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Section: Gx
Subject : Operating System Lab

Qn:

Let a process **P1** opens a file for reading (say, *fp = fopen("abc", "r")*). The process then fork()s and the child process **P2** is created!

Now the issues are -

1. Can **P2** read from the file *abc* using *fp*?
2. If **P2** can read from abc then from which position in the file *abc* will it read?
3. If **P1** and **P2** both attempt to read from *abc* then what will they read?
4. If **P1** closes the file (fclose()) does it get closed for **P2** as well?
5. ...
6. ...

Write C programs **to demonstrate the above** and **try to justify the behaviour** you find! Upload the program(s) that you have written for this purpose!

Ans:

Code:

```c
// 2020CSB010 GOURAV KUMAR SHAW

#include <stdio.h>
#include <unistd.h>
#include <stdlib.h>

int main() {
    FILE *fp = fopen("textFile.txt", "r");
    if (fp == NULL) {
        printf("Error opening file\n");
        exit(1);
    }
```

```c
    pid_t pid = fork();

    if (pid < 0) {
        printf("Fork failed\n");
        exit(1);
    } else if (pid == 0) {
        // child process
        char c;
        printf("Child process reading file:\n");
        while ((c = fgetc(fp)) != EOF) {
            putchar(c);
        }
        printf("\n");
    } else {
        // parent process
        char c;
        printf("Parent process reading file:\n");
        while ((c = fgetc(fp)) != EOF) {
            putchar(c);
        }
        printf("\n");
    }
    fclose(fp);
    return 0;
}
```

Output: