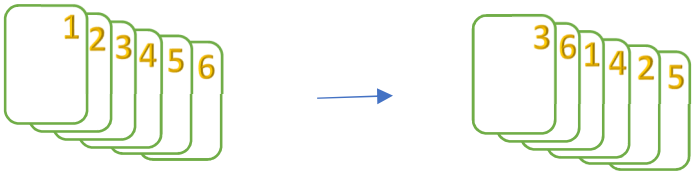
# The Random Shuffle

(designed to accompany the AP® Computer Science A Elevens Lab)

**- Consider the following questions first:**

1. While shuffling a deck of cards humans seemingly might think they are performing a perfect shuffle (last lab); however, humans do not perform perfect shuffles as they simply aren't that accurate. A computer, on the other hand, can perform a perfect shuffle. A perfect shuffle IS NOT an ideal shuffle for computer game situations.
2. How else might you be able to create a random deck of cards? Discuss different ideas and strategies.

**- The ideal shuffle:**




**Each card is placed in a random location (into a "new" deck)**

**- Creating the Random shuffle() method. The main idea is this …**

1. Pick a random card
2. Put it into the "new deck"
3. Repeat the process with the remaining cards

**- Below is the framework for the random shuffle() method that will be implemented. How would you complete it?**

```
public void shuffle(){
   //First, notice that this method DOES NOT have any parameters, it will directly change the current object
   //Declare an integer variable called random (it will store the random number which will determine which card
   //Create a new (empty) ArrayList called tempDeck that will hold Card objects
   /*Write code that utilizes a while loop to do the following …
         1. The while loop runs as long as there is still a card left in the deck
         2. Initialize the random variable to equal a random number that represents the index of a random card
         3. The random number determines which card is taken from the Deck to the tempDeck
         4. Place the random card into the tempDeck
         5. Be sure to delete the random card from the current Deck
   //Write code that utilizes a for loop to copy the new tempDeck back into the Deck object
}
```

**- Use the DeckTester Class from Lab #5 …**

1. *Edit the class so that it correctly handles/uses the new shuffle method.*
2. *Run the new DeckTester Class multiple times to verify that it is working and that the deck appears to be randomized*