#include <stdio.h>

#include <stdlib.h>

#define PAGE\_SIZE 1024

void translate\_address(int logical\_address, int page\_table[], int num\_pages)

{

int page\_number = logical\_address / PAGE\_SIZE;

int offset = logical\_address % PAGE\_SIZE;

if (page\_number >= num\_pages)

{

printf("Invalid logical address: Page number exceeds page table size.\n");

return;

}

int frame\_number = page\_table[page\_number];

int physical\_address = frame\_number \* PAGE\_SIZE + offset;

printf("Logical address %d -> Page number: %d, Offset: %d\n",logical\_address, page\_number, offset);

printf("Page number %d -> Frame number: %d\n", page\_number,frame\_number);

printf("Physical address: %d\n\n", physical\_address);

}

int main()

{

int num\_pages, num\_frames,i;

printf("Enter number of pages in the logical address space: ");

scanf("%d", &num\_pages);

printf("Enter number of frames in the physical memory: ");

scanf("%d", &num\_frames);

int page\_table[num\_pages];

printf("Enter the frame number for each page (enter -1 for invalid pages):\n");

for (i = 0; i < num\_pages; i++)

{

printf("Page %d: ", i);

scanf("%d", &page\_table[i]);

if (page\_table[i] >= num\_frames || page\_table[i] < -1)

{

printf("Invalid frame number! Please enter a value between -1 and %d.\n", num\_frames - 1);

i--;

}

}

int logical\_address;

while (1)

{

printf("\nEnter a logical address (or -1 to quit): ");

scanf("%d", &logical\_address);

if (logical\_address == -1)

{

break;

}

translate\_address(logical\_address, page\_table, num\_pages);

}

return 0;

}

/\*

Enter number of pages in the logical address space: 4

Enter number of frames in the physical memory: 3

Enter the frame number for each page (enter -1 for invalid pages):

Page 0: 2

Page 1: 1

Page 2: 0

Page 3: -1

Enter a logical address (or -1 to quit): 2050

Logical address 2050 -> Page number: 2, Offset: 2

Page number 2 -> Frame number: 0

Physical address: 2

Enter a logical address (or -1 to quit): 1025

Logical address 1025 -> Page number: 1, Offset: 1

Page number 1 -> Frame number: 1

Physical address: 1025

Enter a logical address (or -1 to quit): -1

\*/