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1  #include <stdio.h>
2  #include <stdlib.h>
3  #define MAX_FRAMES 3
4  void printFrames(int frames[], int n) {
5      for (int i = 0; i < n; i++) {
6          if (frames[i] == -1) {
7              printf(" - ");
8          } else {
9              printf(" %d ", frames[i]);
10         }
11     }
12     printf("\n");
13 }
14 int main() {
15     int frames[MAX_FRAMES];
16     for (int i = 0; i < MAX_FRAMES; i++) {
17         frames[i] = -1;
18     }
19     int pageFaults = 0;
20     int referenceString[] = {7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2};
21     int n = sizeof(referenceString) / sizeof(referenceString[0]);
22     printf("Reference String: ");
23     for (int i = 0; i < n; i++) {
24         printf("%d ", referenceString[i]);
25     }
26     printf("\n\n");
27     printf("Page Replacement Order:\n");
28     for (int i = 0; i < n; i++) {
29         int page = referenceString[i];
30         int pageFound = 0;
31         for (int j = 0; j < MAX_FRAMES; j++) {
32             if (frames[j] == page) {
33                 pageFound = 1;
34                 break;
35             }
36         }

```

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37 if (!pageFound) {
38     printf("Page %d -> ", page);
39     int optimalPage = -1;
40     int farthestDistance = -1;
41     for (int j = 0; j < MAX_FRAMES; j++) {
42         int futureDistance = 0;
43         int found = 0;
44
45         for (int k = i + 1; k < n; k++) {
46             if (referenceString[k] == frames[j]) {
47                 found = 1;
48                 break;
49             }
50             futureDistance++;
51         }
52         if (!found) {
53             optimalPage = j;
54             break;
55         }
56         if (futureDistance > farthestDistance) {
57             farthestDistance = futureDistance;
58             optimalPage = j;
59         }
60     }
61     frames[optimalPage] = page;
62     printFrames(frames, MAX_FRAMES);
63     pageFaults++;
64 }
65 }
66 printf("\nTotal Page Faults: %d\n", pageFaults);
67 return 0;
68 }

```

Reference String: 7 0 1 2 0 3 0 4 2 3 0 3 2

Page Replacement Order:

Page 7 -> 7 - -

Page 0 -> 0 - -

Page 1 -> 0 1 -

Page 2 -> 0 2 -

Page 3 -> 0 2 3

Page 4 -> 4 2 3

Page 0 -> 0 2 3

Total Page Faults: 7

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Process exited after 0.1102 seconds with return value 0

Press any key to continue . . . |