

Statistics 624: Statistical Computing

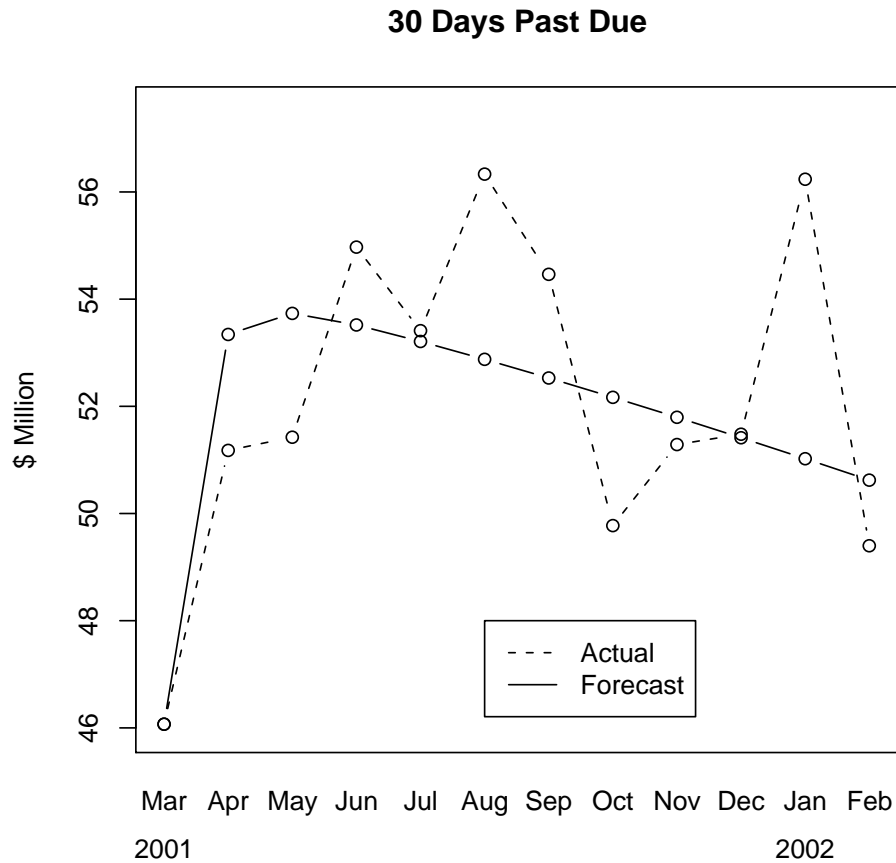
Homework # 3

Due Thursday, 13 Sep., 8am

In this assignment, please complete, organize, and turn in **electronically** to `stat625@stat.byu.edu`.

1. Create a data frame with the information in `rawdata1.txt`. Print the data frame with column names `date`, `movie`, `premier`, `repeat`.
2. Create a data frame with the information in `rawdata.csv`. Compute a new column in the data frame `diff=premier-repeat`. Print the data frame with dates as row names and column names `movie`, `premier`, `repeat`, `diff`.
3. Produce a data frame with 100 rows and 10 columns. Column j contains 100 realizations from a normal distribution with mean j and standard deviation 3 (declare `set.seed(12)`). The column names are `rn1, rn2, ..., rn10`. Provide the code and output from `summary` on the data frame.
4. Provide the code to produce a 10×10 matrix with 1 on the diagonal, .8 on the first off-diagonal, and 0 everywhere else.
5. Provide the code to produce an 8×8 matrix with 1 on the 3×3 upper diagonal partition, 2 on the 5×5 lower diagonal partition, and 0 everywhere else.
6. Create a data frame with the information in `HallOfFame.csv`. The column names are `id`, `yr`, `nomination`, `ballots`, `min.vote`, `votes`, `HOF`, `type`. Use the data to answer the following:
 - (a) Create a table of the number of `Player` voted by the `BBWAA` for each year.
 - (b) Create a histogram of the number of times `Player` are considered by the `BBWAA` before being voted into the `HOF`.
 - (c) Create a plot of the number of people voted into the `HOF` in their first year of consideration.

7. Recreate the following plot using the data in `delqbal.txt`.



8. Create a plot of the bivariate normal density with $\mu_x = 1$, $\mu_y = 2$, $\sigma_x^2 = 1$, $\sigma_y^2 = 2$, $\rho = -0.8$.
9. Create a function that takes as input vector `a` and returns a matrix with the first column containing `a` for non-missing values and zero for missing values, and the second column containing one for missing values and zero for non-missing values.