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APCS2 pd01

HW04 -- So Easy, Even a Caveturtle Can Do It

2018-02-05

Step By Step Process (we start with a regular deck of cards and A LOT of available turtles)

(A sorted deck consists of all cards in ascending order, with Spade >(on top of) Heart > Club > Diamonds as order of the suit)

1. The first turtle will receive the entire unsorted deck of cards. It will <mark>split</mark> the deck into roughly half of its original size and pass each deck (we now have two unsorted decks) to the next two empty-handed turtles.

   a. The next turtles will both split the unsorted deck they receive into roughly half again (we now have four unsorted decks) and then pass it onto the next four empty-handed turtles.

   b. This process of splitting and passing continues until a number of empty-handed turtles receive a deck that only consists of one card.

2. Each turtle with only one card bids their card farewell by returning their card to the turtle who passed them the card. The turtles who passed them the card should've started with an unsorted deck of two cards, which they split into two decks that each consists of one card only and passed them on. After receiving the cards from the turtles that only had one card, these turtles should only have two cards each again. These turtles will <mark>sort</mark> the two cards they received into proper order and return the sorted deck to whoever first passed them the two cards.

   a. Each turtle who received the two sorted decks of two cards will now sort them into a sorted deck of four cards and return the sorted deck to whoever first passed them the four cards.

   b. This process of sorting and returning continues until the first turtle who first received the full, unsorted set receives two sorted decks. The first turtle sorts the two decks into a single sorted deck of cards, completing our sorting process.