**Homework #1**

Consider the following dataset from a clinical trial of chemotherapy against chemotherapy combined with radiotherapy in the treatment of locally unresectable gastric cancer (Stablein & Koutrouvelis, 1985). The data are comprised of 90 survival and censoring times from two treatment groups of 45 individuals each. The data are as follows:

Survival Survival time In days from start of therapy

Death Death 0= Alive (censored); 1=Dead (not censored/event)

rx Treatment 0=Chemotherapy only; 1=Chemotherapy plus radiaton

Answer the following questions:

1. (30 points) Perform a Kaplan Meier analysis of the above data and plot the Kaplan Meier plot. Comment (briefly).
2. (15 points). Perform a log-rank test of the hypothesis of equality of the survival distributions. Comment.
3. (15 points). Perform a Wilcoxon test (option Wilcoxon in the command used in 2 above). Comment.
4. (10 points). Compare the results of the log-rank and Wilcoxon test and explain possible deviations in the interpretation of the study seen from the perspective of the one or the other test.
5. (10 points). Check graphically the proportionality assumption of the model. Comment.
6. (10 points). What is the null and alternative hypothesis corresponding to the Kaplan-Meier analysis?
7. (10 points). How should a physician (θεράπων ιατρός) explain the results of this model to a patient with unresectable gastric cancer who is pondering what treatment regimen (θεραπευτική αγωγή) to follow?