Computer Lab Project No. 9

Goodness-of-Fit and Contingency Tables

Info

Here are the general procedures for a **Goodness-of-Fit** analysis:

1. Put the observed frequencies in one column and the hypothesized frequencies in another, so that they line up.
2. Click on Stat→Goodness-of-Fit→Chi-Square test.
3. In the popup-window, put the observed frequencies column in the text field labeled "Observed", and put the hypothesized/expected frequencies column in the field labeled "Expected".
4. Click on the "Calculate" button on the bottom right.

Contingency Tables:

You will have to enter the table you want to analyze into the spreadsheet. This process is described in the following three steps.

1. Enter the row labels in a column. So unlike the column headings, the row labels go in the body of the spreadsheet.
2. This step is not strictly necessary, but I would recommend to rename the following columns to match up with the column headings of the table you want to analyze.
3. Enter the frequencies in the appropriate cells of the spreadsheet. It should now look exactly like the table you want to analyze.
4. Click on "Stat" in the menu bar.
5. Click on "Tables", choose "Contingency", and click the option "with summary".
6. In the popup-window, under "Select column(s)", select all columns containing observed frequencies (by ctrl-clicking them in turn), and then in the next box titled "Row labels:", select the column with the row labels.
7. Make sure under "Hypothesis tests:", the Chi-Square test for independence is chosen.
8. Click on the "Compute!" button on the bottom right.

Do now

1. Two dice are rolled repeatedly. The frequency distribution of the results are as follows.

   Die 1:

Number	1	2	3	4	5	6
Frequency	20	12	11	8	9	0

   Die 2:

Number	1	2	3	4	5	6
Frequency	13	12	8	12	8	7

   For each die, test the hypothesis that it is fair, at a significance level of .01.

2. Refer to your textbook for a discussion of the following data describing the fate of passengers and crew on the Titanic:

	Men	Women	Boys	Girls
Survived	332	318	29	27
Died	1360	104	35	18

   Perform a test for independence between the categories of surviving/dying and passenger type, again at a significance level of .01.

Finish

Follow the instructions given in the *Do now* section. Make a pdf document titled "Lab9-Firstname-Lastname.pdf" containing the following:

- the P-values you got for the hypothesis tests you did (two goodness of fit tests and one independence test),
- your conclusions about these hypotheses (what is the null hypothesis, what is the alternative hypothesis, and what do you conclude, based on the P-value), in your own words.

Submit this pdf file via Blackboard as your Lab 9 assignment.