

Algorithm: Direct Mapping Cache Replacement

Step 1

Start the program.

Step 2

Read the cache size (cache_size).

Step 3

Initialize the cache with -1 in all positions to indicate empty cache lines.

Step 4

Read the number of memory blocks (n).

Step 5

Read the memory block reference string (blocks).

Step 6

Initialize hit = 0 and miss = 0.

Step 7

For each memory block in the reference string, do the following:

1. Compute the cache index using
index = block % cache_size
2. If the cache line at index contains the same block:
 - Increment hit
 - Display **Cache HIT**
3. Else:
 - Replace the block at that cache index
 - Increment miss
 - Display **Cache MISS**

Step 8

After processing all blocks, display:

- Final cache contents
- Total number of cache hits
- Total number of cache misses

Step 9

Stop the program.