Documentation

1.1

In question 1.1 we are creating 3 threads with different scheduling properties --> SCHED_OTHER, SCHED_RR, SCHED_FIFO. And then running a function to count from 1-2^32 with these three threads with different scheduling properties.

Also we are changing the priority values for SCHED_RR and SCHED_FIFO and further plotting them on a bar graph.

It can be observed that SCHED_OTHER with 0 priority everytime runs last. Other things can be observed from the graph furthur.

pthread_setschedparam() is used to set priority for a thread.

clock_gettime(CLOCK_REALTIME, &start); function is used to measure/calculate time at that instant.

Furthur the results have been stored in an array which can be furthur used to make the required bar graph plot.

The bar graph is plotted in python3 using matplotlib library.

1.2

In question 1.2 we are creating 3 different child procceses using fork() command and furthur used execl to run the bash.sh file.

Also like question 1.1 we are changing the priority values for SCHED_RR and SCHED_FIFO and further plotting them on a bar graph.

It can be observed that SCHED_OTHER with 0 priority everytime runs last. Other things can be observed from the graph furthur.

sched_setscheduler(); have been used to set priority for processes here and further clock_gettime(CLOCK_REALTIME, &start); to measure time.

Furthur the results have been stored in an array which can be furthur used to make the required bar graph plot.

The bar graph is plotted in python3 using matplotlib library.

2

In question 2 we are creating a custom syscall kernel 2d memcpy(), which copies one 2-D float- ing point matrix to another. We further used copy from user() and copy from user() functions to read data bytes from user. And further we created a test file to check whether the code copies array or not.

For this we added the code for custom syscall in the sys.c file in kernel directory in artix.

We needed to add our custom syscall to .tbl file in syscalls in the vm .

Further to check the differences a .patch file is created using diff command which compares the original files and changed files in the kernel.