

# OPERATING SYSTEMS LAB 6

## RIJA ALI (23K-0057)

### 6A

Q1)

```
top - 22:13:47 up 13:41, 1 user, load average: 0.43, 0.21, 0.16
Tasks: 226 total, 2 running, 224 sleeping, 0 stopped, 0 zombie
%Cpu(s): 13.7 us, 9.1 sy, 0.0 ni, 77.0 id, 0.0 wa, 0.0 hi, 0.3 si, 0.0 st
MiB Mem : 10825.4 total, 5713.6 free, 1944.2 used, 3546.9 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used, 8881.2 avail Mem

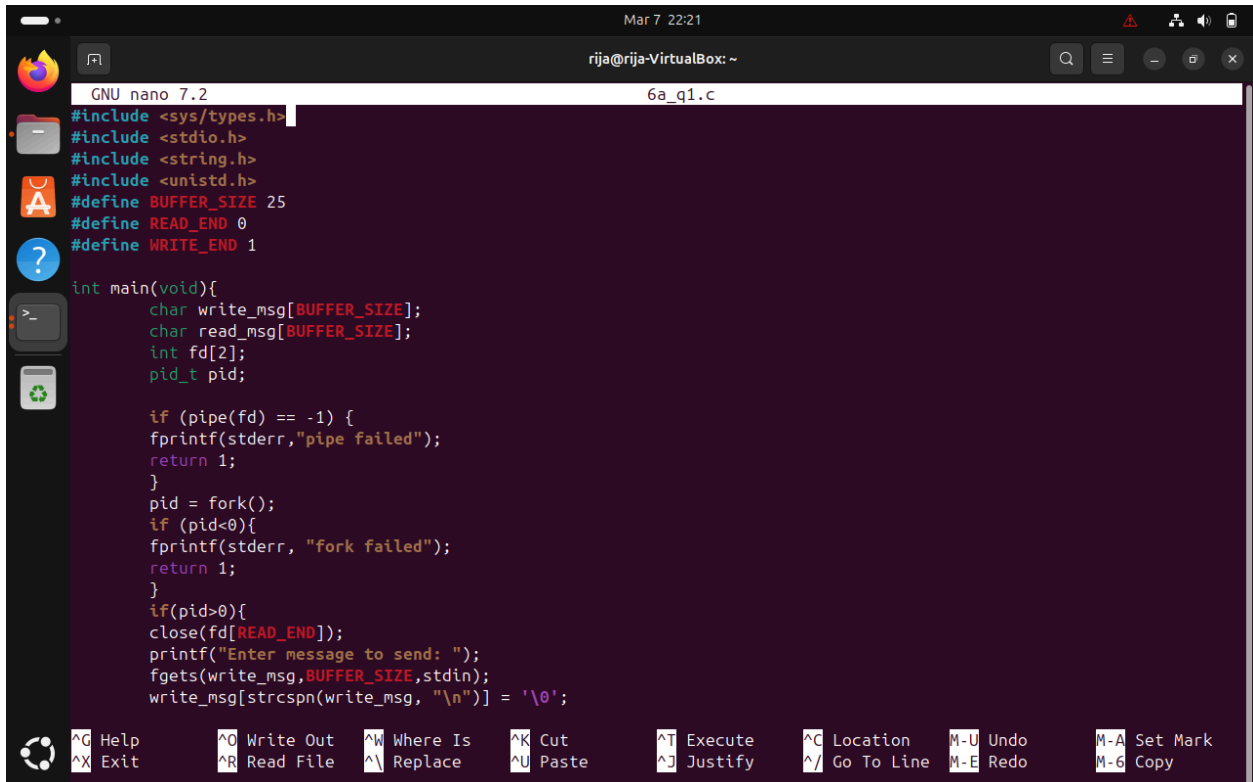
  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
 2043 rija       20   0 5098476 506224 173400 S  64.2   4.6   38:55.86  gnome-she
ll
13527 rija       20   0 712584  61264 48276 R  26.6   0.6    0:16.95  gnome-ter
minal-
13617 root        20   0      0      0      0 I   6.4   0.0    0:00.19  kworker/u
9:3-events_unbound
13597 root        20   0      0      0      0 I   4.6   0.0    0:00.47  kworker/u
10:2-events_unbound
13619 root        20   0      0      0      0 I   4.6   0.0    0:00.63  kworker/u
12:0-events_unbound
13220 root        20   0      0      0      0 I   2.8   0.0    0:01.22  kworker/u
11:0-events_unbound
13653 rija       20   0  23204   5888  3712 R   1.8   0.1    0:00.43  top
    17 root        20   0      0      0      0 I   0.9   0.0    0:13.48  rcu_preem
pt
```

```
Mar 7 22:15
rija-VirtualBox: ~
rija@rija-VirtualBox: ~
GNU nano 7.2 6a_q1.c
#include <sys/types.h>
#include <stdio.h>
#include <string.h>
#include <unistd.h>
#define BUFFER_SIZE 25
#define READ_END 0
#define WRITE_END 1

int main(void){
    char write_msg[BUFFER_SIZE] = "Greetings";
    char read_msg[BUFFER_SIZE];
    int fd[2];
    pid_t pid;

    if (pipe(fd) == -1) {
        fprintf(stderr, "pipe failed");
        return 1;
    }
    pid = fork();
    if (pid<0){
        fprintf(stderr, "fork failed");
        return 1;
    }
    if(pid>0){
        close(fd[READ_END]);
        write(fd[WRITE_END], write_msg, strlen(write_msg) +1);
        close(fd[WRITE_END]);
    }
```

Q2)



```
GNU nano 7.2 6a_q1.c
#include <sys/types.h>
#include <stdio.h>
#include <string.h>
#include <unistd.h>
#define BUFFER_SIZE 25
#define READ_END 0
#define WRITE_END 1

int main(void){
    char write_msg[BUFFER_SIZE];
    char read_msg[BUFFER_SIZE];
    int fd[2];
    pid_t pid;

    if (pipe(fd) == -1) {
        fprintf(stderr, "pipe failed");
        return 1;
    }
    pid = fork();
    if (pid < 0){
        fprintf(stderr, "fork failed");
        return 1;
    }
    if (pid > 0){
        close(fd[READ_END]);
        printf("Enter message to send: ");
        fgets(write_msg, BUFFER_SIZE, stdin);
        write_msg[strcspn(write_msg, "\n")] = '\0';
    }
```



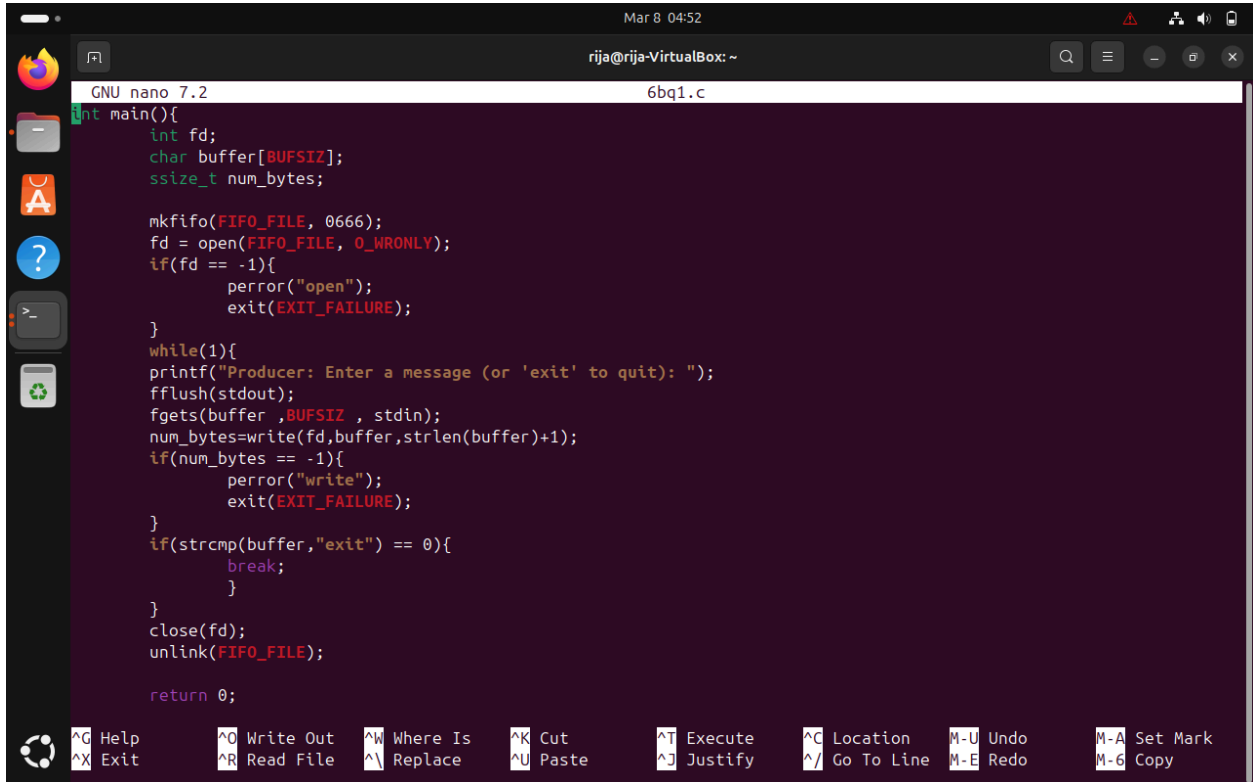
```
        pid_t pid;

        if (pipe(fd) == -1) {
            fprintf(stderr, "pipe failed");
            return 1;
        }
        pid = fork();
        if (pid < 0){
            fprintf(stderr, "fork failed");
            return 1;
        }
        if (pid > 0){
            close(fd[READ_END]);
            printf("Enter message to send: ");
            fgets(write_msg, BUFFER_SIZE, stdin);
            write_msg[strcspn(write_msg, "\n")] = '\0';
            write(fd[WRITE_END], write_msg, strlen(write_msg) + 1);
            close(fd[WRITE_END]);
        }
        else{
            close(fd[WRITE_END]);
            read(fd[READ_END], read_msg, BUFFER_SIZE);
            printf("read %s", read_msg);
            close(fd[READ_END]);
        }
    }
    return 0;
}
```

```
completion terminated
rija@rija-VirtualBox:~$ gcc 6a_q1.c -o 6a_q1
rija@rija-VirtualBox:~$ ./6a_q1
Enter message to send: hi my name's rija.
read hi my name's rija.rija@rija-VirtualBox:~$
```

# 6B

Q1)



```
GNU nano 7.2                                6bq1.c
int main(){
    int fd;
    char buffer[BUFSIZ];
    ssize_t num_bytes;

    mkfifo(FIFO_FILE, 0666);
    fd = open(FIFO_FILE, O_WRONLY);
    if(fd == -1){
        perror("open");
        exit(EXIT_FAILURE);
    }
    while(1){
        printf("Producer: Enter a message (or 'exit' to quit): ");
        fflush(stdout);
        fgets(buffer, BUFSIZ, stdin);
        num_bytes = write(fd, buffer, strlen(buffer)+1);
        if(num_bytes == -1){
            perror("write");
            exit(EXIT_FAILURE);
        }
        if(strcmp(buffer, "exit") == 0){
            break;
        }
    }
    close(fd);
    unlink(FIFO_FILE);

    return 0;
}
```

Help Exit Write Out Read File Where Is Replace Cut Paste Execute Justify Location Go To Line Undo Redo Set Mark Copy

Q2)



```
rija@rija-VirtualBox:~$ ls -l /tmp/myfifo
prw-rw-r-- 1 riya riya 0 Mar  8 04:48 /tmp/myfifo
rija@rija-VirtualBox:~$
```

### Q3)



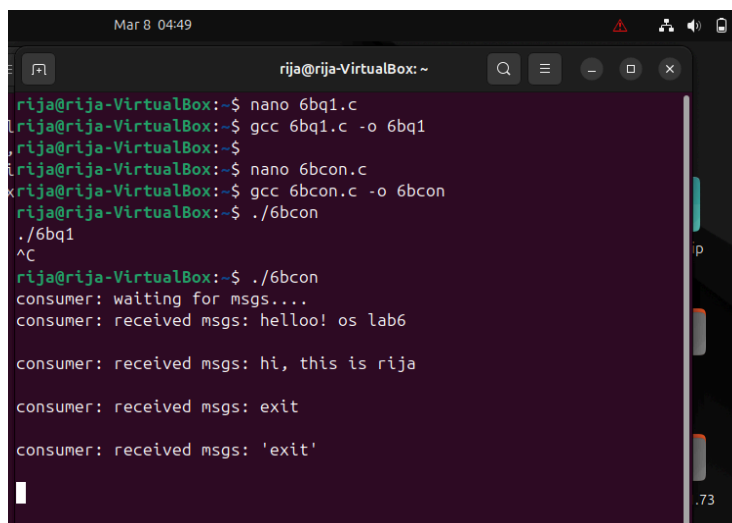
```
GNU nano 7.2 6bcon.c
int main(){
    int fd;
    char buffer[BUFSIZ];
    ssize_t num_bytes;

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

    printf("consumer: waiting for msgs...\n");

    while(1){
        num_bytes = read(fd,buffer,BUFSIZ);
        if(num_bytes>0){
            buffer[num_bytes] = '\0';
            printf("consumer: received msgs: %s\n",buffer);
        }

        if(strcmp(buffer,"exit")==0){
            break;
        }
    }
    close(fd);
    return 0;
}
```

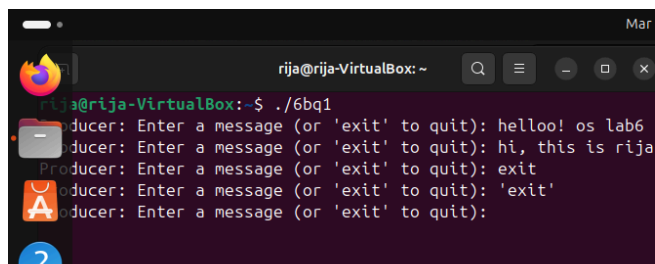


```
rija@rija-VirtualBox:~$ nano 6bq1.c
rija@rija-VirtualBox:~$ gcc 6bq1.c -o 6bq1
rija@rija-VirtualBox:~$
rija@rija-VirtualBox:~$ nano 6bcon.c
rija@rija-VirtualBox:~$ gcc 6bcon.c -o 6bcon
rija@rija-VirtualBox:~$ ./6bcon
./6bq1
^C
rija@rija-VirtualBox:~$ ./6bcon
consumer: waiting for msgs...
consumer: received msgs: helloo! os lab6

consumer: received msgs: hi, this is rija

consumer: received msgs: exit

consumer: received msgs: 'exit'
```



```
rija@rija-VirtualBox:~$ ./6bq1
Producer: Enter a message (or 'exit' to quit): helloo! os lab6
Producer: Enter a message (or 'exit' to quit): hi, this is rija
Producer: Enter a message (or 'exit' to quit): exit
Producer: Enter a message (or 'exit' to quit): 'exit'
```

