memo

IIT CS330 Fall 2022

To: Virgil Bistriceanu

From: Sam Michelsen

CC: N/A

Date: Date

Re: CS330 Coding Assignment

I implemented the security keypad engine using C++ and an accompanying program that tests how long it would take to break into the system using randomly generated numbers. Both programs were made using Vim in a Linux terminal and VScode on a Linux system. The regular expression that unlocks the door is the string “607721” and the unlock expression is “607724”. The locking engine is simple: disables character echoing an canonical unput mode on the terminal, it takes raw input from the terminal and sends them to the program. The program tracks the 6 most recent keypresses (only numerical characters 0-9) and continuously tests the 6 character “buffer” against the lock and unlock sequence. It’s less than 100 lines of code and it works as intended. The “lockbreaker” uses a similar method of tracking the 6 most recent inputs to a vector array but it uses randomly generated numbers and will tell you how many tries guesses it took to “break” the lock. It can be run multiple times in a row and the program will aggregate the minimum, maximum, and average number of guesses. It will also calculate the time it would take a person to “break” the lock given a 1 second interval between random keypad inputs. My guess was that it would take days of this to break the lock, around 3 or 4. After running the “lockbreaker” for 200 iterations, it seems to average to around 240 hours, which is 10 days, longer than I had originally anticipated.