Solitaire

Mid Project

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Course:

CSC-200 Data Structures and Algorithms

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1. Project Introduction

Solitaire is a single-player card game where the objective is to organize all cards by suit in ascending order. The gameplay involves shifting and revealing cards across columns to reach the goal. This is Klondike version, featuring seven columns and foundation piles. Some basic rules are as follows:

- Cards are moved to four foundation piles, based on their suit which is Ace to King.
- You can draw one card from the stockpile.
- In tableau columns, cards should be placed in alternating colors and descending order.
- Only a king can be placed in an empty tableau column.
- Temporarily cards are place in seven tableau columns from one to seven, with only the top card face-up.
- Game is won when all foundation piles from Ace to King are completed.

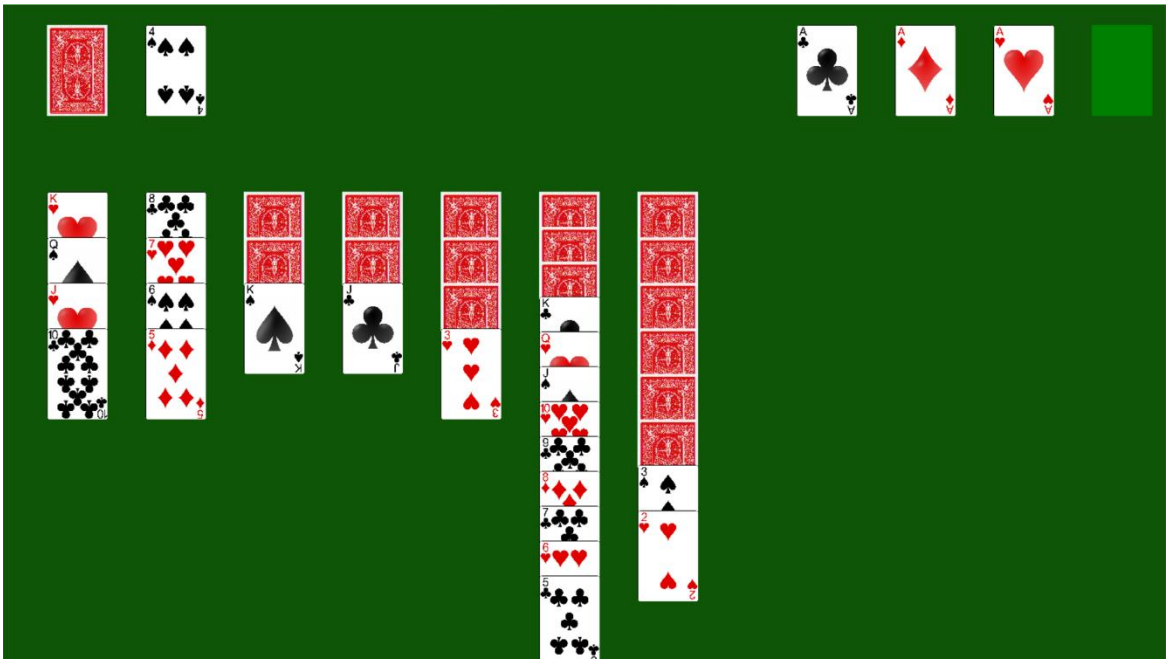
2. Technology Used

The game logic of this project is developed using Python with UI integration in Pygame.

3. Data Structures Implemented

- **Queue:**
  The stockpile functions like a queue, where drawing a card removes the oldest one (FIFO).
- **Stack:**
  The foundation and tableau piles work in stack manner where top card is popped / pushed (LIFO).
- **Dictionary:**
  Pile cards are mapped in dictionary for their position and their face up / down state.
- **Array / List:**
  Deck of 52 cards is stored in a list for manipulation purpose like shuffling.
- **Linked List:**
  Moving card sequences between tableau columns uses link list concept.

4. WireFrame



5. Source Code

Click here to view gitlab repo

https://gitlab.com/2023-cs-62/csc200m23pid62