PESIT Department of Computer Science and Engineering

Course: Regression
Semester: 2014 Spring (January – May)
Instructor: BNR (Dr. B. Narsing Rao)

Assignment: 11
Topic: Linear Regression
Due by: Midnight on Tuesday, April 22, 2014
Method: Send zip archive (.zip, .rar, etc.) by email to bnrao@pes.edu
The name of the zip archive should be: DA-A11-your USN-your name
(USN must be upper case and your name should be in mixed case)
The zip archive should contain the following (see below for details):

1. PDF report (see below)
2. Source file containing R functions (named DA-A11-USN-Name.R) used

The file brain-head.csv (accompanying this assignment) contains the following information on 237 adults: Head Volume (cubic cm) and Brain Weight (grams). (Source: R.J. Gladstone (1905) - "A Study of the Relations of the Brain to the Size of the Head", Biometrika, Vol. 4, pp105-123).

Write suitable R functions to do the following:

1. Generate a scatter plot of the data
2. Fit a linear model to predict brain weight from the head volume using the data
3. Determine the 95% confidence for the values of the regression coefficients
4. Generate a plot of the residuals as a function of the fitted values
5. Determine a 95% confidence interval for the predicted brain weight of an individual whose head volume is 4000 cc

Produce a report that summarizes the results as well as answers to the following questions:

1. Based on the scatter plot, is a linear model suitable? Explain.
2. Based on the residual plot, is a linear model suitable? Explain.