

Operating System

LAB – 4

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➤ Problem Statement :

Write a program demonstrating use of different system calls.

1) process related system all:fork,wait,

2) file related:open ,read,write,close

➤ Code :

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

int main() {
    pid_t pid;

    pid = fork();

    if (pid == -1) {
        perror("fork");
        exit(EXIT_FAILURE);
    }

    if (pid == 0) {
        int fd;
        fd = open("child.txt", O_CREAT | O_WRONLY | O_TRUNC, 0644);

        if (fd == -1) {
            perror("open");
            exit(EXIT_FAILURE);
        }
    }
}
```

```

}

char *message = "Hello from the child process!\n";
ssize_t bytes_written = write(fd, message, strlen(message));

if (bytes_written == -1) {
    perror("write");
    exit(EXIT_FAILURE);
}

close(fd);

exit(EXIT_SUCCESS);
} else {
    int status;
    wait(&status);

    if (WIFEXITED(status)) {
        printf("Child process exited with status %d\n", WEXITSTATUS(status));
    }
}

int fd;
fd = open("child.txt", O_RDONLY);

if (fd == -1) {
    perror("open");
    exit(EXIT_FAILURE);
}

char buffer[100];
ssize_t bytes_read = read(fd, buffer, sizeof(buffer));

if (bytes_read == -1) {
    perror("read");
    exit(EXIT_FAILURE);
}

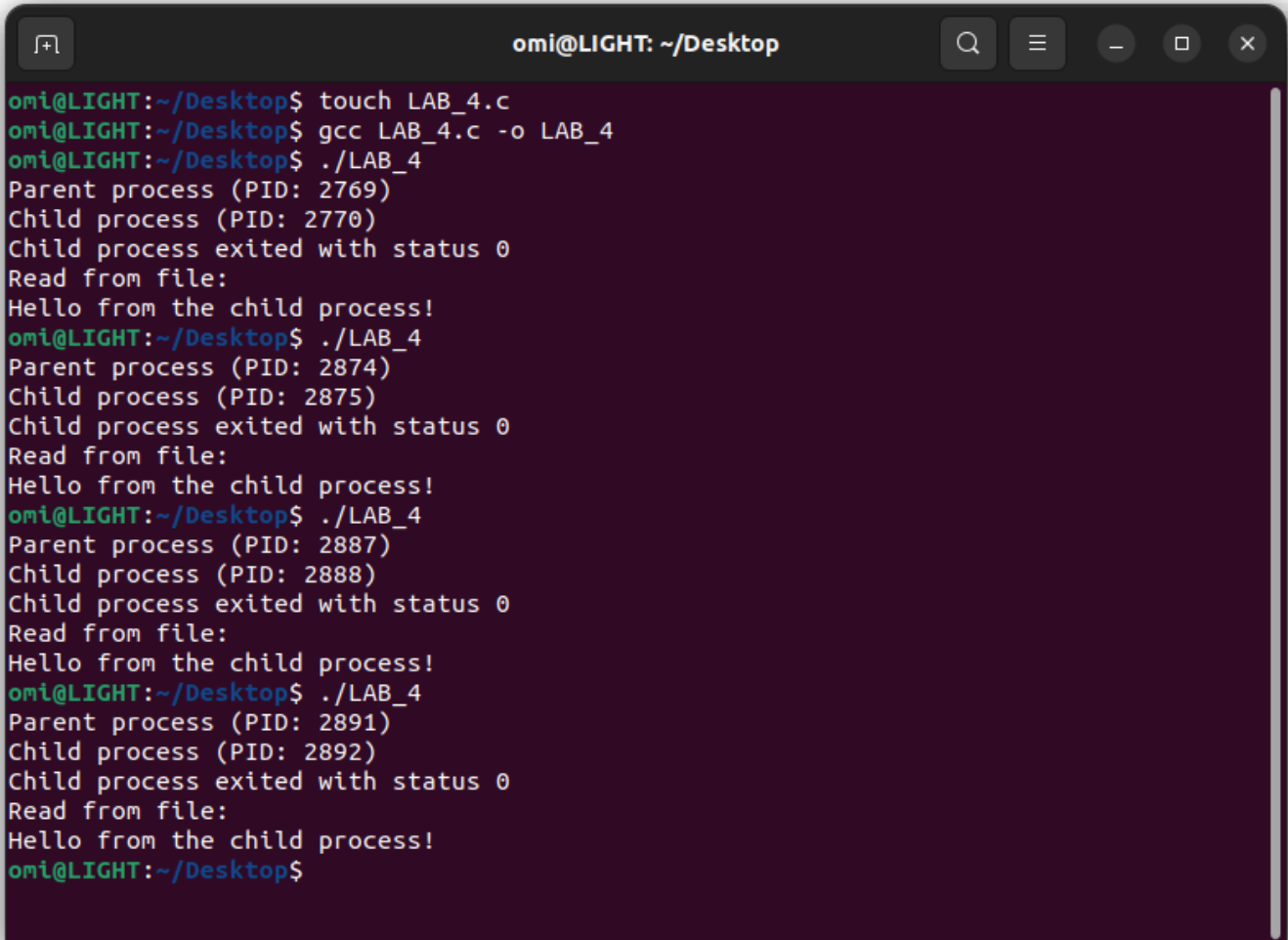
printf("Read from file:\n%s", buffer);

close(fd);

return 0;
}

```

➤ Output :



```
omi@LIGHT: ~/Desktop
omi@LIGHT:~/Desktop$ touch LAB_4.c
omi@LIGHT:~/Desktop$ gcc LAB_4.c -o LAB_4
omi@LIGHT:~/Desktop$ ./LAB_4
Parent process (PID: 2769)
Child process (PID: 2770)
Child process exited with status 0
Read from file:
Hello from the child process!
omi@LIGHT:~/Desktop$ ./LAB_4
Parent process (PID: 2874)
Child process (PID: 2875)
Child process exited with status 0
Read from file:
Hello from the child process!
omi@LIGHT:~/Desktop$ ./LAB_4
Parent process (PID: 2887)
Child process (PID: 2888)
Child process exited with status 0
Read from file:
Hello from the child process!
omi@LIGHT:~/Desktop$ ./LAB_4
Parent process (PID: 2891)
Child process (PID: 2892)
Child process exited with status 0
Read from file:
Hello from the child process!
omi@LIGHT:~/Desktop$
```