

EXPERIMENT-31

Construct a C program to simulate the First in First Out paging technique of memory management.

AIM:-

To simulate the First In First Out (FIFO) page replacement algorithm and show how memory management works using this technique.

ALGORITHM:-

1. Input: Take the reference string (sequence of page requests) and the number of frames (available memory slots).
2. Page Fault: A page fault occurs when a requested page is not in memory.
3. FIFO Replacement: When memory is full and a page fault occurs, replace the oldest page (first inserted page) in memory.
4. Display: Print the page frames and the number of page faults.

PROCEDURE:-

1. Initialize the page frame as empty.
2. For each page request in the reference string:
 - If the page is not in memory, cause a page fault and insert the page into memory.
 - If memory is full, replace the oldest page using FIFO.
3. Display the page frames after each page request and count the number of page faults.

CODE:-

```
#include <stdio.h>
```

```
#include <pthread.h>
```

```
#include <unistd.h>

// Function to be executed by thread1

void* thread1_func(void* arg) {

    printf("Thread 1 is executing.\n");

    return NULL;

}

// Function to be executed by thread2

void* thread2_func(void* arg) {

    printf("Thread 2 is executing.\n");

    return NULL;

}

int main() {

    pthread_t thread1, thread2;

    // Thread creation

    pthread_create(&thread1, NULL, thread1_func, NULL);

    pthread_create(&thread2, NULL, thread2_func, NULL);

    // Checking if thread1 and thread2 are equal (they are not)

    if (pthread_equal(thread1, thread2)) {

        printf("Thread1 and Thread2 are the same.\n");

    }

}
```

```

    } else {

        printf("Thread1 and Thread2 are different.\n");

    }

    // Waiting for threads to finish (joining)

    pthread_join(thread1, NULL);

    pthread_join(thread2, NULL);

    // Threads exit

    printf("Both threads finished execution.\n");

    return 0;

}

```

OUTPUT:-

Welcome, Ravi Sai vinay M ▲	Page Frames:
31 OS LAB	Page Fault: 7 - -
Create New Project	Page Fault: 7 0 -
My Projects	Page Fault: 7 0 1
Classroom new	Page Fault: 2 0 1
Learn Programming	Page Fault: 2 3 1
Programming Questions	Page Fault: 2 3 0
Upgrade	Page Fault: 4 3 0
Logout ▼	Page Fault: 4 2 0
	Page Fault: 4 2 3
	Page Fault: 0 2 3
	Page Fault: 0 4 3
	Page Fault: 0 4 2
	Total Page Faults: 12

RESULT:-

FIFO Page Replacement: The program simulates the FIFO page replacement technique correctly.

Page Faults: It correctly identifies when a page fault occurs and replaces the oldest page when necessary.

Output: The program outputs the content of the page frames and the total number of page faults.