Project # 1 Lee Moore

Project Concept:
Replicate the popular Solitaire game with one standard 52-card deck

One class per location:
1. The **Tableau**: Seven piles that make up the main table. Will be represented by 7 lists naming the items currently held in each - some hidden, so shown
    a. Function to *establish* the original table layout, where the cards come from the shuffled deck in the following order:
        i. List "T0": 1 shown card
        ii. List "T1": 1 hidden card, 1 shown card
        iii. List "T2": 2 hidden cards, 1 shown card
        iv. List "T3": 3 hidden cards, 1 shown card
        v. List "T4": 4 hidden cards, 1 shown card
        vi. List "T5": 5 hidden cards, 1 shown card
        vii. List "T6": 6 hidden cards, 1 shown card
        viii. Input: cards in sequential order from the **Stock**
        ix. Output: populated Lists from T0 to T6
        x. Question: how best to display 'hidden' items in a list, also how to display horizontally each of the lists (items in the list would need to be vertically displayed)
    b. Function to *build* will include popping the last item (a shown card) to an appropriate location (to the **Foundation** or else to the end of one of the other **Tableau** list following the rules)
        i. Input: user provides an input on which card they want to play according to their location (options T0, T1, T2, T3, T4, T5, T6 or P(for 'Play'))
            1. If input is numerical (i.e. in the tableau), ask the highest ranked card they they want to play elsewhere (so that all the subsequent cards follow)
            2. Ask user to input where they want to play the card (or cards): (options T0, T1, T2, T3, T4, T5, T6 or S, H, D, C)
            3. Alternatively, user types 'N' (for next) to display the next card in the Stock or user types 'Q' for quit
        ii. Output: assuming no error, display the updated deck and await next input from the user
        iii. Rule for Building - Can only build if following a 1-step higher ranked card and must be heart/diamond following spade/club, or vice versa. Multiple cards cannot be played on the foundation
    c. Function to *show*: If no shown cards on a list, "showing" the last hidden card
        i. Called during a *build* function, in the condition that one of the 7 lists has no more shown cards
2. The **Foundations**: Four piles on which a whole suit or sequence must be built up. 4 foundation lists, which only allows cards in sequential ranked order by suit:
    a. 4 lists for each of the foundation stacks. This are lists that start empty:
        i. List "S": Empty list for Spades (first allowed card is Ace of Spades)
        ii. List "H": Empty list for Hearts (first allowed card is Ace of Hearts)
        iii. List "D": Empty list for Diamonds (first allowed card is Ace of Diamonds)

          iv.   List "C": Empty list for Clubs (first allowed card is Ace of Clubs)
- b. Takes cards from the Tableau or Stock or Talon Pile
- c. Rule: only allows sequentially ranks cards, and only allows suits in the appropriate column

3. The **Stock** (or "Hand") Pile: The remaining cards that are not laid out on the Tableau at the beginning of the game.
   - a. Function **play** - Each play starts by displaying the first card in the Stock in the **Talon** pile with a chance to play it in the Tableau or Foundation - if no plays are possible, the user repeats the Play function to display the next card
   - b. Once Stock is empty, Talon list will be used to **refill** the stock

4. The **Talon** (or "Waste") Pile: Cards from the stock pile that have no place in the tableau or on foundations are laid face up in the waste pile. Before the next Stock card is played
   - a. A new card in this pile can be played in the Tableau or Foundation
   - b. If a card is played, then the card that sits below this one is shown and available for play again

Additional Functionality Required:

- Establish rank of cards: he rank of cards in Solitaire games is: K (high), Q, J, 10, 9, 8, 7, 6, 5, 4, 3, 2, A (low).
- Once there are no more hidden cards, or once all cards are in the foundation, end game and display "you win!"
- Function to display the full board, including some display from all 4 classes listed above after every correct play (i.e. each time a card moves on the board)