

Practice Writing Classes from Scratch

Worksheet 13 had you create a class representing a single playing card, `Card`. This week, we are going to build on that by creating a class to represent a *deck* of playing cards, `Deck`. A standard card deck consists of: four suits (Hearts, Clubs, Diamonds, and Spades) of 13 cards each (1(Ace), 2-10, 11(Jack), 12(Queen), and 13(King)). We will omit the jokers.

This week: Develop a class for a deck of 52 playing cards.

- Data member: accessible only to the class, should be an `ArrayList()` of `Card` objects
- Member methods should include:
 - Constructors:
 1. a constructor to initialize the deck to as many card decks as the integer parameter signals. If it's zero, it creates an empty list. If it's 4, it creates an `ArrayList` of four standard decks with 208 cards.
 2. a default constructor (no parameters) which should initialize the list of cards to a standard deck (52 cards total)
 - `isEmpty()` — indicates whether there are cards left in the deck or not
 - `shuffle(seed)` — invokes the shuffle with the integer `seed` as:
`Collections.shuffle(deck, new Random(seed));`
 - `dealTop()`, `dealBottom()` — returns the “top” (at position `size-1`) or “bottom” (at position 0) card, if it exists, and deletes it from the deck
 - `getCard(i)` — returns the i^{th} card from the deck, but doesn't remove it
 - `add(c)` — to add a card to the end of the deck
 - `remove(i)` — deletes the i^{th} card from the top of the deck
 - `swap(p1, p2)` — exchanges the cards at positions `p1` and `p2` in the deck
 - `size()` — number of cards remaining in the deck
 - `toString()` — used to display the cards in the deck. This should utilize the `quickString()` method of the `Card` class so the resulting string won't be too long.

```
public class Deck{
```