Lab sheet 4 - Inter Process Communication

1. Write a C Program that allows communication between parent and child process using shared memory. The child should take an input (a String)from the user and supply it to the parent and parent should change the it to a string in uppercase and print it there.
2. Implement program 1 using Ordinary Pipe.

3. Write a C Program that allows communication between parent and child process using shared memory. The child should keep on taking integers from user and supplying it to parent until a special character is encountered. Parent should provide sum of these numbers to the child. [Add enough sleep statements so that the parent will not miss out any number No buffering is needed.]
4. Implement Program 3 using Ordinary Pipe.

5. Write a c program [using shared memory] to find average of square of numbers supplied by a user using 3 processes. 1 parent and two children. [Without buffer]
    a. Parent should continuously take integers as input from the user until a special character, square it and supply it to both children.
    b. Child #1 should find sum of theses numbers, send it to the parent and exit.
    c. Child #2 should count these numbers, send it to the parent and exit
    d. Parent on getting response from both the children should find mean of square of numbers supplied by the user by dividing the child #1's result with child 2's and give it to the user.
6. Implement Program 5 using pipe.

7. Implement producer consumer problem using shared memory in C where producer should keep on producing random numbers until a special number is produced. and consumer should count no. of even numbers and odd numbers in it. If more even numbers are produced Let the consumer print “Unlocked” and otherwise print “Permission denied”. [Implement it using two c programs producer.c and consumer.c. Use a bounded buffer and see whether any synchronization issue is there? Try to solve the issue by adding enough sleep statements in between]

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