

## **Algorithm: FIFO Cache Simulation**

### **Step-by-Step Algorithm**

**1. Start**

**2. Initialize**

- Create an empty list cache.
- Set hits = 0.
- Set misses = 0.
- Set replace\_index = 0 (FIFO pointer).

**3. For each block in the reference string:**

1. Check if the block is already in the cache.

2. If the block is found (HIT):

- Increment hits by 1.

3. Else (MISS):

- Increment misses by 1.
- If cache is not full:
  - Insert the block at the end of the cache.
- Else:
  - Replace the block at position replace\_index with the new block.
  - Update replace\_index = (replace\_index + 1) mod cache\_size (move FIFO pointer).

4. After processing all references:

- Compute hit\_ratio = hits / (hits + misses).

**5. Display**

- Total hits
- Total misses
- Hit ratio
- Final cache content

**6. End**

## OUTPUT

Reference: 1

Status: MISS

Cache: [1]

Reference: 2

Status: MISS

Cache: [1, 2]

Reference: 3

Status: MISS

Cache: [1, 2, 3]

Reference: 2

Status: HIT

Cache: [1, 2, 3]

Reference: 4

Status: MISS

Cache: [4, 2, 3]

Reference: 1

Status: MISS

Cache: [4, 1, 3]

Reference: 5

Status: MISS

Cache: [4, 1, 5]

Reference: 2

Status: MISS

Cache: [2, 1, 5]

Reference: 3

Status: MISS

Cache: [2, 3, 5]

--- Final Results ---

Total Hits: 1

Total Misses: 8

Hit Ratio: 0.11