Assignment 2 & 3 (CST-102)

1. Write a C program that uses vfork function to create a child process. Declare a global variable count and initialize it to zero. Child increments count by 1 and prints the value of count. Parent also prints the value of count.
   Now change vfork to fork and execute the program again. Is there any difference in the output?

2. Write a C program that forks 5 children. When child number i terminates, it returns the exit status as i to the parent. Parent installs a signal handler for SIGCHLD signal. In signal handler parent collects and prints the exit status of each child along with the process id of the child.

3. Modify the code in 2 above so that each child i sets an alarm that expires after i seconds. Child process terminates when the alarm expires. Parent prints the process id of the child and its exit status in the signal handler.

4. Modify the code in 3 above so that before terminating the parent prints the number of seconds spent by the parent in the user mode and in the system mode. It also prints the time spent by its children in the user mode and in the system mode.

   [Note: use “getrusage” function. Convert the time given in microseconds to seconds and add it into the time given in seconds]