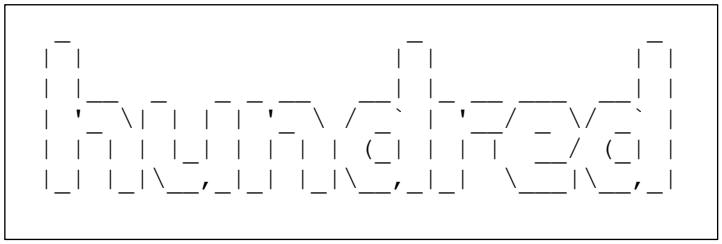

Michael Kwan

This game is part of a submission to the 2020 Kleiner Perkins Fellows Program.

Rules

Hundred is a card game that is played not using a standard deck of 52 cards, but a deck of cards of 100 numbers [1-100]. In this singleplayer game, there are several piles of cards:

- Hand (8 cards)
- Stacks (2 ascending, 2 descending)
- Deck (cards not in previous two sets)

To start, a player shuffles the whole deck, picking the top 8 cards into their **Hand**. The rest of the cards are face down in the **Deck.** Four spots are reserved for the **Stacks**, which start the game empty. On every move, the player will:

- Play a card from the **Hand** to a **Stack**
- Draw a card from the **Deck** to the **Hand** (if cards remain)

The game is finished once all cards are placed into stacks, at which point the game is won, or there are no possible plays left. A play, or move, is defined as moving a card from the hand to a stack, to which there are four – two that have ascending rules, and two that have descending rules. Cards may be placed on a stack if they pass all the conditions:

- The number of the card being placed is greater than the previous top card, creating a stack in ascending order. If a stack is designated as descending, cards being placed need to be smaller than the one underneath it.
- For ascending stacks, a number can also be placed on a stack if the number being placed is 10 less than the one that it succeeds. For descending stacks, cards can be placed if the number is 10 more.

Installation and Running

Installing Hundred requires only a valid distribution of Python 3.x and pytest. Once downloaded from GitHub, users can start a new game by running

```
python3 hundred.py
```

Unit Tests can be run by running:

```
pytest
```

Design

Hundred is a simple game that relies on the use of lists in order to function. Because of the ease of use of the Python programming languages and the implementation and use of the relevant data structures, I felt that using Python to create Hundred was ultimately the right choice. A stack is used for each of the pile that the user replenishes their hand from, as well as for each deck where only the top card matters to the player. I took advantage of the object oriented structure that Python offers to modularize the items in the game, such as an individual card or a stack of cards that a user can draw from.

Pytest is a simple testing framework that allows the user to define and run their own tests easily, thus being the choice for me when it came to testing my code. Due to the modularity and objectivity of the game, it was simple to test the code that I had written for Hundred.