OS LAB 4

23K-0594 (sec-4F)

Q3.

```
maham@maham:~/Desktop/lab4$ gcc 23k-0594q3.c -o 23k-0594q3
maham@maham:~/Desktop/lab4$ ./23k-0594q3
Content Reversed Successfully!
maham@maham:~/Desktop/lab4$ cat destination.txt

dargrednu SC a ma i dna mahaM si eman ym ollehmaham@maham:~/Desktop/lab4$ cat source.txt
hello my name is Maham and i am a CS undergrad
maham@maham:~/Desktop/lab4$
```

Open — 23k-0594q3.c — ~/Desktop/lab4

```c
#include <stdio.h>
#include <fcntl.h>
#include <unistd.h>

int main() {
    int src_fd, dest_fd;
    char buffer[100];

    //opening source file in read only format
    src_fd=open("source.txt", O_RDONLY);
    if(src_fd < 0){
        printf("Error opening source.txt!\n");
        return 1;
    }

    //reading upto 100 chars
    int bytesCount=read(src_fd, buffer, sizeof(buffer));
    if (bytesCount<0){
        printf("Error: Can't read file\n");
        close(src_fd);
        return 1;
    }

    if(bytesCount == 0){
        printf("File is empty!\n");
        close(src_fd);
        return 1;
    }
    close(src_fd);
```

```c
//reversing the content read
for(int i=0, j=bytesCount-1; i<j ; i++,j--){
char temp=buffer[i];
buffer[i]=buffer[j];
buffer[j]=temp;
}

 dest_fd = open("destination.txt", O_WRONLY | O_CREAT | O_TRUNC, 0644);
 if (dest_fd < 0) {
     printf("Error opening destination.txt\n");
     return 1;
 }

 //writing reversed content in dest file after opening in write mode
 int writeBytes=write(dest_fd,buffer,bytesCount);
 if(writeBytes<0){
 printf("Error: Can't write in destination file!/n");
 close(dest_fd);
 return 1;


 close(dest_fd);

 printf("Content Reversed Successfully!\n");
 return 0;
```

Q4.

```
maham@maham:~$ gcc 23k-0594q4.c -o 23k-0594q4
maham@maham:~$ ./23k-0594q4
Child process listing directory:
total 56
-rwxrwxr-x 1 maham maham 16088 Feb 16 00:28 23k-0594q4
-rw-rw-r-- 1 maham maham   526 Feb 16 00:23 23k-0594q4.c
drwxr-xr-x 5 maham maham  4096 Feb 15 17:35 Desktop
drwxr-xr-x 2 maham maham  4096 Jan 25 21:16 Documents
drwxr-xr-x 2 maham maham  4096 Jan 25 21:16 Downloads
drwxr-xr-x 2 maham maham  4096 Jan 25 21:16 Music
drwxr-xr-x 2 maham maham  4096 Jan 25 21:16 Pictures
drwxr-xr-x 2 maham maham  4096 Jan 25 21:16 Public
drwx------ 5 maham maham  4096 Feb  9 03:00 snap
drwxr-xr-x 2 maham maham  4096 Jan 25 21:16 Templates
drwxr-xr-x 2 maham maham  4096 Jan 25 21:16 Videos
Child process has finished listing the directory.
```

```c
#include <stdio.h>
#include <sys/types.h>
#include <sys/wait.h>
#include <unistd.h>

int main(){
pid_t pid=fork();//child process created

if (pid<0){
printf("Fork failed!\n");
return 1;
}

else if (pid==0){
printf("Child process listing directory:\n");
execlp("ls", "ls", "-l", NULL); //executing "ls -l"
//in case execlp fails
printf("execlp failed!\n");
return 1;
}

else {
//parent process
wait(NULL); //waiting for child process completion
printf("Child process has finished listing the directory.\n");
}

return 0;
}
```

Q5.

```
maham@maham:~$ gcc 23k-0594q5.c -o 23k-0594q5
maham@maham:~$ ./23k-0594q5
Message 1: Program is running...
Message 2: Program is running...
Message 3: Program is running...
Message 4: Program is running...
Message 5: Program is running...
Execution completed successfully!
```

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

int main(){
    for (int i = 1; i <= 5; i++) {
        printf("Message %d: Program is running...\n", i);
        sleep(1);
    }

    printf("Execution completed successfully!\n");

    return 0;
}
```