5118020-03 Operating Systems

Homework 3.
Multithreaded Mergesort

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Overview

- Revise `pmergesort.c` to improve concurrency
- Point of study
  - Multithreading with Pthread
- Timelines
  - May 28: First announcement & team arrangement
  - June 3-4: Help desks
  - June 6: Submission Deadline (Artifact)
  - June 7: Submission Deadline (Presentation Video)

Tasks

1. Revise `pmergesort.c` to receive the number of data and the number of threads as command-line arguments
   - Usage: `./pmergesort -d <# data elements> -t <# threads>`
   - Use `getopt()`
   - Show error messages when invalid arguments are given

2. Revise `pmergesort.c` to print out the execution time at termination
   - similar fashion as `time`

3. Parallelize the data initiation step and the list merging step
   - minor changes on the existing code and data structures are allowed

4. (optional) Revise the program to improve concurrency and performance further if possible

Video Presentation

- Take a 4-min video for reviewing the source code and testing the program
  - either in Korean or in English
  - every team member must take a part in presentation

- Your video must show how each API is implemented and used
  - Demonstrate the revised program
  - Explain the code changes
  - For Task 4, explain each idea and the related code change in detail

Submission

- All results must be submitted via LMS
  - Source code files
    - Submit all source code
    - You must provide a build script (e.g., bash script or Makefile) and its instruction document (e.g., README) if needed
  - Presentation
    - Submit the video record file; or, you can submit the URL to the presentation video on web
- No late submissions will be accepted

Notes

- Welcome your questions anytime on the Slack channel
- The team members must share the same responsibilities and take in charge of all tasks together
  - Peer evaluation follows immediately after the submission deadline
  - Inform me quickly if you keep fail to contact with your teammate
- It is strictly permitted to use auto-programming tools in any form

Teams

1301	박태영	윤별, 이동규**
1302	구경선	김금영
1303	곽시열	김문기
1304	김민정	김호진
1305	남해림	김연수
1306	신현욱	권진용
1307	고영찬	배수환
1308	김아현	최유림
1309	김동우	배근영
1310	김태형	김태화
1311	정인성	변재윤
1312	김민선	김문호
1313	강희수	김시은
1314	이준혁	강성애
1315	HAN BIN	이지민, 윤휘정**
1316	서범수	이은총
1317	김가현	박선영