PART 3 outputs:

```
Command Window
    Accuracy for 10 iterations:     0.6961

    Accuracy for 20 iterations:     0.6974

    Accuracy for 50 iterations:     0.7092

fx >>
```

PART 4:

Suppose that we have three colored boxes r (red), b (blue), and g (green). Box r contains 3 apples, 4 oranges, and 3 limes, box b contains 1 apple, 1 orange, and 0 limes, and box g contains 3 apples, 3 oranges, and 4 limes. If a box is chosen at random with probabilities p(r) = 0.2, p(b) = 0.2, p(g) = 0.6, and a piece of fruit is removed from the box (with equal probability of selecting any of the items in the box), then what is the probability of selecting an apple?

$p(a) = p(a|r)*p(r) + p(a|b)*p(b) + p(a|g)*p(g) = 0.3 * 0.2 + 0.5 * 0.2 + 0.3 * 0.6 = 0.34$

If we observe that the selected fruit is in fact an orange, what is the probability that it came from the green box?

$p(g|o) = p(g,o) / p(o)$

$p(g,o) = p(o|g)*p(g) = 0.3 * 0.6 = 0.18$

$p(o) = 0.4 * 0.2 + 0.5 * 0.2 + 0.3 * 0.6 = 0.36$

$p(g|o) = 0.18 / 0.36 = 0.5$