Assignment 8

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Q1

1.0/1.0 point (graded)

The entropy $H(X)$ of an event is

- (selected) $\sum_{i=1}^{n} p(x_i) \log_2 \frac{1}{p(x_i)}$
- $\sum_{i=1}^{n} p(x_i) \log_2 p(x_i)$
- $\sum_{i=1}^{n} \frac{1}{p(x_i)} \log_2 \frac{1}{p(x_i)}$
- $\sum_{i=1}^{n} \log_2 \frac{1}{p(x_i)}$

✔

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Q2

1.0/1.0 point (graded)

Consider a source with 16 equiprobable symbols. What is its entropy?

- 3
- 3.5
- (selected) 4
- 5

✔

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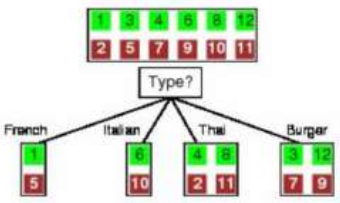
Q3

1.0/1.0 point (graded)

What is the entropy $H(X)$ of the final yes/ no decision for the example below described in lecture



- ½
- (selected) 1
- 2
- ¾

✔

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Q4

1.0/1.0 point (graded)

The conditional entropy $H(X|Y)$ is defined as

- $\sum_{j=1}^{m} p(y_j) H(Y = y_j|X)$
- $\sum_{j=1}^{m} H(X|Y = y_j)$
- **$\sum_{j=1}^{m} p(y_j) H(X|Y = y_j)$** ✔
- $\sum_{i=1}^{n} p(x_i) H(Y|X = x_i)$

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Q5

1.0/1.0 point (graded)

To construct the decision tree classifier (DTC), one has to choose the feature that

- minimizes the information gain
- **maximizes the information gain** ✔
- has zero information gain
- that has information gain equal to unity

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Q6

1.0/1.0 point (graded)

The information gain is defined as

- **IG$(X|Y) = H(X) - H(X|Y)$** ✔
- IG$(X|Y) = H(X) + H(X|Y)$
- IG$(X|Y) = H(Y) - H(X|Y)$
- IG$(X|Y) = H(Y) + H(X|Y)$

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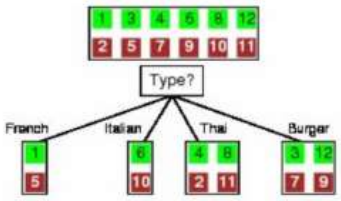
Q7

1.0/1.0 point (graded)

What is the conditional entropy for the type feature depicted in the figure below?

What is the conditional entropy for the type feature depicted in the figure below?



- ○ 0
- ○ ½
- ○ 2
- ◉ 1

✔

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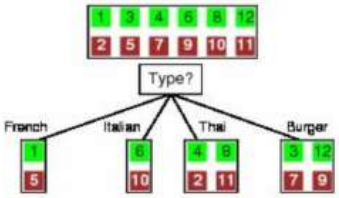
Q8

1.0/1.0 point (graded)

What is the information gain for the type feature depicted in the figure below?



- ○ 0.82
- ○ 0.36
- ○ 0.54
- ◉ 0

✔

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Q9

1.0/1.0 point (graded)

Decision tree classifier is imported in PYTHON as

- ◉ from sklearn.tree import Decision Tree Classifier
- ○ from sklearn.tree import DTC
- ○ from sklearn import Decision Tree Classifier
- ○ from sklearn import DTC

✔

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Q10

1.0/1.0 point (graded)

Which of the follow is not a type of IRIS flower

- ○ Setosa
- ○ Versicolour
- ◉ Azoricum
- ○ Virginica

✔

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