STAT 40001/MA 59800 Statistical Computing/ Computational Statistics Fall 201
Homework 3

Name:
Due : September 26, 2013 PUID:

Instruction: Please submit your R code along with a brief write-up of the solutions (do not submit ra output). Some of the questions below can be answered with very little or no programming. However, writ code that outputs the final answer and does not require any additional paper calculations.

Q.N. 1) Results from an experiment to compare yields (as measured by dried weight of plants) obtaine under a control and two different treatment conditions is provided in the data frame `PlantGrowth` in th R dataset.
a) How many observations are recorded in the data set
b) What is the mean of each of the control and treatment conditions?
c) Create side-by-side boxplots to compare the yields.

Q.N. 2) Load `Cars93` from the `MASS` package.
(a) Create density histograms for the variables `Min.Price`, `Max.Price`, `Weight` and `Length` variables usin different color for each histogram
(b) Superimpose estimated density curves over the histograms.

Q.N. 3) Generate 100 random numbers from normal distribution with mean 100 and standard deviatio 10. How many are 2 standard deviations from the mean (smaller than 80 or bigger than 120)?

Q.N. 4) If Z standard normal distribution find the following
a) $\boldsymbol{P(Z \leq 2.2)}$
b) $\boldsymbol{P(-1 \leq Z \leq 1)}$
c) $\boldsymbol{P(-1 < Z < 1)}$
d) $\boldsymbol{P(Z > 2.5)}$
e) b such that $\boldsymbol{P(-b \leq Z \leq b) = 0.90}$

Q.N.5) The `abd` package in R contains data sets reflated to Biological study. The data frame `TwoKid` in the `abd` package has of the information about the number of boys in two-child families. Display th information contain in the data choosing appropriate graphical method.