# Page Fault and Page Replacement

**What happen when there is a page fault?**

➡ The OS loads the faulted page frame from disk into physical memory

**What when there is no physical memory available?**

(or the process has reach its limit of maximum page frame allowed)

➡ The OS must evict an existing frame (swap) to replace it with the new one

**How to determine which page frame should be evicted?**

➡ The page replacement algorithm (a.k.a page eviction policy) determines which page frame to evict to minimize the fault rate (affecting paging performances)

# Page Replacement Algorithms

The goal of the replacement algorithm is to reduce the fault rate by selecting the best victim page to remove

- **FIFO - First In, First Out**
  evict the oldest page in the system
- **LRU - Last Recently Used**
  evict the page that has not been used for the longest time in the past
- **Second Chance**
  an approximation of LRU (more implementable)

➡ Replacement algorithms are evaluated on a reference string by counting the number of page faults