Game of Sticks (VIM)
Modified from: http://nifty.stanford.edu/2014/laaksonen-vihavainen-game-of-sticks/handout.html

Assigned: Wednesday, August 24, 2016

Due: Wednesday, September 7, 2016 at midnight (this is labor day!)

Game of Sticks

In the game of sticks there is a heap of sticks on a board. On their turn, each player picks up 1 to 3 sticks. The one who has to pick the final stick will be the loser.

The following is an example of the game of sticks.
- The game starts with 20 sticks on the board.
- Marvin takes 3 sticks, there are 17 sticks remaining.
- Hannah takes 2 sticks, there are 15 sticks remaining.
- Marvin takes 1 stick, there are 14 sticks remaining.
- Hannah takes 3 sticks, there are 11 sticks remaining.
- Marvin takes 2 sticks, there are 9 sticks remaining.
- Hannah takes 2 sticks, there are 7 sticks remaining.
- Marvin takes 3 sticks, there are 4 sticks remaining.
- Hannah takes 1 stick, there are 3 sticks remaining.
- Marvin takes 2 sticks, there is 1 stick remaining.
- Hannah has to take the final stick and loses.

Part one: Human vs. Human

First, create a game where two players can play against each others. The two examples below demonstrate how the game should behave.

Example 1

```
Welcome to the game of sticks!
How many sticks are there on the table initially (10-100)? 10

There are 10 sticks on the board.
Player 1: How many sticks do you take (1-3)? 3

There are 7 sticks on the board.
Player 2: How many sticks do you take (1-3)? 3

There are 4 sticks on the board.
Player 1: How many sticks do you take (1-3)? 3

There is 1 stick on the board.
Player 2: How many sticks do you take (1-1)? 2
Please enter a number between 1 and 1
Player 2: How many sticks do you take (1-1)? 1
Player 2, you lose.
```

Example 2

```
Welcome to the game of sticks!
How many sticks are there on the table initially (10-100)? 500
Please enter a number between 10 and 100
How many sticks are there on the table initially (10-100)? 3
Please enter a number between 10 and 100
How many sticks are there on the table initially (10-100)? 50

There are 50 sticks on the board.
Player 1: How many sticks do you take (1-3)? 3

There are 47 sticks on the board.
Player 2: How many sticks do you take (1-3)? 55
Please enter a number between 1 and 3
Player 2: How many sticks do you take (1-3)? 3

There are 44 sticks on the board.
Player 1: How many sticks do you take (1-3)? 3
```

```
...

There is 1 stick on the board.
Player 1: How many sticks do you take (1-1)? 1
Player 1, you lose.
```

Implement a game with the functionality described above in Swift using functions, optionals and user input.

Grading Rubric:

Items	Percentage	Expert (100)	Proficient (75)	Needs Improvement (50)	Unsatisfactory (0)
Input and output match the text above	10%	Matches 100%	Up to 2 typos	More than 2 errors but fewer than 5	More than 5 different errors in input/output
Use of functions	20%	Functions are cleanly defined (do X)	Use of functions, but do not add to readability or understanding of code	Use of functions results in code being harder to understand	No functions used
Plays game correctly	40%	Plays games for number of sticks between 10 and 100, inclusive	Generally works, but misses 'special' or edge cases	Game can't be played as described	Game doesn't compile
Handles erroneous input correctly	20%	Both cases (total sticks and ones picked up)	Misses one of the 4		Misses more than one of the 4 cases
Adheres to CSC 416 coding guidelines for Swift	10%	Miss none of the style code	Misses 3 or fewer coding rules (may be more unique errors)	More than 3 different type of coding style errors, but fewer than 10	More than 7 different violations of Swift programming style