

PRISM Using P/T

Min Song

Rule 1

- IF ? Then Poisonous = edible

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
1	scaly	bruises	broad	waste	edible
2	smooth	no	narrow	woods	poisonous
3	fibrous	no	broad	grasses	edible
4	scaly	bruises	broad	woods	edible
5	scaly	no	narrow	leaves	poisonous
6	scaly	bruises	broad	paths	edible
7	smooth	no	broad	leaves	edible
8	scaly	no	broad	woods	poisonous
9	scaly	no	narrow	woods	poisonous
10	smooth	no	broad	leaves	edible
11	fibrous	no	broad	paths	poisonous
12	fibrous	bruises	broad	woods	edible
13	smooth	bruises	narrow	grasses	poisonous
14	fibrous	no	broad	paths	poisonous
15	smooth	bruises	narrow	grasses	poisonous
16	scaly	no	narrow	leaves	poisonous
17	scaly	no	narrow	woods	poisonous
18	fibrous	no	broad	grasses	edible
19	scaly	bruises	broad	woods	edible
20	fibrous	no	broad	grasses	edible

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	4/6
cap-surface = grooves	0/0
cap-surface = scaly	4/9
cap-surface = smooth	2/5

bruises? = bruises	5/7
bruises? = no	5/13
gill-size = broad	10/13
gill-size = narrow	0/7
Habitat = grasses	3/5
Habitat = leaves	2/4
Habitat = meadows	0/0
Habitat = paths	1/3
Habitat = urban	0/0
Habitat = waste	1/1
Habitat = woods	4/7

- **If Habitat = waste then Poisonous = edible**

The rule is perfect so remove the instance covered and start over to get new rule.

Rule 2

- **IF ? Then Poisonous = edible**

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
2	smooth	no	narrow	woods	poisonous
3	fibrous	no	broad	grasses	edible
4	scaly	bruises	broad	woods	edible
5	scaly	no	narrow	leaves	poisonous
6	scaly	bruises	broad	paths	edible
7	smooth	no	broad	leaves	edible
8	scaly	no	broad	woods	poisonous
9	scaly	no	narrow	woods	poisonous
10	smooth	no	broad	leaves	edible
11	fibrous	no	broad	paths	poisonous
12	fibrous	bruises	broad	woods	edible
13	smooth	bruises	narrow	grasses	poisonous
14	fibrous	no	broad	paths	poisonous
15	smooth	bruises	narrow	grasses	poisonous

16	scaly	no	narrow	leaves	poisonous
17	scaly	no	narrow	woods	poisonous
18	fibrous	no	broad	grasses	edible
19	scaly	bruises	broad	woods	edible
20	fibrous	no	broad	grasses	edible

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	4/6
cap-surface = grooves	0/0
cap-surface = scaly	3/8
cap-surface = smooth	2/5
bruises? = bruises	4/6
bruises? = no	5/13
gill-size = broad	9/12
gill-size = narrow	0/7
Habitat = grasses	3/5
Habitat = leaves	2/4
Habitat = meadows	0/0
Habitat = paths	1/3
Habitat = urban	0/0
Habitat = waste	0/0
Habitat = woods	3/7

- IF Gill-size = broad AND ? Then poisonous = edible

The rule is not perfect so keep on going.

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonous
3	fibrous	no	broad	grasses	edible
4	scaly	bruises	broad	woods	edible
6	scaly	bruises	broad	paths	edible
7	smooth	no	broad	leaves	edible
8	scaly	no	broad	woods	poisonous
10	smooth	no	broad	leaves	edible
11	fibrous	no	broad	paths	poisonous

12	fibrous	bruises	broad	woods	edible
14	fibrous	no	broad	paths	poisonous
18	fibrous	no	broad	grasses	edible
19	scaly	bruises	broad	woods	edible
20	fibrous	no	broad	grasses	edible

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	4/6
cap-surface = grooves	0/0
cap-surface = scaly	3/4
cap-surface = smooth	2/2
bruises? = bruises	4/4
bruises? = no	5/8
Habitat = grasses	3/3
Habitat = leaves	2/2
Habitat = meadows	0/0
Habitat = paths	1/3
Habitat = urban	0/0
Habitat = waste	0/0
Habitat = woods	3/4

- IF Grill-size = broad AND bruises? = bruises Then poisonous = edible

The rule is perfect so remove the instance covered and start over to get new rule.

Rule 3

- IF ? Then Poisonous = edible

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
2	smooth	no	narrow	woods	poisonous
3	fibrous	no	broad	grasses	edible
5	scaly	no	narrow	leaves	poisonous

7	smooth	no	broad	leaves	edible
8	scaly	no	broad	woods	poisonous
9	scaly	no	narrow	woods	poisonous
10	smooth	no	broad	leaves	edible
11	fibrous	no	broad	paths	poisonous
13	smooth	bruises	narrow	grasses	poisonous
14	fibrous	no	broad	paths	poisonous
15	smooth	bruises	narrow	grasses	poisonous
16	scaly	no	narrow	leaves	poisonous
17	scaly	no	narrow	woods	poisonous
18	fibrous	no	broad	grasses	edible
20	fibrous	no	broad	grasses	edible

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	3/5
cap-surface = grooves	0/0
cap-surface = scaly	0/5
cap-surface = smooth	2/5
bruises? = bruises	0/2
bruises? = no	5/13
gill-size = broad	5/8
gill-size = narrow	0/7
Habitat = grasses	3/5
Habitat = leaves	2/4
Habitat = meadows	0/0
Habitat = paths	0/2
Habitat = urban	0/0
Habitat = waste	0/0
Habitat = woods	0/4

- IF Gill-size = broad AND ? Then poisonous = edible

The rule is not perfect so keep on going.

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
3	fibrous	no	broad	grasses	edible
7	smooth	no	broad	leaves	edible
8	scaly	no	broad	woods	poisonous
10	smooth	no	broad	leaves	edible
11	fibrous	no	broad	paths	poisonous
14	fibrous	no	broad	paths	poisonous
18	fibrous	no	broad	grasses	edible
20	fibrous	no	broad	grasses	edible

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	3/5
cap-surface = grooves	0/0
cap-surface = scaly	0/5
cap-surface = smooth	2/2
bruises? = bruises	0/0
bruises? = no	5/8
Habitat = grasses	3/3
Habitat = leaves	2/2
Habitat = meadows	0/0
Habitat = paths	0/2
Habitat = urban	0/0
Habitat = waste	0/0
Habitat = woods	0/1

- IF Gill-size = broad AND Habitat = grasses Then poisonous = edible

The rule is perfect so remove the instance covered and start over to get new rule.

Rule 4

- IF ? Then Poisonous = edible

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
2	smooth	no	narrow	woods	poisonous
5	scaly	no	narrow	leaves	poisonous
7	smooth	no	broad	leaves	edible
8	scaly	no	broad	woods	poisonous
9	scaly	no	narrow	woods	poisonous
10	smooth	no	broad	leaves	edible
11	fibrous	no	broad	paths	poisonous
13	smooth	bruises	narrow	grasses	poisonous
14	fibrous	no	broad	paths	poisonous
15	smooth	bruises	narrow	grasses	poisonous
16	scaly	no	narrow	leaves	poisonous
17	scaly	no	narrow	woods	poisonous

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	0/2
cap-surface = grooves	0/0
cap-surface = scaly	0/5
cap-surface = smooth	2/5
bruises? = bruises	0/2
bruises? = no	2/10
gill-size = broad	2/5
gill-size = narrow	0/7
Habitat = grasses	0/2
Habitat = leaves	2/4
Habitat = meadows	0/0
Habitat = paths	0/2

Habitat = urban	0/0
Habitat = waste	0/0
Habitat = woods	0/4

- **IF Habitat = leaves AND ? Then Poisonous = edible**

The rule is not perfect so keep on going.

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
5	scaly	no	narrow	leaves	poisonous
7	smooth	no	broad	leaves	edible
10	smooth	no	broad	leaves	edible
16	scaly	no	narrow	leaves	poisonous

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	0/0
cap-surface = grooves	0/0
cap-surface = scaly	0/2
cap-surface = smooth	2/2
bruises? = bruises	0/0
bruises? = no	2/4
gill-size = broad	2/2
gill-size = narrow	0/2

- **IF Habitat = leaves AND cap-surface = smooth Then Poisonous = edible**

The rule is perfect so remove the instance covered and start over to get new rule.

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
2	smooth	no	narrow	woods	poisonous
5	scaly	no	narrow	leaves	poisonous
8	scaly	no	broad	woods	poisonous
9	scaly	no	narrow	woods	poisonous
11	fibrous	no	broad	paths	poisonous
13	smooth	bruises	narrow	grasses	poisonous

14	fibrous	no	broad	paths	poisonous
15	smooth	bruises	narrow	grasses	poisonous
16	scaly	no	narrow	leaves	poisonous
17	scaly	no	narrow	woods	poisonous

However, as you can see from the left over instances, none of the mushrooms are edible. So I stop here.

Next come poisonous = poisonous

Rule 1

- IF ? Then Poisonous = poisonous

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
1	scaly	bruises	broad	waste	edible
2	smooth	no	narrow	woods	poisonous
3	fibrous	no	broad	grasses	edible
4	scaly	bruises	broad	woods	edible
5	scaly	no	narrow	leaves	poisonous
6	scaly	bruises	broad	paths	edible
7	smooth	no	broad	leaves	edible
8	scaly	no	broad	woods	poisonous
9	scaly	no	narrow	woods	poisonous
10	smooth	no	broad	leaves	edible
11	fibrous	no	broad	paths	poisonous
12	fibrous	bruises	broad	woods	edible
13	smooth	bruises	narrow	grasses	poisonous
14	fibrous	no	broad	paths	poisonous
15	smooth	bruises	narrow	grasses	poisonous
16	scaly	no	narrow	leaves	poisonous
17	scaly	no	narrow	woods	poisonous
18	fibrous	no	broad	grasses	edible
19	scaly	bruises	broad	woods	edible

20	fibrous	no	broad	grasses	edible
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Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	2/6
cap-surface = grooves	0/0
cap-surface = scaly	5/9
cap-surface = smooth	3/5
bruises? = bruises	2/7
bruises? = no	8/13
gill-size = broad	3/13
gill-size = narrow	7/7
Habitat = grasses	2/5
Habitat = leaves	2/4
Habitat = meadows	0/0
Habitat = paths	2/3
Habitat = urban	0/0
Habitat = waste	0/1
Habitat = woods	4/7

- IF **gill-size = narrow** Then **Poisonous = poisonous**

The rule is perfect so remove the instance covered and start over to get new rule.

Rule 2

- IF ? Then **Poisonous = poisonous**

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
1	scaly	bruises	broad	waste	edible
3	fibrous	no	broad	grasses	edible
4	scaly	bruises	broad	woods	edible
6	scaly	bruises	broad	paths	edible
7	smooth	no	broad	leaves	edible

8	scaly	no	broad	woods	poisonous
10	smooth	no	broad	leaves	edible
11	fibrous	no	broad	paths	poisonous
12	fibrous	bruises	broad	woods	edible
14	fibrous	no	broad	paths	poisonous
18	fibrous	no	broad	grasses	edible
19	scaly	bruises	broad	woods	edible
20	fibrous	no	broad	grasses	edible

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	2/6
cap-surface = grooves	0/0
cap-surface = scaly	1/5
cap-surface = smooth	0/2
bruises? = bruises	0/5
bruises? = no	3/8
gill-size = broad	3/13
gill-size = narrow	0/0
Habitat = grasses	0/3
Habitat = leaves	0/2
Habitat = meadows	0/0
Habitat = paths	2/3
Habitat = urban	0/0
Habitat = waste	0/1
Habitat = woods	1/4

- IF Habitat = path AND ? Then Poisonous = poisonous

The rule is not perfect so keep on going.

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
6	scaly	bruises	broad	paths	edible
11	fibrous	no	broad	paths	poisonous
14	fibrous	no	broad	paths	poisonous

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	2/2
cap-surface = grooves	0/0
cap-surface = scaly	0/1
cap-surface = smooth	0/0
bruises? = bruises	0/1
bruises? = no	2/2
gill-size = broad	2/3
gill-size = narrow	0/0

- IF Habitat = path AND cap-surface = fibrous Then Poisonous = poisonous

The rule is perfect so remove the instance covered and start over to get new rule.

Rule 3

- IF ? Then Poisonous = poisonous

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
1	scaly	bruises	broad	waste	edible
3	fibrous	no	broad	grasses	edible
4	scaly	bruises	broad	woods	edible
6	scaly	bruises	broad	paths	edible
7	smooth	no	broad	leaves	edible
8	scaly	no	broad	woods	poisonous
10	smooth	no	broad	leaves	edible
12	fibrous	bruises	broad	woods	edible
18	fibrous	no	broad	grasses	edible
19	scaly	bruises	broad	woods	edible
20	fibrous	no	broad	grasses	edible

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	0/4
cap-surface = grooves	0/0
cap-surface = scaly	1/5
cap-surface = smooth	0/2
bruises? = bruises	0/5
bruises? = no	1/6
gill-size = broad	1/11
gill-size = narrow	0/0
Habitat = grasses	0/3
Habitat = leaves	0/2
Habitat = meadows	0/0
Habitat = paths	0/1
Habitat = urban	0/0
Habitat = waste	0/1
Habitat = woods	1/4

- IF Habitat = woods AND ? Then Poisonous = poisonous

The rule is not perfect so keep on going.

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
4	scaly	bruises	broad	woods	edible
8	scaly	no	broad	woods	poisonous
12	fibrous	bruises	broad	woods	edible
19	scaly	bruises	broad	woods	edible

Candidate Attribute	
Candidate	Goodness
cap-surface = fibrous	0/1
cap-surface = grooves	0/0
cap-surface = scaly	1/3
cap-surface = smooth	0/0
bruises? = bruises	0/3

bruises? = no	1/1
gill-size = broad	1/4
gill-size = narrow	0/0

- IF Habitat = woods AND bruises? = no Then Poisonous = poisonous

The rule is perfect so remove the instance covered and start over to get new rule.

APPLICABLE INSTANCES					
Instance	cap-surface	bruises?	gill-size	habitat	poisonousness
1	scaly	bruises	broad	waste	edible
3	fibrous	no	broad	grasses	edible
4	scaly	bruises	broad	woods	edible
6	scaly	bruises	broad	paths	edible
7	smooth	no	broad	leaves	edible
10	smooth	no	broad	leaves	edible
12	fibrous	bruises	broad	woods	edible
18	fibrous	no	broad	grasses	edible
19	scaly	bruises	broad	woods	edible
20	fibrous	no	broad	grasses	edible

As you can see on the chart, none of the mushrooms are poisonous. So I stop here.

Gathered Rules

- IF Habitat = waste then Poisonous = edible
- IF Gill-size = broad AND bruises? = bruises Then poisonous = edible
- IF Gill-size = broad AND Habitat = grasses Then poisonous = edible
- IF Habitat = leaves AND cap-surface = smooth Then Poisonous = edible

- IF grill-size = narrow Then Poisonous = poisonous
- IF Habitat = path AND cap-surface = fibrous Then Poisonous = poisonous
- IF Habitat = woods AND bruises? = no Then Poisonous = poisonous

Total of 7 rules are gathered by PRISM algorithm.