#!/usr/bin/env python

import sys
import atexit

class Question(object):
    def __init__(self, question, options):
        self.question = question
        self.options = options  # dict { "yes": .. "no": .. }

    def ask(self):
        answer = ask(self.question)
        return (answer, self.options[answer])

def resetColor():
    # Remove color formatting
    sys.stdout.write("\033[0m")
    sys.stdout.flush()

def onExit():
    # When exiting, remove all colors from the
    # terminal and give a proper prompt with a new line
    resetColor()
    sys.stdout.write('\n')
    sys.stdout.flush()

def userInput(prompt):
    # Gives the user a prompt and waits for input.
    # Returns one line of user input
    # The input is colored to make things interesting
    try:
        answer = raw_input(prompt + "\033[32m")
    except:
        exit(1)
        resetColor()
        return answer

def ask(question):
    # Prompts the user with a yes/no question
    # Loops until "yes" or "no" is typed
    answer = userInput(question + " ").lower()
    while (answer != "yes" and answer != "no"):  
        answer = userInput("I'm sorry. Please answer with 'yes' or 'no'. ").lower()
    return answer

def makeNode(node):
    # Creates a new question at the edge of the tree
node.options["no"] = Question(node.question, {
    "yes": None,
    "no": None,
})
newAnimal = userInput("Ok. What is it? ")
node.options["yes"] = Question("Is it a " + newAnimal + "?", {
    "yes": None,
    "no": None
})
print("Please type a question to distinguish the animal.")
node.question = userInput(" >> ")

def play(parent, node, answer):
    # Recursively plays the game
    if (node == None):
        if (answer == "yes"):
            print("Excellent. I win")
        else:
            makeNode(parent)
    else:
        ans, next = node.ask()
        play(node, next, ans)

def main():
    # Instantiates tree and begins the game
    cow = Question("Is it a Cow?", {
        "yes" : None,
        "no" : None
    })
    snake = Question("Is it a Snake?", {
        "yes" : None,
        "no" : None
    })
    root = Question("Is it a mammal?", {
        "yes": cow,
        "no": snake
    })
    cont = "yes"
    while (cont == "yes"):
        play(None, root, 0)
        cont = ask("Continue the Game?")
    return 0

if (__name__ == "__main__"):
    atexit.register(onExit)
    exit(main())