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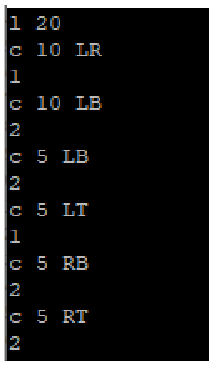
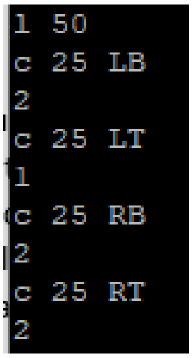
Cosc241 assignment Report

A) When running through the count for the “pick up by rows” those with specifications of “LX” and “RX” based off the size of the pile and the row length we can predict what the result will be no matter what sizes the pile or row lengths are respectively. As an example, I loaded in a load of size 20. Then when using the different multiple of 20 a long with a specification of the “LX and RX” there were only 2 result found. The specification of LT was count 1, and the other specifications of a LB, RL and RB were count 2. I then tried with another size, that of 50 and received the same result. With LT having a count of 1 and LB, RL and RB having a count of 2. Trying with several other sizes the results came back the same. This deduces that we could predict the count result to be a 1 if the specification called is LT and are 2 if either LB,RL or RB are called. The result for the LT specification will always be 1, this is because it picks up and puts down the pile the same therefore it will only go through 1 count variation. Essentially the other 3 specifications when going through the pile twice it is like going through LT once. Due to the way you are picking up and putting down the cards.





b) When running through all the specifications with a card pile of size 20, the specifications where the pile was picked up from the top or bottom produced the highest count. Out of all these specifications BR produced the highest count, with almost every row length multiple of the pile producing a count of 18. TL with a row length of 10 also produced a count of 18. However, the rest of the specifications produced counts well under 18. With these findings, you could say any row length and pile size with a specification starting with "L" or "R" would produce a count of 1 or 2. Any specification with BR would most of the time produce a higher count than its other specification counterparts with the exception of TL which when given certain row lengths matches the count of BR.

c) With 6 cards there are 720 possible card piles. If this is a linear function, we can assume that to get the total possible number of card piles the equation will be (n*n-1*n-2…etc) this will be the same no matter what the number of cards is. For example, with 7 cards to get the total possible number will be (7x6x5x4x3x2x1) which equals 5,040. With 8 total cards the total possible number will be (8x7x6x5x4x3x2x1) which equals 40,320. With 9 total card piles the total possible number is (9x8x7x6x5x4x3x2x1) which equals 362,880. With any n over 10 the number will increase exponentially, and it will be impossible to keep track of every instance of combinations of cards. This could cause a problem and make it no feasible. With 10 card piles being over 3million, it makes it unreasonable to use a number this high. A higher number could cause errors with too many possibilities.