Computer Organisation & Architecture Assignment No. 5

 Name: Akash Jivendra Bachhav

Batch: C3

Roll No: 199

↓ Problem Statement:

Write operations. The user is supposed to provide command-line arguments in all cases.

↓ Source Code:

OPEN FILE CODE

```
%macro WRITE 02
mov rax,01
mov rdi,01
mov rsi,%1
mov rdx,%2
syscall
%endmacro
section .data
e db "Invalid number of arguments",10
elen equ $-e
e1 db "Error while opening file",10
e1len equ $-e1
section .bss
fname resb 50
d1 resb 8
buffer resb 100
size resb 8
fien resb 8
argc resb 8
section .text
global _start:
_start:
pop rcx;
mov qword[argc],rcx
```

```asm
        cmp rcx,02
        jne err
        pop rcx
        pop rcx
        mov rsi,fname
        mov rdx,00
lb1: mov bl,byte[rcx+rdx]
        cmp bl,00
        je lb2
        mov byte[rsi+rdx],bl
        inc rdx
        jmp lb1
lb2: mov rax,02
        mov rdi,fname
        mov rsi,0
        mov rdx,0644o
        syscall
        cmp rax,00
        je error1
        mov qword[d1],rax
lab1: mov rax,0
        mov rdi,qword[d1]
        mov rsi,buffer
        mov rdx,100
        syscall
        mov qword[size],rax
        WRITE buffer ,qword[size]
        cmp qword[size],100
        je lab1
        mov rax,3
        mov rdi,qword[d1]
        syscall
        mov rax,60
        mov rdx,00
        syscall
err: WRITE e,elen
        mov rax,60
        mov rdx,00
        syscall
error1: WRITE e1,e1len
        mov rax,60
        mov rdx,00
        syscall
```

COPY FILE CODE

```
%macro WRITE 02
mov rax,01
mov rdi,01
mov rsi,%1
mov rdx,%2
syscall
%endmacro
%macro FOPEN 02
mov rax,02
mov rdi,%1
mov rsi,%2
mov rdx,0777o
syscall
%endmacro
section .data
e1 db "Invalid number of arguments",10
len1 equ $-e1
e2 db "Error opening source file",10
len2 equ $-e2
e3 db "Error opening destination file",10
len3 equ $-e3
msg1 db "copying successful...",10
msglen equ $-msg1
section .bss
src resb 32
dest resb 32
fd1 resq 1
fd2 resq 1
fd3 resq 1
buffer resb 100
actl resq 1
section .text
global _start:
_start:
pop rcx;
cmp rcx,3
jne error1
pop rcx
pop rcx
mov rsi,src
mov rdx,00
up: mov bl,byte[rcx+rdx]
cmp bl,00
```

```asm
        je down
        mov byte[rsi+rdx],bl
        inc rdx
        jmp up
down: mov byte[rsi+rdx],00
        pop rcx
        mov rsi,dest
        mov rdx,00
up1: mov bl,byte[rcx+rdx]
        cmp bl,00
        je down1
        mov byte[rsi+rdx],bl
        inc rdx
        jmp up1
down1: mov byte[rsi+rdx],00
        FOPEN src,00
        cmp rax,00
        jle error2
        mov [fd1],rax
        FOPEN dest,00
        cmp rax,00
        jle createfile
        mov [fd2],rax
        mov rax,03
        mov rdi,[fd2]
        syscall
        jmp skipcreate
createfile: mov rax,85
        mov rdi,dest
        mov rsi,0777o
        syscall
skipcreate: FOPEN dest,01
        cmp rax,00
        jle error3
        mov [fd3],rax
again: mov rax,00
        mov rdi,[fd1]
        mov rsi,buffer
        mov rdx,100
        syscall
        mov [actl],rax
        mov rax,01
        mov rdi,[fd3]
        mov rsi,buffer
        mov rdx,[actl]
```

```asm
        syscall
        cmp qword[actl],100
        je again
        mov rax,3
        mov rdi,qword[fd1]
        syscall
        mov rax,3
        mov rdi,qword[fd3]
        syscall
        WRITE msg1,msglen
exit:   mov rax,60
        mov rdi,00
        syscall
error1: WRITE e1,len1
        jmp exit
error2: WRITE e2,len2
        jmp exit
error3: WRITE e3,len3
        jmp exit
```

DELETE FILE CODE

```asm
%macro WRITE 02
mov rax,01
mov rdi,01
mov rsi,%1
mov rdx,%2
syscall
%endmacro
%macro FOPEN 02
mov rax,02
mov rdi,%1
mov rsi,%2
mov rdx,0777o
syscall
%endmacro
section .data
e1 db "Invalid number of arguments",10
len1 equ $-e1
e2 db "File not exist",10
```

```
len2 equ $-e2
msg1 db "deletion successful...",10
msglen equ $-msg1
section .bss
fname resb 32
fd resq 01
section .text
global _start:
_start:
pop rcx;
cmp rcx,02
jne error1
pop rcx
pop rcx
mov rsi,fname
mov rdx,00
up: mov bl,byte[rcx+rdx]
cmp bl,00
je down
mov byte[rsi+rdx],bl
inc rdx
jmp up
down: mov byte[rsi+rdx],00
FOPEN fname,00
cmp rax,00
jle error2
mov [fd],rax
mov rax,00
mov rdi,[fd]
syscall
mov rax,87
mov rdi,fname
syscall
WRITE msg1,msglen
exit: mov rax,60
mov rdi,00
syscall
error1: WRITE e1,len1
jmp exit
error2: WRITE e2,len2
jmp exit
```

⬇ Output Screen:

OPEN FILE CODE


```
mohanish@mohanish-hp-pavilion:~$ gedit Assignment5open.asm
mohanish@mohanish-hp-pavilion:~$ gedit Assignment5open.txt
mohanish@mohanish-hp-pavilion:~$ nasm -f elf64 Assignment5open.asm
mohanish@mohanish-hp-pavilion:~$ ld -o ass5 Assignment5open.o
mohanish@mohanish-hp-pavilion:~$ ./ass5 Assignment5open.txt
My name is Akash Bachhav
From SY Computer
mohanish@mohanish-hp-pavilion:~$
```

COPY & DELETE FILE CODE


```
mohanish@mohanish-hp-pavilion:~$ gedit Assignment5copy.asm
mohanish@mohanish-hp-pavilion:~$ gedit Assignment5copy.txt
mohanish@mohanish-hp-pavilion:~$ gedit copytrial.txt
mohanish@mohanish-hp-pavilion:~$ nasm -f elf64 Assignment5copy.asm
mohanish@mohanish-hp-pavilion:~$ ld -o ass5 Assignment5copy.o
mohanish@mohanish-hp-pavilion:~$ ./ass5 Assignment5copy.txt copytrial.txt
copying successful...
mohanish@mohanish-hp-pavilion:~$ gedit Assignment5delete.asm
mohanish@mohanish-hp-pavilion:~$ gedit Assignment5delete.txt
mohanish@mohanish-hp-pavilion:~$ nasm -f elf64 Assignment5delete.asm
mohanish@mohanish-hp-pavilion:~$ ld -o ass5 Assignment5delete.o
mohanish@mohanish-hp-pavilion:~$ ./ass5 Assignment5delete.txt
deletion successful...
mohanish@mohanish-hp-pavilion:~$
```