Operating Systems Lab 2016

Assignment 1

Exercise 1

Write C programs to demonstrate the following process related system calls in POSIX systems.

- Process creation and termination: fork(), wait(), exec(), exit().
- Process owner and group: getuid(), geteuid(), getgid(), getegid().
- Process identity: getpid(), getppid().

Exercise 2

A program has to find out the maximum out of an array of 200 integers. To achieve this, the program creates two child processes and each child process finds the maximum in one half of the array (first child process in the first half of the array and the second in the second half of the array) and returns the same to the parent process. The parent process computes and prints the maximum from the two values returned by the child processes.

Write a C program to achieve the above.

Exercise 3

Modify the above program as follows.

The child processes compute both maximum and minimum and instead of returning the values they share it with the parent process through shared memory concept. The parent process takes the values from shared memory and computes and prints both the maximum and the minimum.