



## 2 Decision Tree

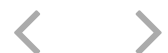
It is late Norwegian summer and you decide to go for a mushroom picking with your friends. There are lots of types of mushrooms in the forest, but some of them can be deadly because they may be poisonous. Fortunately, one of your friends has collected some attributes of the poisonous and non-poisonous mushrooms from the past trip as below:

P.S: Don't use this data to classify mushrooms in real life! :D

Mushroom

Sample					
a					
b					
c					
d					
e					
f					
g					

Sample	Heavy	Smelly	Spotted	Scales	Poisonous
a	0	0	0	0	0
b	0	0	1	0	0
c	1	1	0	1	0
d	1	0	0	1	1
e	0	1	1	0	1
f	0	0	1	1	1
g	0	0	0	1	1
h	1	1	0	0	1



(a) What is the entropy of Poisonous label?

(b) Which of the attributes should you choose as root of the decision tree? Hint:

You may have to compute information gain.

(c) What is the information gain of the you got for the attribute you chose the previous questions?

(c) Build a decision tree to classify a mushroom which has all of the attributes as 1

**Select one alternative**

- ☒ Poisonous (1)
- ☐ Not Poisonous (0)

Nullstill

Maks poeng: 16



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All lecture slides