

Machine Learning (BITS F464) - Assignment 1

Concept Learning

Maximum Marks : 20

Submission Deadline: 2359Hrs 30/09/2017

The candidate elimination algorithm incrementally builds the version space given a hypothesis space H and a set D of examples. The examples are added one by one; each example possibly shrinks the version space by removing the hypotheses that are inconsistent with the example. The candidate elimination algorithm does this by updating the general and specific boundary for each new example. Refer to lecture slides and textbook for more details.

Assignment: Download the dataset from [here](#). You have to implement candidate elimination algorithm on the given dataset.

Assume that the concept can be described in terms of a conjunction of the available attributes. Dataset is multivariate hence you can use one-vs-all strategy. The first attribute in the dataset is the name of the variable and that can be ignored.

Check if the concept can be learned for each output class you consider in one-vs-all. If the concept can be learned then get the specific and general boundaries as well.

As discussed in class, every attribute in a hypothesis can take either all the values, only one of the value or none of the values (i.e. restriction of space is same as discussed in class).

Languages Allowed: C, C++ and Java. You are not allowed to use any packages for the assignment, all the functionalities you have to code on your own and do proper documentation so that it is readable.

Report:

- Team Members
- Classes for which concept can be learned and for which concept can't be learned
- For classes where concept can be learned give specific and general boundaries

Evaluation:

- Final results
- Understanding of results.
- Ability to reason the derived results.
- Code should be documented
- Final report and demo.

Submission should be through **CMS** only.

Contact the following Teaching Assistants for any clarification on this assignment.

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