

FE-582 – Assignment 2

Problem 1

Follow the example in Lecture 3 on Modeling Runners' Times. Use the Race Results 1999-2012 link (http://cherryblossom.org/aboutus/results_list.php) to extract the Race Results for Order of Finish – Women for a couple of years. Extract and clean the data for as many years as you can. Please do the following

- Box Plot of Age by Year for Female Runners
- Scatter Plot for Run Times vs. Age for Female Runners
- Fit Models to Average Performance
- Side-by-Side Boxplots of Female Runners' Run Time vs. Age
- Residual Plot from Fitting a Simple Linear Model of Performance to Age
- Piecewise Linear and Loess Curves Fitted to Run Time vs. Age
- Line Plot of the Number of Female Runners by Year
- Density Curves for the Age of Female Runners for 2 years (smallest and largest year that you analyzed)
- Loess Curves Fit to Performance for 2 years (smallest and largest year that you analyzed) Female Runners
- Difference between Loess Curves of the predicted run time for 2 years (smallest and largest year that you analyzed)
- Compare the results of the performance of the male runners (previously analyzed in class) and female runners for the yearly data that you selected to analyze