// Program to calculate number of page faults for reference string for FIFO page replacement algorithms

#include <stdio.h>

#define MAX\_FRAMES 10

int isPageInFrames(int frames[], int frameCount, int page) {

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

if (frames[i] == page) {

return 1; // Page found in frames

}

}

return 0; // Page not found

}

int main() {

int frameCount, pageCount;

int pageFaults = 0;

int nextFrameToReplace = 0; // To keep track of which frame to replace next

// Input: Number of frames and number of pages in the reference string

printf("Enter the number of frames: ");

scanf("%d", &frameCount);

printf("Enter the number of pages in the reference string: ");

scanf("%d", &pageCount);

int pages[pageCount];

printf("Enter the reference string (space-separated): ");

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

scanf("%d", &pages[i]);

}

int frames[MAX\_FRAMES];

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

frames[i] = -1; // Initialize frames as empty

}

// Processing each page in the reference string

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

int currentPage = pages[i];

// Check if the current page is already in the frames

if (!isPageInFrames(frames, frameCount, currentPage)) {

// Page fault occurs as the page is not in frames

frames[nextFrameToReplace] = currentPage; // Replace the page at nextFrameToReplace

pageFaults++; // Increment page faults

nextFrameToReplace = (nextFrameToReplace + 1) % frameCount; // Move to the next frame

}

}

printf("\nTotal Page Faults: %d\n", pageFaults);

return 0;

}