**Assignment 5 Template**

**LAST NAME: Lawson**

**FIRST NAME: John**

**USERID: jd2lawso**

**UWaterloo ID: 20466075**

**Problem 3: Fill in the information below based on your data which were generated using your ID number as the seed for the random number generator.**

**Number of observations = 106**

**Insert the table of observed frequencies here.**

**Height Indicator**

**Smoker Indicator Average Short Tall**

**Non-smoker 22 12 19**

**Smoker 13 24 16**

**Insert the table of expected frequencies here.**

**Smoker Indicator Average Short Tall**

**Non-smoker 17.5 18 17.5**

**Smoker 17.5 18 17.5**

**The hypothesis of interest is that the variate smoking and the variate height are independent variates.**

**The observed value of the likelihood ratio statistic for testing this hypothesis**

**= 6.675525**

**The degrees of freedom for the Chi-squared distribution = 2**

**The p-value = 0.03551633**

**Insert your conclusion regarding the hypothesis here.**

**Since this p value is greater than 0.05, the hypothesis is likely not true.**

**The observed value of the Pearson Goodness of Fit statistic for testing this hypothesis = 6.571429**

**The degrees of freedom for the Chi-squared distribution = 2**

**The p-value = 0.03741385**

**Insert your conclusion regarding the hypothesis here.**

**Since p > 0.05, this is not a good hypothesis**

**Suppose for your data you found evidence of a relationship between smoking and height. Can you conclude that a person’s height affects whether they smoke or not? Why or why not?**