CS 480 (AI) Homework 5 Jeff Booher-Kaeding and Tyler Holland

Problem #2

tree: [-, 'c0', 'c1', 'p1', 'c2', 'p0', 'x', 'x', 'p1', 'p0']

c0

c1 p1

c2 p0

p1 p0

data node analysis

|  |  |
| --- | --- |
| [0, 0, 0, 0, 1]  [1, 0, 1, 0, 1]  [0, 0, 1, 1, 0]  [0, 1, 0, 1, 0]  [1, 1, 1, 0, 1]  [1, 0, 0, 1, 1]  [0, 1, 1, 0, 0]  [1, 0, 1, 1, 1] | entropy: 0.954434002924965  entropy positive negative feature  class 0: 0.0 0.811278 0.405639  class 1: 0.918296 0.721928 0.844658  class 2: 0.970951 0.918296 0.938041  class 3: 1.0 0.811278 0.905639  dropping class 0 |
| [0, 0, 0, 0, 1]  [0, 0, 1, 1, 0]  [0, 1, 0, 1, 0]  [0, 1, 1, 0, 0] | entropy: 0.8112781244591328  entropy positive negative feature  class 1: 0.0 1.0 0.5  class 2: 0.0 1.0 0.5  class 3: 0.0 1.0 0.5  dropping class 1 |
| [0, 0, 0, 0, 1]  [0, 0, 1, 1, 0] | entropy: 1.0  entropy positive negative feature  class 2: 0.0 0.0 0.0  class 3: 0.0 0.0 0.0  dropping class 2 |
| [0, 0, 0, 0, 1] | entropy: 0.0  prediction = 1 |
| [0, 0, 1, 1, 0] | entropy: 0.0  prediction = 0 |
| [0, 1, 0, 1, 0]  [0, 1, 1, 0, 0] | entropy: 0.0  prediction = 0 |
| [1, 0, 1, 0, 1]  [1, 1, 1, 0, 1]  [1, 0, 0, 1, 1]  [1, 0, 1, 1, 1] | entropy: 0.0  prediction = 1 |

Problem #3

Our code works, but we did not have time to run the full tests before the deadline.

We achieved an accuracy of 32% running with 10 epochs, 10 hidden neurons, a learning rate of 0.1, and using pocket epochs.

We are letting our code run and will have a more detailed report tomorrow.