

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

```
#include <stdlib.h>
```

```
#define MAX_FRAMES 3
```

```
#define MAX_PAGES 10
```

```
int frames[MAX_FRAMES];
```

```
int pages[MAX_PAGES];
```

```
int page_faults = 0;
```

```
int frame_index = 0;
```

```
void initializeFrames() {
```

```
    for (int i = 0; i < MAX_FRAMES; i++) {
```

```
        frames[i] = -1;
```

```
    }
```

```
}
```

```
void displayFrames() {
```

```
    printf("Current Frames: ");
```

```
    for (int i = 0; i < MAX_FRAMES; i++) {
```

```
        if (frames[i] != -1) {
```

```
            printf("%d ", frames[i]);
```

```
        }
```

```
    }
```

```
    printf("\n");
```

```
}
```

```
int isPageInMemory(int page) {
```

```
    for (int i = 0; i < MAX_FRAMES; i++) {
```

```
        if (frames[i] == page) {
```

```
            return 1;
```

```

    }
}
return 0;
}

```

```

int replacePage() {
    frame_index = (frame_index + 1) % MAX_FRAMES;
    return frame_index;
}

```

```

void simulateFIFO() {
    initializeFrames();

    for (int i = 0; i < MAX_PAGES; i++) {
        printf("\nAccess Page %d: ", pages[i]);

        if (!isPageInMemory(pages[i])) {
            frames[frame_index] = pages[i];
            page_faults++;
            displayFrames();
            frame_index = replacePage();
        } else {
            printf("Page already in memory\n");
            displayFrames();
        }
    }
}

```

```

int main() {
    for (int i = 0; i < MAX_PAGES; i++) {
        pages[i] = rand() % 5; // Randomly generate page numbers from 0 to 4
    }
}

```

```
}

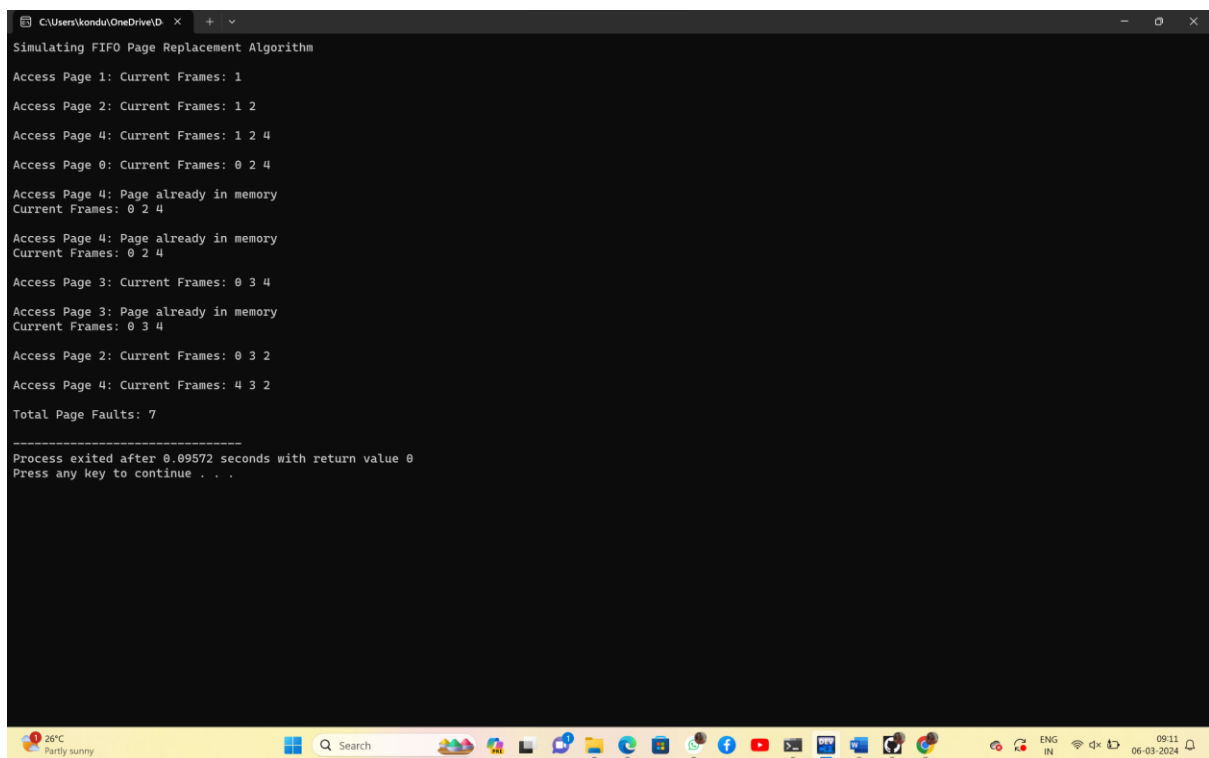
printf("Simulating FIFO Page Replacement Algorithm\n");

simulateFIFO();

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

return 0;

}
```



The screenshot shows a Windows command prompt window with the title bar "C:\Users\kondur\OneDrive\ID". The window displays the output of a program simulating the FIFO page replacement algorithm. The output text is as follows:

```
Simulating FIFO Page Replacement Algorithm
Access Page 1: Current Frames: 1
Access Page 2: Current Frames: 1 2
Access Page 4: Current Frames: 1 2 4
Access Page 0: Current Frames: 0 2 4
Access Page 4: Page already in memory
Current Frames: 0 2 4
Access Page 4: Page already in memory
Current Frames: 0 2 4
Access Page 3: Current Frames: 0 3 4
Access Page 3: Page already in memory
Current Frames: 0 3 4
Access Page 2: Current Frames: 0 3 2
Access Page 4: Current Frames: 4 3 2
Total Page Faults: 7

-----
Process exited after 0.09572 seconds with return value 0
Press any key to continue . . .
```

The Windows taskbar at the bottom shows the system clock as 09:11 on 06-03-2024, and the weather as 28°C Partly sunny.