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CSC 520

Problem Specification

As we all know, COVID and the quarantine that ensued presented many of us with more time in both isolation as well as a lot of time away from our everyday lifestyles. I know that myself as well as my family decided to spend 1-2 nights a week playing board games or some sort of card game to help pass the time. At first, coming up with games to play was rather simple as we quickly went through our assortment of board games and transitioned to a variety of card games. However, this quickly became almost as boring and repetitive as quarantine itself. We then started to use Google to help us decide what games to play and started competing in games traditionally meant to be a single-person game to see who could complete it faster. That is when we stumbled upon the game known as Devil’s Grip.

Devil’s Grip is a solitaire based game in which a single person attempts to sort two shuffled decks of cards (with the aces removed) into 3 rows and 8 columns with each pile of cards consisting of a certain arrangement of same-suited cards in a sequential order. When completed successfully, the top row contains 8 piles of cards that each contain a 2, 5, 8, and a jack. The piles in the middle row should contain a 3, 6, 9, and queen. Lastly, each pile of cards within the bottom row should contain a 4, 7, 10, and a king. Breaking this down further, essentially there should be 24 individual piles of cards that each contain 4 cards of specific values in a specific order.

A player begins this game by shuffling both decks together and then taking the top 24 cards of the newly formed deck of cards and placing them in the arrangement described above (1 card in each position forming a 3 x 8 grid). Once these cards have been placed, the player can swap cards one at a time into new positions as necessary. For example, if there is a 3 of diamonds in the bottom row and a 4 of hearts in the middle row, the player could swap these cards so that each number is in its correct location on the grid. Similarly, the player can also begin stacking cards as necessary as well. Using the previous example, lets say that after the player moved these cards, they noticed a 6 of diamonds was in the top row. The player could take this 6 and place it on top of the 3 of diamonds they just moved previously. The now empty location where the 6 was, is replaced by a card from the top of the shuffled deck. Once this is completed the player then begins to flip over cards from the deck in sets of 3, only being able to use them in reverse order in which they were removed from the deck and fielding them as necessary, using the outlines rules as a guide.

Traditionally, this game ends when a player either successfully completes this arrangement with each row containing 8 piles of sorted, same-suit cards based on row or there are no moves left. If a player successfully sorts the cards, they receive a score of 0 which is the best possible score. However, if they still have cards left in the deck, the number of cards left equals their score. The lower a score the better.

Now that we have an understanding of the game, let me explain why I decided to make an application capable of running it. When my family was playing these card games, very often the surfaces that we were playing on would become cluttered and it would almost always become too cluttered to track the card arrangements. The surface area required to play this game was big and if playing on a floor we would also have to account for pets and such moving the piles and creating confusion. Often, we would use the app store from apple to download games and play them digitally to avoid this, however when we stumbled across Devil’s Grip we could not find an app that contained the game nor a website. That is when I got to thinking, why not create it myself? This app would allow for players to effortlessly play this game anywhere at any time as well as track their overall scores within the app itself so that if they were competing against someone else it would be easily tracked and shown. While this may seem simple in nature, I found it to be rather interesting that no one had bothered to include it within their app and during this time, the ability to pass time with effortless games seems to be very important.