CS F111: Computer Programming
Mock Mid-semester Programming Quiz

Matchstick Game*

Write a program for a matchstick game being played between the computer and a user. The rules for the game are as follows:

- The user chooses a number N- the total number of matchsticks
- A player (computer or user) can pick 1, 2, 3 or 4 matchsticks in a single turn
- A toss decides who goes first, the user or the computer
- Players pick matchsticks turn by turn, and the player forced to pick the last matchstick *loses* the game

Your program should ensure that the computer always wins!
[Hint: bias the toss to control who plays first based on the number of matchsticks]

Input/Output format

- The first input is N- the total number of matchsticks for the game. N must be greater than 10. If it is not, print "Invalid Input. Number of matchsticks must be greater than 10". Take the number of matchsticks again in a fresh line.
- The next output should be the result of the toss.
  In case the computer wins the toss, the next output should be the number of matchsticks picked by the computer, and in a fresh line, the number of matchsticks remaining.
- The next inputs continue till the game ends.
  For each input, print as output the number of matchsticks the computer picked, and the number of matchsticks remaining, in the next line.
  If the input by the user does not correspond to the rules of the game, print "Invalid pick" and take the input again from the user in a fresh line.
- At the end of the game, print "Computer wins!" in a fresh line.
- Next, ask the user whether he/she wants to play again, and take the input from the user in a fresh line.
  In case the input is 'n' or 'N', terminate the program.
  In case the input is 'y' or 'Y', start the game again with a fresh value of N.
  In case the input is anything other than the above, print "Please answer in y or n" and ask for the input in a fresh line.

*Credits: Let Us C, Yashavant Kanetkar

Sample Input/Output

[Note: This input/output is only to demonstrate the *format* of the input and expected output. The actual output may vary in a game where the computer always wins]

Input	Output
21	`Player wins the toss and plays first\n`
3	`Computer picked 1 matchsticks\n` `Remaining: 17\n`
2	`Computer picked 4 matchsticks\n` `Remaining: 11\n`
1	`Computer picked 1 matchsticks\n` `Remaining: 9\n`

4	`Computer picked 4 matchsticks\n`
	`Remaining: 1\n`
	`Computer wins!\n`
	`Do you want to play again?(y/n)\n`

n	

Outputs for Invalid Inputs

Input	Output
N <= 10	`Invalid Input. Number of matchsticks must be greater than 10\n`
matchsticks picked is invalid	`Invalid pick\n`
Play again is not y,Y,n,N	`Please answer in y or n\n`

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