

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE PILANI,
K. K. BIRLA GOA CAMPUS
I SEMESTER 2016-2017
Advanced Operating Systems (CS G623)
Assignment 2
Due date 05/09/2016 (11:59 P.M)**

Instructions:

- (1) This is an **individual** assignment. Please see section 4b of handout for Malpractice regulations.
- (2) The programming assignments will be graded according to the following criteria
 - Completeness; does your program implement the whole assignment?
 - Correctness; does your program provide the right output?
 - Efficiency; have you chosen appropriate algorithms and data structures for the problem?
 - Programming style (including documentation and program organization); is the program well designed and easy to understand?
 - Viva conducted by me.

DO NOT FORGET to include a README file (text only) in your tar.gz file with the following contents.

General README instructions

In the directory you turn in (please upload the assignment as a tar.gz file), you must have a text-only file called README, in which you will cover AT LEAST the following:

1. Your name. If you interacted significantly with others indicate this as well.
2. A list of all files in the directory and a short description of each.
3. HOW TO COMPILE your program.
4. HOW TO USE (execute) your program.
5. A description of the structure of your program.
6. In case you have not completed the assignment, you should mention in significant detail:
 - What you have and have not done
 - Why you did not manage to complete your assignment (greatest difficulties)This will allow us to give you partial credit for the things you have completed.
7. Document any bugs of your program that you know of. Run-time errors will cost you fewer points if you document them and you show that you know their cause. Also describe what you would have done to correct them, if you had more time to work on your project.

QUESTION

Design a batch job executor with the following specifications:

Store the batch job in a file and provide the file name as command line argument. All the commands before %BEGIN in batch file should be ignored. All %BEGINs until %END should be ignored. Batch file can give comments using #, /* */. If # is the start of the line, that line is not considered as command. The commands between /* and */ should be considered as comment. A line with %END shows the end of batch commands. No command after %END until the next %BEGIN should be executed. If the batch file is finishing without %END, an error “Batch file finished abruptly” should be displayed. The program should store the final result of each line’s execution in OUTPUT.txt file. If a command #INTERSTART is executed, each line’s intermediate results should be logged into a file name with line#_first_command_name as file name. The logging should continue until #INTERSTOP is executed. Each line can have multiple (one or more) commands separated by pipes or redirectors. The pipes and redirectors used for this assignment are (|, >, >>).

You are asked to implement piping using dup/dup2 and using pipe/tee.

What is expected out of you?

Use of fork, wait, execl/execv, dup/dup2, pipe/tee and good programming style. Make sure you are creating interface, implementation, driver and make file for it. Make sure the dup/dup2 Vs pipe/tee solution is getting dynamically compiled and executed based on user option.