Homework No. 2

This homework continues the use of the Worcester Heart Attack data which can be found in the Homework Assignments folder. .

Define the survival time of a subject as the time between admission to the hospital and death. If a subject is still alive at the last follow-up, the survival time is treated as censored.

1. Find the Kaplan-Meier estimator of the survival function.

2. Graph the estimated Kaplan-Meier survival function together with survival function estimator basedon the exponential model fit you obtained in your homework No. 1. Comment on what you see from the comparison.

3. Find an estimate for the median survival time based on the Kaplan-Meier estimator and construct a 95% confidence interval for the median survival time.

4. Find an estimate for the median survival time based on the exponential model fit and construct a 95% confidence interval for the median survival time.

5. Find the Kaplan-Meier estimators of the survival functions for female and male separately.

6. Graph the Kaplan-Meier estimators for male and female in a single graph and compare them.

7. Perform a test for the equality of the survival functions for male and female using a nonparametric approach.

8. Perform a test for the equality of the survival functions for male and female using the parametric approach based on the exponential model fit.

9. Compare the results of the nonparametric test and the parametric test. Comment on which test you would use for this dataset.