



INSTITUTION OF TECHNOLOGY OF CAMBODIA



DEPARTMENT: GIC I4-B

Report of Operating Systems

Topic : All Class Activity

Name of Students

Students ID

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Link Url : <https://github.com/Th3ngSer/OS-Lab.git>

I have delivered class activity for their each brach

Class Activity 1 : https://github.com/Th3ngSer/OS-Lab/tree/class_activity1

Class Activity 2 : https://github.com/Th3ngSer/OS-Lab/tree/Class_activit2

Class Activity 3 : https://github.com/Th3ngSer/OS-Lab/tree/class_activity3

Class Activity 4 : <https://github.com/Th3ngSer/OS-Lab/tree/class-activity4>

Class Activity 1:

1. Write C program to use system call to print something on both Linux terminal and Window CMD/Powershell or VSCode. For windows, please screenshot the result of the output.

2. Write C program named "copyfilesyscall.c" to use system calls to copy content of a file: "result.txt" to "copyresult.txt" on the Linux Server in the class_activity1 folder.

Linux syscall: read, write, open, close

3. Save last 50 commands history to

```
history | tail -n 50 > /home/yourname/class_activity1/syscall_commands_history.txt
```

```
thongking@Ubuntuzuuki:~/class_activity1$ ls
copyfilesyscall    copyresult.c    printsystcall    result.txt
copyfilesyscall.c  copyresult.txt  printsystcall.c  syscall_commands_history.txt
thongking@Ubuntuzuuki:~/class_activity1$ tree
.
├── copyfilesyscall
├── copyfilesyscall.c
├── copyresult.c
├── copyresult.txt
└── printsystcall
    ├── printsystcall.c
    └── result.txt
    └── syscall_commands_history.txt

1 directory, 8 files
thongking@Ubuntuzuuki:~/class_activity1$
```

URL : https://github.com/Th3ngSer/OS-Lab/tree/class_activity1

Class Activity 2:

1. Write a C program to use system call to create a child process using fork(), exec() to run a program (i.e. ls)

Create a folder in your home named it class_activity2

in the folder, create the c program file named forkchild.c and compile it in the folder and run it.

compile: gcc -o forkchild forkchild.c

run it: ./forkchild > result_forkchild.txt

command history: history | tail -n 15 > command_used_forkchild.txt

2. Write a C program to use system call in WINDOWS to create a child process and run mspaint.exe. The PATH location of mspaint depends on your Windows System Path. You can find it when you run it in the task manager. Screenshot the task manager showing that mspaint.exe is running as a child of VSCode/whatever compiler you used.

For those who used Mac, please install Windows in VM later.

```
thongking@Ubuntuzuuki:~/class_activity2$ ls
command_used_forkchild.txt  forkchild.c  paintchild.c
forkchild                  paintchild   result_forkchild.txt
thongking@Ubuntuzuuki:~/class_activity2$ tree
.
├── command_used_forkchild.txt
├── forkchild
├── forkchild.c
└── paintchild
    └── paintchild.c
        └── result_forkchild.txt

1 directory, 6 files
thongking@Ubuntuzuuki:~/class_activity2$
```

URL : https://github.com/Th3ngSer/OS-Lab/tree/Class_activit2

Class Activity 3:

```
thongking@Ubuntuzuuki:~/class_activity2$ cd
thongking@Ubuntuzuuki:~$ cd class_activity3
thongking@Ubuntuzuuki:~/class_activity3$ ls
SHK-IPC  SHM-IPC
thongking@Ubuntuzuuki:~/class_activity3$ tree
.
├── SHK-IPC
│   ├── common.h
│   ├── receiver
│   ├── receiver.c
│   ├── result-mq-ipc.txt
│   ├── sender
│   └── sender.c
└── SHM-IPC
    ├── a.out
    ├── result-shm-ipc.txt
    ├── shm-consumer
    ├── shm-consumer.c
    ├── shm-producer
    └── shm-producer.c

3 directories, 12 files
thongking@Ubuntuzuuki:~/class_activity3$
```

URL : https://github.com/Th3ngSer/OS-Lab/tree/class_activity3

Class Activity 4:

1. Creating thread in Linux using Pthreads
2. Creating thread in Windows (make sure to create more thread) and visualize in Process Explorer
3. Creating threads in Java using Java Executor Framework: SingleThread, CachedThreadPool and Visualize Fork-Join Parallelism in Java

Make sure to record all screenshots of the results

```
thongking@Ubuntuzuuki:~/class_activity3$ cd
thongking@Ubuntuzuuki:~$ cd class_activity4
thongking@Ubuntuzuuki:~/class_activity4$ ls
java_threads_output.txt      pthread_demo          ThreadActivity4.class
linux_pthreads                pthread_demo.c        ThreadActivity4.java
linux_pthreads_output.txt    'ThreadActivity4$SumTask.class'  win_threads.c
thongking@Ubuntuzuuki:~/class_activity4$ tree
.
├── java_threads_output.txt
├── linux_pthreads
├── linux_pthreads_output.txt
└── pthread_demo
    ├── pthread_demo.c
    ├── ThreadActivity4$SumTask.class
    ├── ThreadActivity4.class
    ├── ThreadActivity4.java
    └── win_threads.c

1 directory, 9 files
< thongking@Ubuntuzuuki:~/class_activity4$ |
```

URL : <https://github.com/Th3ngSer/OS-Lab/tree/class-activity4>