"Wheel of Fortune" Problem

State:

H₀: All parts of the MMSTC Wheel of Fortune are equally likely to be landed upon. Wheel is balanced.

Hₐ: All partsof the MMSTC Wheel of Fortune are not equally likely to be landed upon. Wheel is not balanced.

Plan: `Chi Square Goodness of Fit`
`     Conditions:  Random sample of 1000 spins`
`                  All expected counts are > 5`
`                  N (population of all spins) > 10n 10(1000 spins) or 10,000 spins`

Do:

```
                              Test            Contribution
Category        Observed  Proportion  Expected    to Chi-Sq
Doll                 195         0.2       200        0.125
Candy Bar            215         0.2       200        1.125
Bagel                210         0.2       200        0.500
Homework Pass        165         0.2       200        6.125
Nothing              215         0.2       200        1.125


   N  DF  Chi-Sq  P-Value
1000   4       9    0.061
```
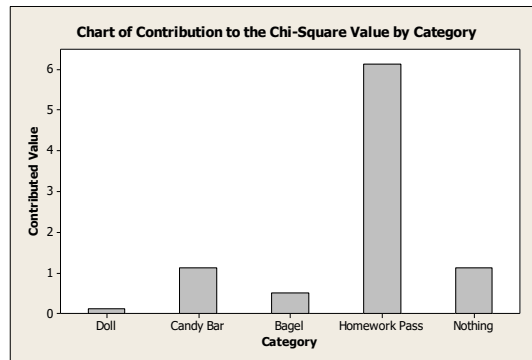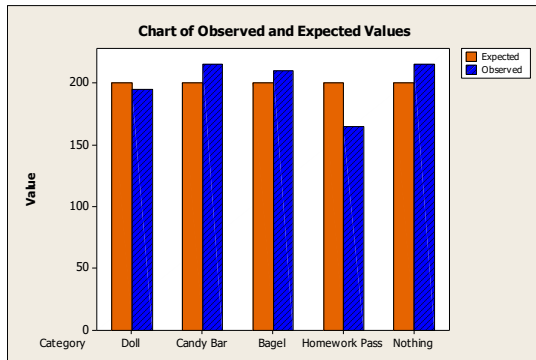
Conclude:

Fail to reject H₀, the P-value of 0.061 is greater than the alpha, α, level of 0.05.
There is not enough evidence to suggest that the MMSTC Wheel of Fortune is unbalanced.
There is a 6.1% chance of getting a difference in distribution of spins at least as extreme as we did by chance alone if H₀ is true.

Follow-up Analysis:

Looking at the two graphs we can see that the observed number of times each wheel part was landed upon was close to the number of times each was expected to get landed on.

The one part showing the largest difference between what was observed and what was expected was wheel part IV, the homework pass, contributed most to the chi square value. It was landed on less than expected but still within random variation of what was expected.