Assignment #2

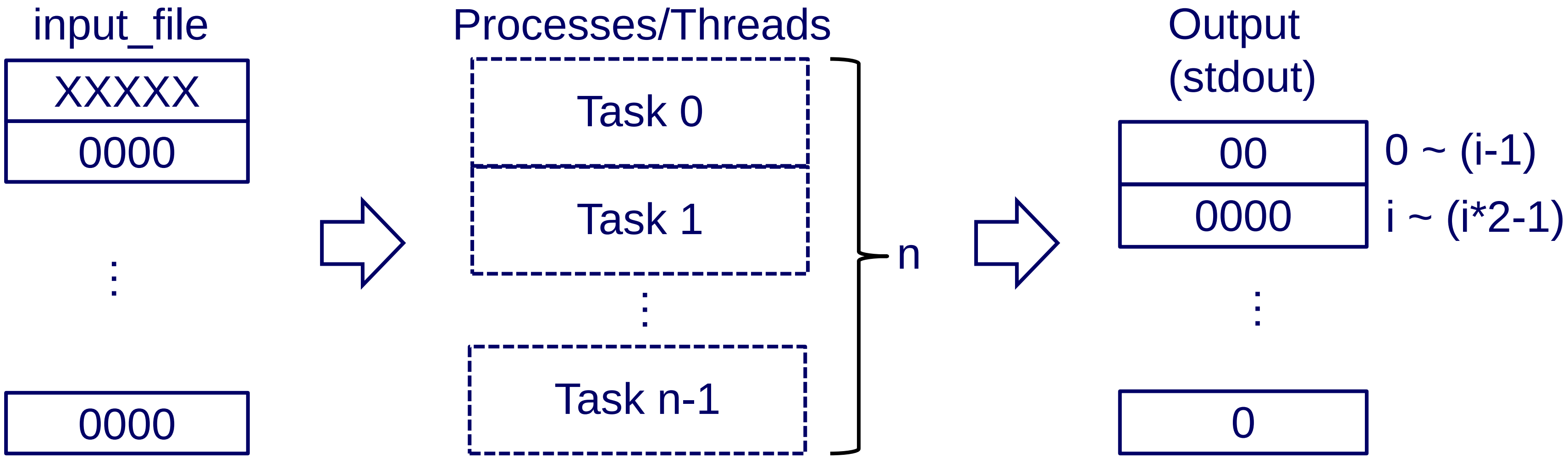
Finding Frequency Distribution (도수분포)

- A given number of processes or threads find a frequency distribution of values in a file
  - Divide and conquer
- Multi-process program
  - fork()
  - Each process has a separate virtual memory space
    - » Use POSIX message queue
- Multi-threaded program
  - pthread_create()
  - Threads share the same virtual memory space
    - » Use mutex

Assignment #2

Finding Frequency Distribution

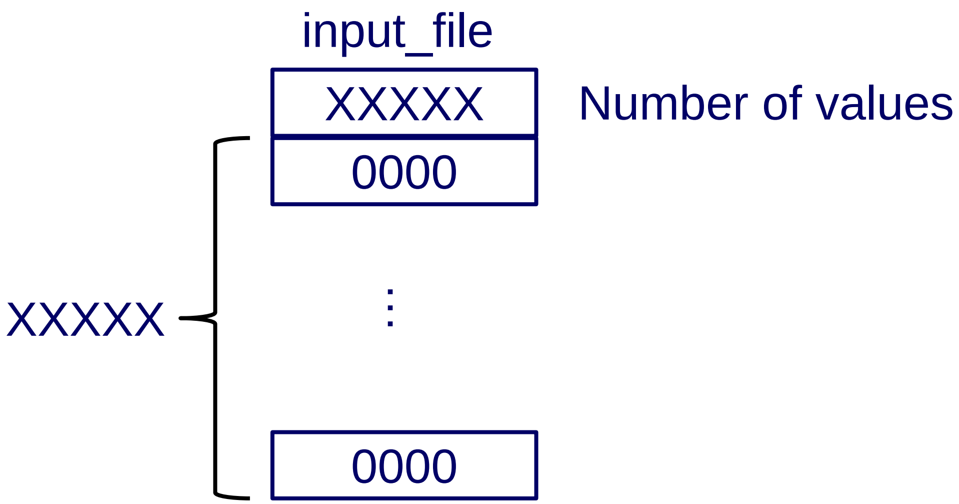
- Command
  - ku_pfred n i input_file
  - ku_tfred n i input_file
    - » n: number of processes/threads <int>
    - » i: interval <int>
    - » input_file: a file that includes XXXXX values



Assignment #2

Finding Frequency Distribution

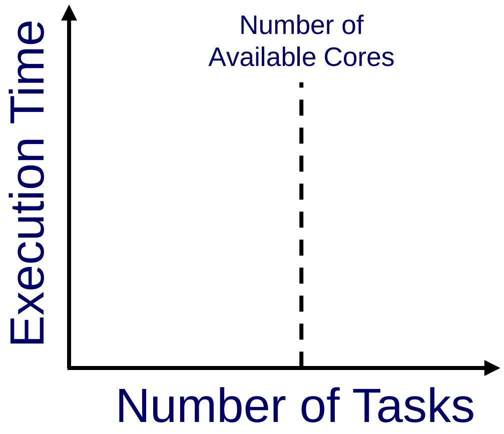
- Input file format
  - First line represents the number of values
  - Each value occupies 4 bytes (□□□0 ~ 9999)
- You may want to study pread() and pwrite()



Assignment #2

Performance Evaluation

- Measure the time taken for different numbers of cores
  - Can measure on your computer
  - A quad-core machine (octa-core with hyperthreading) will be also provided at SSLab (신공 1218)
    - » You can use the machine from 12/2(Mon.)
    - » 2:00~5:00 pm Mon. ~ Fri.
- Intention
  - NOT to compare yours with others
  - To observe the impact of parallelism



Assignment #2

Submission Guideline

- Source codes
  - ku_pfred.c and ku_pfred.h (optional)
  - ku_tfred.c and ku_tfred.h (optional)
- Document
  - Design and implementation (3 pages)
  - Function description

Function Name	Arguments	Description
	Return Value	

  - Performance evaluation
- Deadline
  - 12/6(Fri.) Midnight (hard deadline)

Assignment #2

Submission Guideline

- E-mail: sslab2019@gmail.com
- Title
  - [2019_시스템프로그램#2_A] ID_Name
    - » A Class: 9:00 am Wed. (2036)
  - [2019_시스템프로그램#2_B] ID_Name
    - » B Class: 9:00 am Mon. (2035)

Assignment #2

Grading

- Whether have both design alternatives been properly implemented?
  - Process- and thread-based designs
    - » Of course parallelism is important!!!
  - If you cannot implement both, choose one (not recommended)
- How much the codes well organized and stable?
- Does the document include all required information?
- Cheating -> F