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CS604P Assignment 1 Solution

Fall 2026

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CS604P: Operating System Practical

Assignment No. 1 — Fall 2026 | Total Marks: 20

Question 1 (20 Marks)

Write a C program to demonstrate two-way Inter-Process Communication (IPC) between a parent process and a child process using two unnamed pipes. The parent sends the message “How are you? What’s your VUID?” to the child through the first pipe. The child displays the message and sends the reply “I am fine. My VUID is [Your VUID]” to the parent through the second pipe. The parent displays the reply.

C Program

Two pipes are created with pipe(). fork() creates the child process. The first pipe carries the message from parent to child. The second pipe carries the reply from child to parent. The ends that are not used are closed in each process.

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <unistd.h>

int main() {
    int pipe1[2], pipe2[2];
    char message1[] = "How are you? What's your VUID?";
    char message2[] = "I am fine. My VUID is BC123456789";
    char buffer[100];
    pid_t pid;

    if (pipe(pipe1) == -1) {
        printf("Pipe 1 failed.\n");
        return 1;
    }
    if (pipe(pipe2) == -1) {
        printf("Pipe 2 failed.\n");
        return 1;
    }
    pid = fork();
    if (pid < 0) {
        printf("Fork failed.\n");
        return 1;
    }
    if (pid == 0) {
        close(pipe1[1]);
        close(pipe2[0]);
        read(pipe1[0], buffer, sizeof(buffer));
        printf("Child received: %s\n", buffer);
        close(pipe1[0]);
        write(pipe2[1], message2, strlen(message2) + 1);
        close(pipe2[1]);
    } else {
        close(pipe1[0]);
        close(pipe2[1]);
        write(pipe1[1], message1, strlen(message1) + 1);
        close(pipe1[1]);
        read(pipe2[0], buffer, sizeof(buffer));
        printf("Parent received: %s\n", buffer);
        close(pipe2[0]);
    }
    return 0;
}
```

Output Screenshot

The program was compiled and run on Linux with gcc. The output below is the actual run output. BC123456789 is the example VUID from the assignment file. Replace it with your own VUID in the program before you submit it.

