Write up Mannual

Question 2:

Kernel_2D_mem_copy

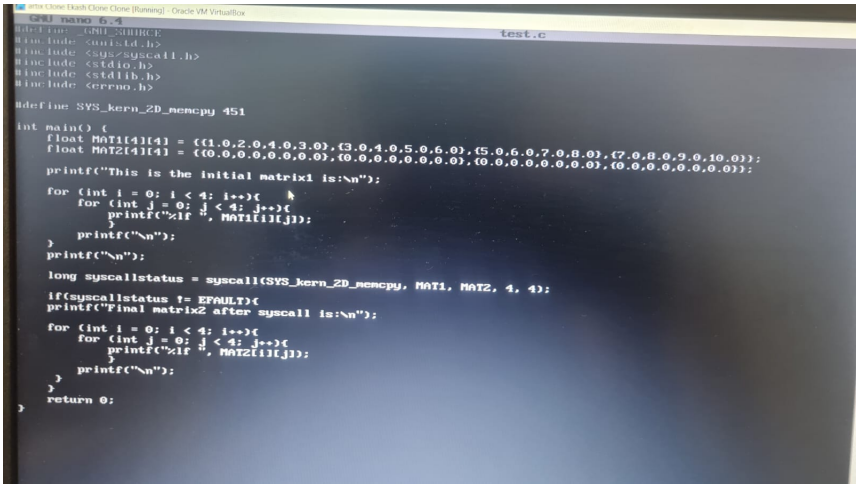
The below code is used to copy the data of the float 2d matrix from src to dest
This is done by using the __copy_to_user and the __copy_from_user system calls

```
SYSCALL_DEFINE4(kernel_2D_memcpy, float **, src, float **, dest, int, k1, int, k2)
{
        float buffer[4][4];
        if (__copy_from_user(buffer, src, sizeof(float)*16))
        {
                return -EFAULT;
        }
        if (__copy_to_user(dest, buffer, sizeof(float)*16))
        {
                return -EFAULT;
        }
        return 0;
}
```

In other words, this is a version of memcpy) that relies on the kernel to do the necessary copy operations,
In reality in Artix linux/kernel folder we have to make changes in three places
Firsty, open new_kernel folder and then linux-6.0.9 and then kernel directory and then update the sys.c folder by using the code as shown above or in Question 2/ kernel_2d_memcpy.c
Secondly, change in syscall_64.tbl file at your kernel_linux folder at arch/x86/entry/syscalls
And add 451 line like this :

```
450 common  set_mempolicy_home_node sys_set_mempolicy_home_node
451 common  Kernel_2D_memcpy   sys_kernel_2d_memcpy
#
```

Thirdly, agin compile your kernel again and by executing the
make -j§(nproc)
afterthat run
make modules install
sudo cp -v arch/x86_64/boot/bzImage /boot/vmlinuz-***
Now, we need to reboot kernel and
Check if your program is running or not by using the code I have given in test_snippet.jpeg or below code



In which i make a hard code of 2D matrix of 4*4 and calling syscall function and copy that matrix to another matrix and checking that matrix is equal or not
By printing both the MAT1 and MAT2

And after this I have also uploaded the diff.patch and diff.txt snippet of both. In this folder