
CS344: Operating Systems Lab

Lab # 05 (1 Questions, 80 Points)

Held on 26-Sep-2023

Lab Timings: 09:00 to 12:00 Hours Pages: 1

Submission: 12:00 Hrs, 26-Sep-2023

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- a. This assignment is based on chapter 3, Process Management in the book Operating System Principles, Abraham Silberschatz, Peter Baer Galvin, and Greg Gagne.
- b. In order to perform this assignment, understanding of system calls `ftok()`, `shmget()`, `shmat()`, `shmctl()`, `shmdt()`, `shmctl()` are essential.
- c. Read the attached resource for a understanding about shared memory
- d. Carefully read the manual pages for the above system calls.

Question 1: (80 points)

Interprocess communication: Implement the following:

- a. **Shared memory** Computing score card. Given an input file `week05-ML2-input.txt` containing cricket commentary, the objective is to construct score card from the input. Adopt the following method for performing this task:
 - i. (30 marks) 1st C program
 - (5 marks) Obtain a key
 - (5 marks) Create a shared memory object
 - (5 marks) Attach shared memory
 - (5 marks) Reads the input file `week05-ML2-input.txt`
 - (5 marks) Write the commentary data into the shared memory
 - (5 marks) Detaches the shared memory object
 - ii. (50 marks) 2nd C program
 - (5 marks) Obtain a key
 - (5 marks) Get access to the existing shared memory segment
 - (5 marks) Attach the shared memory created by 1st program
 - (5 marks) Read the commentary data
 - (20 marks) Computes score card
 - (5 marks) Print the score card on to the terminal
 - (5 marks) Free the created shared memory object