WRITE COUNT PREDICTION FOR ENCRYPTED MAIN MEMORY

Team 3

Team Members

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Objective

To create a memory system to predict the write count of a memory location before the location is actually fetched into the main memory.

Task

- **Implement a lossy hash table to model Last Level Cache in C++**
- **Implement data structures to store write count history, predicted write count**
- Generate address traces using benchmarks
- **Implement Prediction Algorithm based on the history**
- **Vary parameters to find optimal prediction coverage.**

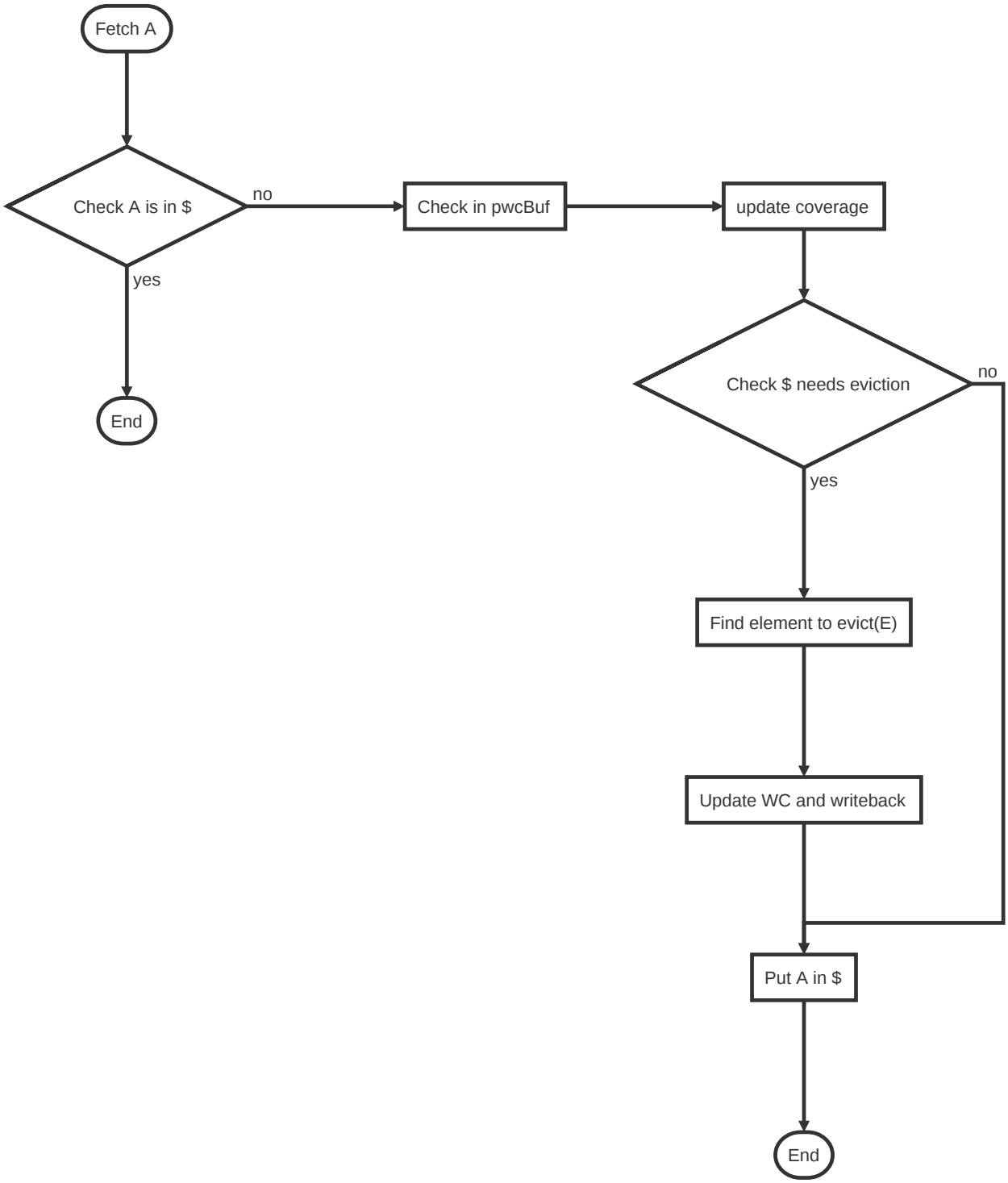
Note: Tasks in bold has been completed successfully

Design

The design is divided into three main component:

- **Main Memory**
- **Cache**
- **Predicted Write Count Buffer** (pwcBuf)
- **Patter Fifo**

Prediction Algorithm




```
def putinCache(A):
    patternFifo.size() == HISTORY_SIZE:
        x = patternFifo.pop()
        UpdateWCHistory(x)
    patternFifo.push(A)
```

Results

Analysis

Conclusion