LRU Page Replacement Algorithm

import java.util.\*;

public class Lru {

 public static void main(String[] args) {

 Scanner scanner = new Scanner(System.in);

 System.out.print("Enter the number of frames: ");

 int numberOfFrames = scanner.nextInt();

 System.out.print("Enter the number of pages: ");

 int numberOfPages = scanner.nextInt();

 System.out.print("Enter the page reference string (space-separated): ");

 int[] pageReferenceString = new int[numberOfPages];

 for (int i = 0; i < numberOfPages; i++) {

 pageReferenceString[i] = scanner.nextInt();

 }

 LinkedList<Integer> frames = new LinkedList<>();

 int pageFaults = 0;

 for (int page : pageReferenceString) {

 if (!frames.contains(page)) {

 if (frames.size() >= numberOfFrames) {

 frames.removeFirst(); // Remove the least recently used page

 }

 frames.addLast(page);

 pageFaults++;

 } else {

 frames.remove(frames.indexOf(page)); // Move the used page to the end

 frames.addLast(page);

 }

System.out.print("Frames: ");

 for (int frame : frames) {

 System.out.print(frame + " ");

 }

 System.out.println();

 }

 System.out.println("Total Page Faults: " + pageFaults);

 System.out.println("Total Page Faults: " + pageFaults + ":"+numberOfPages);

 scanner.close();

 }

}

OUTPUT:

Enter the number of frames: 3

Enter the number of pages: 12

Enter the page reference string (space-separated): 2 3 2 1 5 2 4 5 3 2 5 2

Frames: 2

Frames: 2 3

Frames: 3 2

Frames: 3 2 1

Frames: 2 1 5

Frames: 1 5 2

Frames: 5 2 4

Frames: 2 4 5

Frames: 4 5 3

Frames: 5 3 2

Frames: 3 2 5

Frames: 3 5 2

Total Page Faults: 7

Page Fault ratio: 7:12