LRU Page Replacement Algorithm

```
import java.util.*;

public class Main {
    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);
    scanner.close();
  }
}
```

Output:

```
Enter the number of frames: 4

Enter the number of pages: 14

Enter the page reference string (space-separated): 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3,� �^[[D� �� �� �� ��
�^[[D� �� �� �� �^[[1;2H� �� �� �� �� �� �� �� �� �� �� �� �� �� �� �� �� �� �� �� �� �� �� �� ��
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Frames: 7

Frames: 7 0

Frames: 7 0 1

Frames: 7 0 1 2

Frames: 7 1 2 0

Frames: 1 2 0 3

Frames: 1 2 3 0

Frames: 2 3 0 4

Frames: 3 0 4 2

Frames: 0 4 2 3

Frames: 4 2 3 0

Frames: 4 2 0 3

Frames: 4 0 3 2

Frames: 4 0 2 3

Total Page Faults: 6
```