

1. Cache Management

Replacement policy to minimize cache misses (maximize cache hits):

when cache is full, replace the page that will be accessed *furthest in the future*.

Requires unrealistic knowledge of the future, but useful for comparisons.

Example, cache size 3, page access: 0, 1, 2, 0, 1, 3, 0, 3, 1, 2, 1

Access	Hit/Miss?	Evict	Resulting Cache State
0	Miss		0
1	Miss		0, 1
2	Miss		0, 1, 2
0	Hit		0, 1, 2
1	Hit		0, 1, 2
3	Miss	2	0, 1, 3
0	Hit		0, 1, 3
3	Hit		0, 1, 3
1	Hit		0, 1, 3
2	Miss	3	0, 1, 2
1	Hit		0, 1, 2

Figure 22.1: Tracing The Optimal Policy

6 hits, 5 misses, hit rate = $6/(6+5) = 54.5\%$

Excluding compulsory misses (first access): 6 hits, 1 miss, hit rate = $6/(6+1) = 85.7\%$