CSC3022H: Machine Learning

Lab 4: Concept Learning

Department of Computer Science
University of Cape Town, South Africa

2019

Due: Friday, 6 September 2019, 10.00 AM

Problem Description

Implement (in C++) the Candidate Elimination algorithm (chapter 2 of [Mitchell, 1997]). Use the training examples in table 1 to verify that it correctly produces the following hypothesis for learning concept *Japanese Economy Car* (lecture 3):

$$< Japan, ?, ?, ?, Economy >$$

Q1: Now change the training examples given in table 1 so as the candidate elimination algorithm learns the following hypothesis:

$$< Japan, ?, ?, ?, Sports >$$

Q2: What is the ***minimum number*** of training examples to learn this concept (*Japanese Sports Car*)?

In a ZIP file, place the source code, executable, and a text file containing your list of training examples (answers to Q1 and Q2). Upload ZIP file to the open assignment on *Vula*.

Table 1: Training examples for target concept *Japanese Economy Car*.

Origin	**Manufacturer**	**Colour**	**Decade**	**Type**	**Label**
Japan	Honda	Blue	1980	Economy	Positive
Japan	Toyota	Green	1970	Sports	Negative
Japan	Toyota	Blue	1990	Economy	Positive
USA	Chrysler	Red	1980	Economy	Negative
Japan	Honda	White	1980	Economy	Positive
Japan	Toyota	Green	1980	Economy	Positive
Japan	Honda	Red	1990	Economy	Negative

References

[Mitchell, 1997] Mitchell, T. (1997). *Machine Learning.* McGraw Hill, New York, USA.