

```

#include <stdio.h>

#define FRAME_SIZE 3 // Size of the frame
#define PAGE_SIZE 10 // Number of pages

void lru(int pages[], int n) {
    int frames[FRAME_SIZE]; // Array to store frames
    int counter[FRAME_SIZE]; // Array to store counter for each frame
    int page_faults = 0; // Counter for page faults
    int i, j, k, lru;

    // Initialize frames and counter to -1
    for (i = 0; i < FRAME_SIZE; i++) {
        frames[i] = -1;
        counter[i] = -1;
    }

    // Loop through each page
    for (i = 0; i < n; i++) {
        // Check if page already exists in frame
        int hit = 0;
        for (j = 0; j < FRAME_SIZE; j++) {
            if (frames[j] == pages[i]) {
                hit = 1;
                counter[j] = i; // Update counter for hit page
                break;
            }
        }

        // If page is not found in frame
        if (!hit) {

```

```

// Increment page fault counter
page_faults++;

// Find the least recently used page
lru = 0;
for (k = 1; k < FRAME_SIZE; k++) {
    if (counter[k] < counter[lru])
        lru = k;
}

// Replace the least recently used page with the current page
frames[lru] = pages[i];
counter[lru] = i;
}

// Print the current state of frames after each iteration
printf("Page %d -> ", pages[i]);
for (j = 0; j < FRAME_SIZE; j++) {
    if (frames[j] == -1)
        printf("- ");
    else
        printf("%d ", frames[j]);
}
printf("\n");
}

// Print the total number of page faults
printf("\nTotal page faults: %d\n", page_faults);
}

int main() {

```

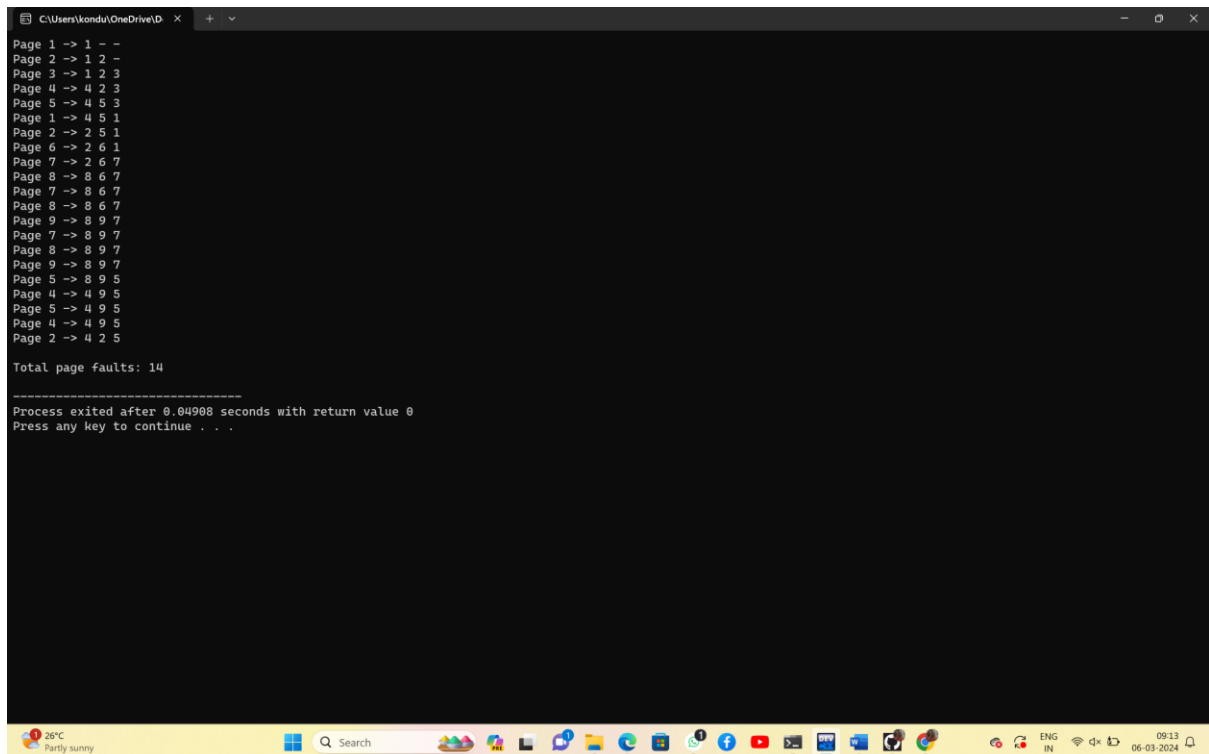
```
int pages[] = {1, 2, 3, 4, 5, 1, 2, 6, 7, 8, 7, 8, 9, 7, 8, 9, 5, 4, 5, 4, 2};
```

```
int n = sizeof(pages) / sizeof(pages[0]);
```

```
lru(pages, n);
```

```
return 0;
```

```
}
```



```
C:\Users\kundu\OneDrive\ID >
Page 1 -> 1 - -
Page 2 -> 1 2 -
Page 3 -> 1 2 3
Page 4 -> 4 2 3
Page 5 -> 4 5 3
Page 1 -> 4 5 1
Page 2 -> 2 5 1
Page 6 -> 2 6 1
Page 7 -> 2 6 7
Page 8 -> 8 6 7
Page 7 -> 8 6 7
Page 8 -> 8 6 7
Page 9 -> 8 9 7
Page 7 -> 8 9 7
Page 8 -> 8 9 7
Page 9 -> 8 9 7
Page 5 -> 8 9 5
Page 4 -> 4 9 5
Page 5 -> 4 9 5
Page 4 -> 4 9 5
Page 2 -> 4 2 5

Total page faults: 14

-----
Process exited after 0.04908 seconds with return value 0
Press any key to continue . . .
```