

The local history predictor uses both a *history* table and a *counts* table. The following loop is being executed with the *history* and *counts* tables initialized as shown below.

1. Show the contents of the tables after each time through the loop.
2. Mark which part is **Warm Up**. How would this change if *Counts* had initially been 01?
3. After warm up, what is the prediction accuracy?
4. What if the loop had 20 iterations, what would the accuracy be?
5. What are the max iterations for 100% accuracy?
6. How would you change the hardware to get 100% accuracy on 20 iterations?

```
for(i=1; i<=3; i++) {}
```

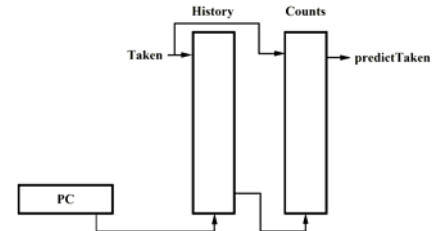
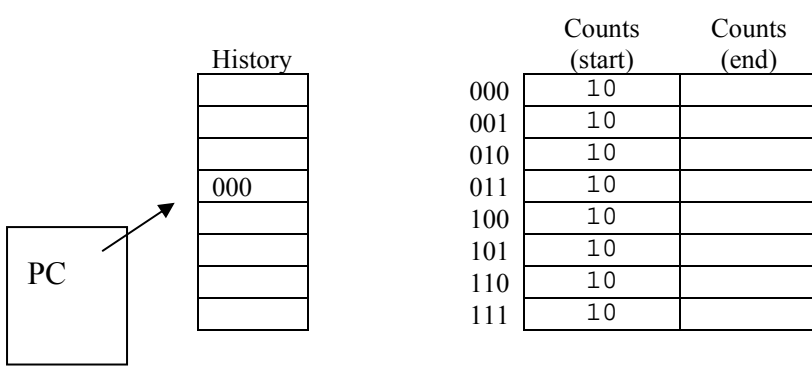


Figure 4: Local History Predictor Structure

Iteration	History	Prediction (circle one)	Actual Direction
1 st	000	Taken Not Taken	Taken Not Taken
2 nd		Taken Not Taken	Taken Not Taken
3 rd		Taken Not Taken	Taken Not Taken
1 st		Taken Not Taken	Taken Not Taken
2 nd		Taken Not Taken	Taken Not Taken
3 rd		Taken Not Taken	Taken Not Taken
1 st		Taken Not Taken	Taken Not Taken
2 nd		Taken Not Taken	Taken Not Taken
3 rd		Taken Not Taken	Taken Not Taken