The Monty Hall Problem

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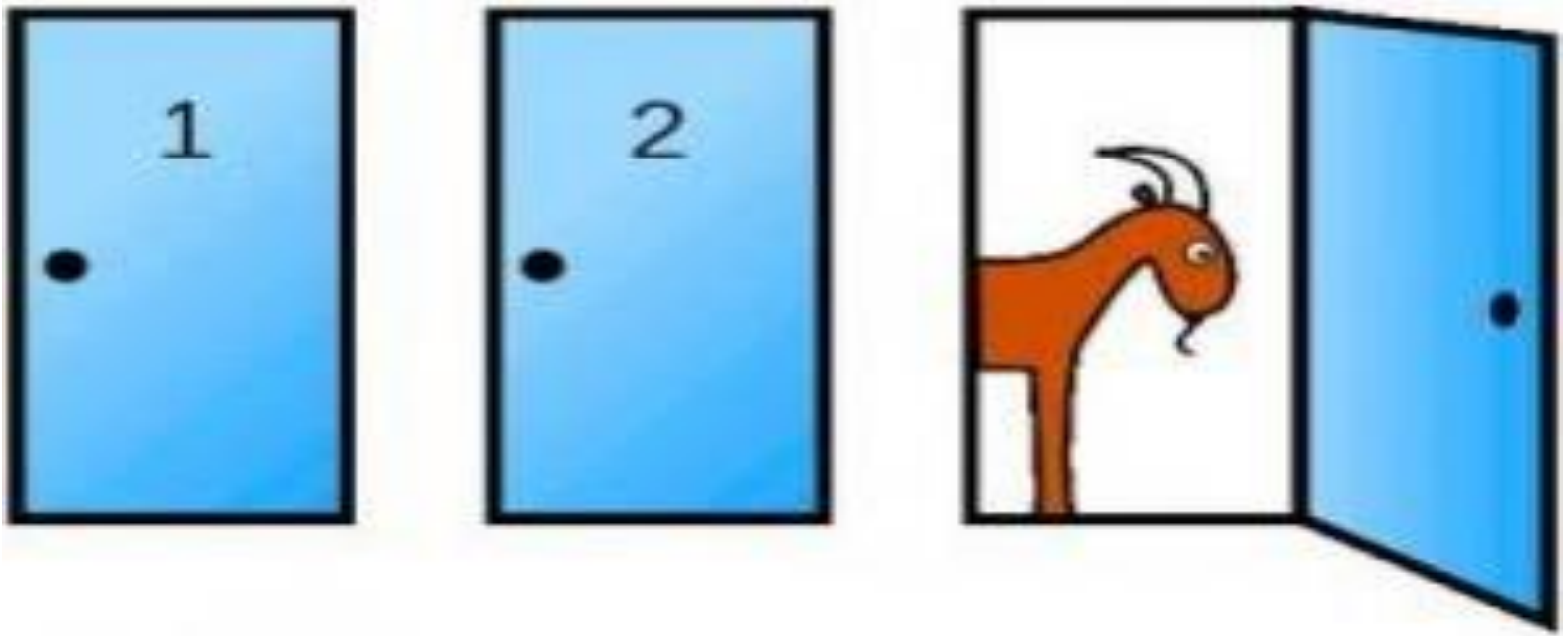
1
2
3

She Picks Door 1

Monty Opens a Door that Has a Goat



Do You Want to Switch?

```
def simMontyHall(numTrials = 100,chooseFcn):
    stickWins, switchWins, noWin = (0, 0, 0)
    prizeDoorChoices = [1,2,3]
    guessChoices = [1,2,3]
    for t in range(numTrials):
        prizeDoor = random.choice([1, 2, 3])
        guess = random.choice([1, 2, 3])
        toOpen = chooseFcn(guess, prizeDoor)
        if toOpen == prizeDoor: noWin += 1
        elif guess == prizeDoor: stickWins += 1
        else: switchWins += 1
    return (stickWins, switchWins)
```

```
def montyChoose(guessDoor, prizeDoor):
    if 1 != guessDoor and 1 != prizeDoor:
        return 1
    if 2 != guessDoor and 2 != prizeDoor:
        return 2
    return 3

def randomChoose(guessDoor, prizeDoor):
    if guessDoor == 1:
        return random.choice([2,3])
    if guessDoor == 2:
        return random.choice([1,3])
    return random.choice([1,2])
```

```
def displayMHSim(simResults, title):
    stickWins, switchWins = simResults
    pylab.pie([stickWins, switchWins],
              colors = ['r', 'c'],
              labels = ['stick', 'change'],
              autopct = '%.2f%%')
    pylab.title(title)
```