space capable of representing every target concept .This is done by taking the power set of every instance present with us.
- For a concept C over distribution D is PAC learnable if with high probability the selected function will have low error.

**Concepts challenging to comprehend** : Theorem of $\varepsilon$-exhausting the VS .

**Interesting and exciting concepts** : None

**Concepts not understood** : None

**Any novel idea of yours out of the lessons** : If we have a large number of attributes (m) and comparatively large of value for each attribute(n) also then the size of version space will be very huge n^m , we can use some heuristics to reduce the size of version space.

**Expectation on your performance in the coming quiz on 15/9/2020 (Tuesday) at 8 PM in Moodle Server** : Fair