

# CS2610: Computer Organization and Architecture

## Lab

Lab Assignment - 7

28-03-2021

### 1 Interrupts

On modern operating systems, it is possible to mmap a file to a region of memory. When it is done, the file can be accessed just like an array in the program. Given an input integer(32-bit) 'x', write a program to create a file input.txt and stores the integer x in it. Then your program should mmap the created file into your memory using the mmap() system call and output the following:

- 0 if x is prime, 1 otherwise.
- Reverse the digits of x, i.e., if  $x = 123$ , output should be 321.

fork() system call allows you to create child processes, use the system call to create a child process. The child process should do the first sub-task while the parent process should do the second sub-task. Note that the usage of mmap() and fork() system calls is must in this assignment.

### 2 Sample Input Output

256

1

652

### 3 Submission Guidelines

- There will be points for the readability of the code. Write the code with proper comments wherever necessary and maintain proper indentation.
- Name the program with your roll\_no. Ex: If your roll\_no is CS19B001, your file name should be CS19B001.asm. If there are multiple files, use CS19B001\_1.asm, CS19B001\_2.asm etc..
- You need not submit the io.o and io.mac files.
- Place all the required files in a folder and compress the folder using zip compression. Name your folder in the following format. If your roll\_no is CS19B001, name it as CS19B001\_A\$.zip, where '\$' denotes the assignment number.