Homework 4

"Angular"

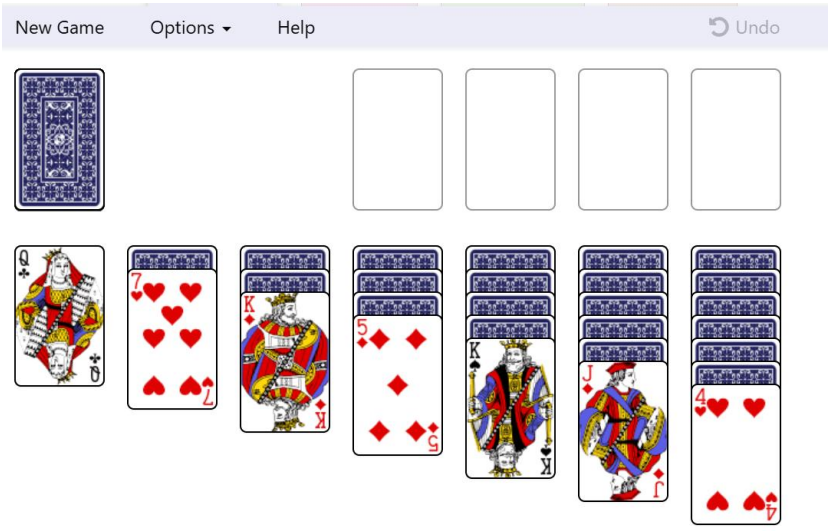
The following problem set is worth 100 points total. Please submit a zip file containing all relevant code to the Canvas drop box by the due date of the assignment.

Requirements

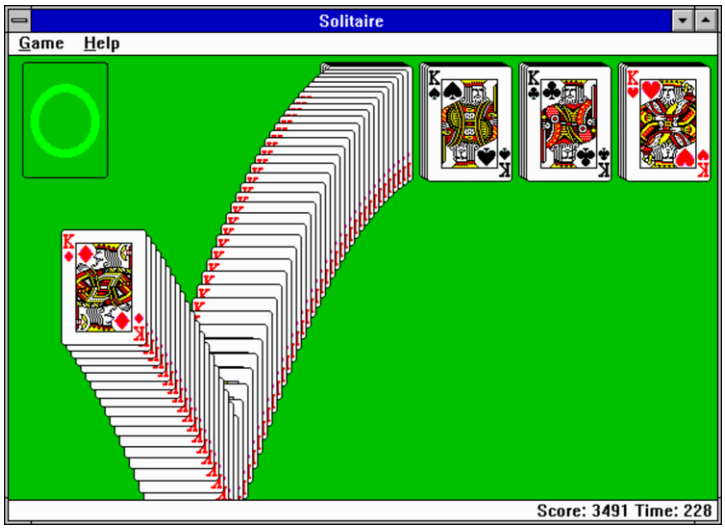
Along with Vue.js, we are going to look at two more JavaScript frameworks. The second framework we are looking at is **Angular**.

ngSolitaire (100 pts)

For this assignment you are building a playable version of Solitaire using Angular.



The game of solitaire is a card game that was popularized over two decades ago by Window 95. The goal of solitaire is to have four stacks of cards (one for each suit), each in ascending order from Ace to King. A completed version of the game looks like the following:



For the game itself, there are three types of moves you can perform with your mouse:

- Single clicking reveals a card that is upside down and concealed
- Double clicking on a card, which moves the card to its correct spot on the four columns (depending on the face and the suit)
- **Drag and drop**, used to move cards between columns and also to their correct spot in the finishing column

When you are dragging cards between columns, the cards must be stacked in descending order with alternating suit colors. As an example, you can drag the **seven of clubs** under the **eight of hearts**:

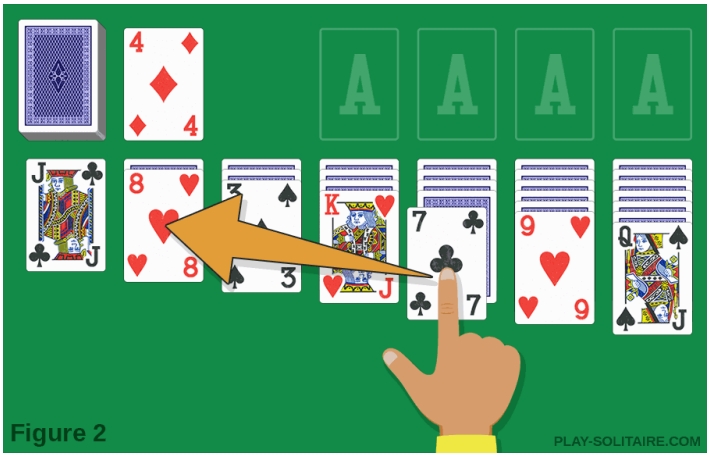


Figure 2

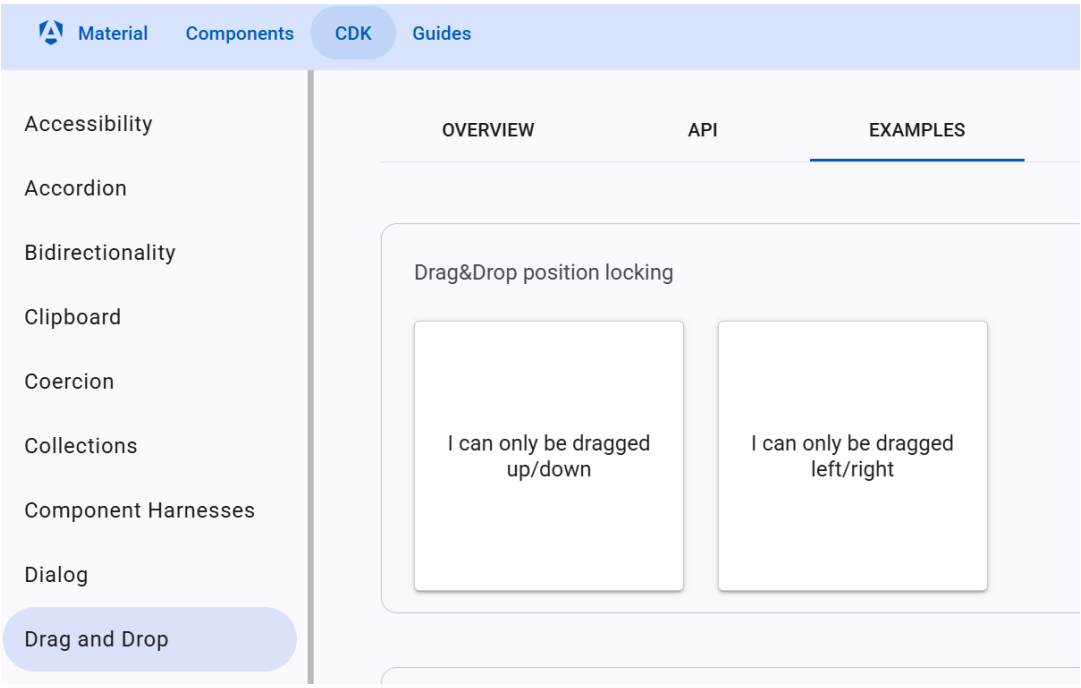
Detailed Design

For this assignment you are to create a game of solitaire using **Angular**. Your game should use one deck of cards. At the start, you are to generate the columns of cards randomly. The far-left column has one card, the next one has two cards, etc. You are to randomly generate seven columns in total.

- From here the remainder of the cards are turned upside down and placed in the top left corner.

- The user can either drag cards between columns, move cards to the four end positions based on the suit, and cycle through the additional cards (in the upper left corner) if needed for additional moves
- The game is decided when all four piles of suits are in correct alignment
- Do not worry about detecting if the game cannot be won

You will be using Angular for this assignment, and the trickiest part will be the drag and drops. Thankfully Angular includes this natively in the framework. Examples can be found here https://material.angular.io/cdk/drag-drop/overview



You might need to install a package though in your project, e.g. *npm install @angular/cdk/drag-drop*.

Incorporate **Angular Routing** into your submission, possibly showing a home page or a page listing the rules of the game.

Submission Requirements

For submission, upload a zip file containing all the assets I need to run your Vue.js game. Since Angular requires Node.js, do not include the **node_modules** directory in your submission.

Submit using the Canvas drop box before the due date.