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APCS1 Pd8
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Final Project Proposal

FreeCell

The game of FreeCell has long been synonymous with the rise of personal computers. Included in every copy of Windows 95 up to Windows 7, FreeCell has long been a simple, yet powerful example of the entertainment possible using computers - and a great killer of time. Our project will be to replicate the game in Java, making it playable in a console window entirely in text.

Opening up FreeCell will generate a randomized board state, beginning with:

- Four open *cells*
- Four *foundations* (one per suit)
- Eight *cascades*, across which a 52-card deck is distributed randomly
    - Four 7-card *cascades*
    - Four 6-card *cascades*

Here is an example of a randomized, beginning board state:

```
[=-=-=-free-cell-=-=-=]
F1|F2|F3|F4|DD|CC|HH|SS
  |  |  |  |  |  |  |
@~-~-~-~-~-~-~-~-~-~-~-@
C1|C2|C3|C4|C5|C6|C7|C8
=-=-=-=-=-=-=-=-=-=-=-=
1C|KC|5C|3D|8S|KC|JH|QS
9H|1S|9S|QH|2S|KS|7S|7H
2C|6C|QD|3H|JC|4C|8H|3D
8D|6S|6D|AH|JS|9C|8C|3S
2D|1H|5H|2H|5S|AC|KH|4S
3C|7C|QC|7D|AC|JD|AD|9D
6H|1D|5D|4H|  |  |  |
```

Each card is its own object with a suit and number. Each type of card stack - *cells*, *foundations*, and *cascades* - will be subclasses of a card stack class which contain a number of cards. Each subclass will have its own limitations as to how the cards it contains can be manipulated.

The user will be prompted with 3 options:

- Move Card
    - Gives another prompt to select the stack to move the card from, and a second prompt to where the card should be moved to. Players can only move one card at a time, and will be brought back to the original 3 options if they attempt an illegal move.
- Reset
    - Resets the board state to its original position.
- New Game
    - Generates a new board.

Each time the board state is changed, the new version of it is printed.

After the conditions of victory are met, a congratulatory message will print and the game will be exited.