

# **Advanced OS**

## **Assignment #2 - Adding and testing a new system call to Linux kernel**

### **Deadline - 15/10/2021**

#### **Objective:**

- Add new system calls to Linux kernel and test them.
- Get understanding of how system call works, their structure.

#### **Prerequisites:**

1. Basic usage and architectural of system calls
2. Preliminaries such as C/C++ code compilation, execution & debugging.

#### **Guidelines:**

Download the Linux kernel version **4.19.210** from <https://www.kernel.org/> and implement this assignment on this kernel only.

#### **Requirements:**

**Ques 1: Write syscall to print welcome message to Linux logs** **-10**

e.g., If your name is ayushi mahajan then syscall name will be ayushihello()

Which will print some hello message to Linux logs upon calling it.

**Ques 2: Write syscall which will receive string parameter and print it along with some message to kernel logs** **-15**

e.g., If your name is ayushi mahajan then syscall name will be ayushiprint(string)

Which will print passed parameter along with some message to Linux logs.

**Ques 3: Write system call to print the parent process id and current process id upon calling it** **-30**

e.g., If your name is ayushi mahajan then syscall name will be ayushiprocess()

Which will print parent process id and current process id to Linux logs.

**Ques 4: Write system call to execute some predefined system call from your written** **-15**

**system call**

e.g., If your name is ayushi mahajan and you want to executing getpid then syscall name will be ayushigetpid()

Which will work the same way as getpid works.

**Report** **-10**

**Viva** **-20**

**Submission Format:**

A zip folder consisting of:

- A single pdf report of all 4 questions having following things:
  - All snapshots of changes made for each question in a step wise manner.
  - For Ques3 Are both process ids same or different? Why? What are your observations.
- All four system call codes.c names by their name

**Naming conversion: Rollnumber\_assignment2.zip**

**References:**

- <https://www.stolaf.edu/people/rab/os/lab/newsyscall.html>
- <https://medium.com/anubhav-shrimal/adding-a-hello-world-system-call-to-linux-kernel-dad32875872>