#include <iostream>

using namespace std;

int main() {

int pages[] = {7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1};

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

int frame[3] = {-1, -1, -1}; // Fixed frame size of 3, initialized to -1

int nextFrame = 0, pageFaults = 0;

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

bool pageFound = false;

// Check if page is already in frame

for (int j = 0; j < 3; j++) {

if (frame[j] == pages[i]) {

pageFound = true;

cout << "Page hit: " << pages[i] << endl;

break;

}

}

// If page not found, it's a page fault

if (!pageFound) {

frame[nextFrame] = pages[i]; // Replace page using FIFO order

nextFrame = (nextFrame + 1) % 3; // Update nextFrame index

pageFaults++;

cout << "Page fault: " << pages[i] << endl;

}

}

cout << "Total Page Faults: " << pageFaults << endl;

return 0;

}