Homework # 10, Stat 526

1. The data reports the survival time (in weeks) from 30 patients with adult myelogenous leukemia(AML). Two possible prognostic factors are considered: patient is at least 50($x_1 = 1$) years old or not ($x_1 = 0$) and cellularity of marrow clot section is 100%($x_2 = 1$) or not ($x_2 = 0$).

   (a) Fit a cox proportional hazard model and test the significant of the main effects as well as the interaction effect. Use the plot to diagonostic your final model.

   (b) Write down your final model, including the estimates of the parametric and non-parametric part (you only need to point out the non-parametric part). State the patients in which group expected survive longer. Give the estimated survival functions and their 95% confidence intervals when $t = 20$. Plot the survival functions and compare this with Kaplan-Meier estimator.