

Pre-Tut Questions on IPC -> PIPE and DUP/DUP2

NOTE: Add all these header files before starting your C program.

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <unistd.h>
#include <fcntl.h>
#include <sys/wait.h>
#include <sys/types.h>
```

Q1) Write a C program such that every printf() statement's output is stored in a file and command prompt remains clean. You may create the file before hand.

Hints :

- a) File opening syntax : `int file_desc = open("fileName, O_RDWR | O_APPEND");`
- b) File descriptor of STDOUT is 1.

Q2) Write a C program such that a user given string (which is a unix command) is taken as an input and output after execution of that command is stored in a file. You may create the file before hand.

Hints :

- a) Command executing syntax : `system(char arg[]);`
- b) File descriptor of STDOUT is 1.

Q3) Write a C program to do the following task:

- 1) Take the head of your bitmail (eg : f20150034) as user input in the parent process.
- 2) Transfer this string to the child process. The child process will concatenate this head with foot of the email which is "**@goa.bits-pilani.ac.in**".
- 3) Using **UNIX command**, you have to implement to_upper()
- 4) Execute the command and print the output in child process.
- 5) (optional) try keeping the command line clean and print the output in a file.

Hints :

- a) Concatenate strings in the form of the command "`echo yourEmail | tr a-z A-Z`"
- b) Command executing syntax : `system(char arg[]);`

Q4) Write a C program to do the following task:

- 1) Take user inputs of 'n' and 'r' in the parent process.
- 2) Send these inputs to child process and calculate nCr in the child process.
- 3) Send back the final results to parent process and print the answer.
- 4) (optional) try keeping the command line clean and print the output in a file.

Hints :

a) int -> string :

```
sprintf(char str[], "%d", int x);
```

b) string -> int :

```
sscanf(char str[] , "%d", int* x); // x is passed by reference -> &x
```