Lab 9

One-Way Analysis of Variance

Overview of Lab Session:
In this lab we use data to test the relationship between age and happiness. The data is based on surveys where respondents were asked to rate their happiness in three categories: very happy, happy, not happy. We perform a one-way analysis of variance to detect any difference in age or television viewing between the three groups.

I. Get Started
Use your ID number and password to log onto the computer.
Load the data www.csulb.edu/~saleem/Course-F08-503/Data/mw.sav

II. ANOVA
We perform a one-way analysis of variance between the three groups of happiness levels: very happy, pretty happy, not too happy. The null hypothesis is $\mu_1 = \mu_2 = \mu_3$; that is, there is no difference in the age (or television viewing habits) of the groups. In this lab we use the significance level .05.

STEP 1  Find Confidence Intervals for difference in means
- From the top menu choose Analyze > Compare Means>Independent-Sample t-Test
  - Choose the variable age
  - Choose the grouping variable happy
  - Choose Define Groups (put appropriate numbers that represent very happy and happy)
- Repeat the above for the for the variables “very happy” and “not too happy” and “happy” and “not too happy”

STEP 2  One-Way Analysis of variance
From the top menu choose Analyze > Compare Means>One-Way ANOVA
- Choose the dependent variable age
- Choose the factor happy
- From the tab Post Hoc choose Bonferroni
Worksheet for Lab 9

1. From the results of the SPSS output state the following 95% confidence intervals for the difference in means.

(a) *Very happy* and *happy* (__________, __________)

(b) *Very happy* and *not too happy* (__________, __________)

(c) *Happy* and *not too happy* (__________, __________)

(d) Sketch these three intervals on the following real lines:

   i. 

   ii. 

   iii. 

2. From the results of your SPSS data.

   (a) Report the results of the ANOVA test. Do we reject or fail to reject the null hypothesis based of this data? How significant is the result?

   ____________________________________________________________________

   ____________________________________________________________________

   (b) Which groups exhibited a significant difference in means?

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