

Code for FIFO algorithm :-

Python3 implementation of FIFO page replacement in Operating Systems.

from queue import Queue

```
def pageFaults(incomingStream, n, frames):
```

```
    print("Incoming \t pages")
```

```
    # Using Hashset to quickly check if a gives incoming stream item in set or not
```

```
    s = set()
```

```
    # Queue created to store pages in FIFO manner since set will not store order or entry
```

```
    # we will use queue to note order of entry of incoming page
```

```
    queue = Queue()
```

```
    page_faults = 0
```

```
    for i in range(n):
```

```
        # if set has lesser item than frames i.e. set can hold more items
```

```
        if len(s) < frames:
```

```
            # If incoming item is not present, add to set
```

```
            if incomingStream[i] not in s:
```

```
                s.add(incomingStream[i])
```

```
            # increment page fault
```

```
            page_faults += 1
```

```
            # Push the incoming page into the queue
```

```
            queue.put(incomingStream[i])
```

```
        # If the set is full then we need to do page replacement in FIFO manner that is remove first item
```

```
        # from both set and queue then insert incoming page
```

```
        else:
```

```
            # If incoming item is not present
```

```
            if incomingStream[i] not in s:
```

```
                # remove the first page from the queue
```

```
                val = queue.queue[0]
```

```
                queue.get()
```

```
            # Remove from set
```

```
            s.remove(val)
```

```
            # insert incoming page to set
```

```
            s.add(incomingStream[i])
```

```
            # push incoming page to queue
```

```
            queue.put(incomingStream[i])
```

```
            # Increment page faults
```

```
page_faults += 1
```

```
print(incomingStream[i], end="\t\t")
```

```
for q_item in queue.queue:
```

```
    print(q_item, end="\t")
```

```
print()
```

```
return page_faults
```

```
# Driver code
```

```
incomingStream = [7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1]
```

```
n = len(incomingStream)
```

```
frames = 3
```

```
page_faults = pageFaults(incomingStream, n, frames)
```

```
hits = n - page_faults
```

```
print("\nPage Faults: " + str(page_faults))
```

```
print("Hit: " + str(hits))
```