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import java.util.*;

public class Lru {
	static Scanner scanner = new Scanner(System.in);

	public void LruImplementation(int pages[], int capacity) {
		int pageFaults = 0;
		HashMap<Integer, Integer> map = new HashMap();
		HashSet<Integer> currentSet = new HashSet();

		for(int i = 0 ; i < pages.length; i++) {

			if(currentSet.size() < capacity) {
				if(!currentSet.contains(pages[i])) {
					currentSet.add(pages[i]);
					pageFaults++;
				}
				map.put(pages[i],i);
			}
			else {
				if(!currentSet.contains(pages[i])) {

					Iterator<Integer> it = currentSet.iterator();
					int lru = Integer.MAX_VALUE;
					int val = 0;
					while(it.hasNext()) {
						int temp = it.next();
						if(map.get(temp) < lru) {
							lru = map.get(temp);
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                                        val = temp;
                                    }
                                }
                                currentSet.remove(val);
                                map.remove(val);
                                currentSet.add(pages[i]);
                                pageFaults++;
                            }
                            map.put(pages[i],i);
                        }
                    }
                    System.out.println("Page Faults: "+pageFaults);
                    int pageHits = pages.length - pageFaults;
                    System.out.println("Page Hits: "+pageHits);
                    System.out.println("Hit Ratio: "+pageHits + "/" + pages.length + " = " +
(double)pageHits/pages.length);
            }

            public static void main(String[] args) {
                    int capacity, n, pages[];
                    // int pages[] = {1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6};
                    Lru lru = new Lru();

                    System.out.print("Enter capacity of page frame: ");
                    capacity = scanner.nextInt();

                    System.out.print("Enter number of page sequence: ");
                    n = scanner.nextInt();
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            pages = new int[n];

            System.out.print("Enter values (space separated): ");
            for(int i = 0 ; i < n ; i++) {
                pages[i] = scanner.nextInt();
            }

            lru.LruImplementation(pages, capacity);

        }
}
```