Task 5 - Report

William Lee

For this assignment I created one semaphore called transaction and initialized its value to one. This allows one process to decrement the value of the transaction and lock the critical section for that process. All three processes check the same semaphore to enter their critical section therefore, if one process is already in a critical section the semaphore will have a value of zero which will not allow itself to be decremented further and have the process wait until the other process leaves the critical section by incrementing the semaphore's value by one. The critical section contains all the reading and writing of information that's shared between the processes through text files. For example, without the semaphore dad process would read the account balance to be 100 but then son 1 process interrupts and changes the balance to 80 so by the time dad process adds 60 to the balance the balance will update to 160 but it should be 140 hence, a race condition. With a single semaphore it eliminates the race condition as only one process can read and update the shared values (account balance and number of attempts) at a time.